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**Investigate multilingual mobile learning applications**

**By**

**Abduladim Ali**

**A thesis submitted to the University of Huddersfield in partial fulfilment of  
the requirements for the degree of Doctor of Philosophy**

**The University of Huddersfield**

**May 2017**

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## **Dedications and Acknowledgements**

At the beginning of the thesis, I should thank my Almighty God for the strength and patience that were given to me during my study. Also I would like to express my sincere gratitude and appreciation to my supervisor Professor Joan Lu for her timely and practical feedback.

Although the value of my gratitude cannot compare with everything they have done for me, I dedicate this work to:

*My dearest parent*

*My wife*

*My kids*

*My friends*

## **Publications and conferences**

Ali, A., & Lu, J. (2016). *Internationalisation Testing for a Multilingual Based Wireless Response System: A Case Study*. In MOBILITY 2016: The Sixth International Conference on Mobile Services, Resources, and Users (pp. 7-12). IARIA, Valencia, Spain.

Ali, A., & Lu, J. (2014). *Internationalisation and Localisation of a Wireless Response System for the Arabic Language*. In The Fourth International Conference on Advanced Communications and Computation. IARIA, Paris, France.

## **Abstract**

The main aim of this thesis is to investigate multilingual mobile learning applications by using the wireless response system (WRS) as a case study. This application is developed and internationalised into fourteen languages, to allow students and teachers from different languages to use this application, with a view towards enhancing the educational environment. Additionally, one related aim is to detect the usability of the multilingual mobile learning application in these languages, by measuring the effectiveness, efficiency, user satisfaction and comprehensibility of the WRS, through the adoption of the Fuzzy theory. Drawing on a survey of 295 participants, the results indicate significant differences between the original language of the interface (i.e., English) and certain other language interfaces, in terms of its effectiveness, efficiency, user satisfaction and comprehensibility. These variances make the usability level of the WRS in the English language interface significantly better and statistically different from the Netherlands, Dutch, French, Italian, Swedish, Russian, Romanian, Spanish and Turkish languages. However, the results show that the usability level of the WRS interface in the English language is not significantly better and statistically different from the Arabic, Chinese, Portuguese, Malay and Polish languages. These results encourage future studies to further improve the mobile learning application in languages that demonstrated low usability values. These results will help researchers in this field to recognise the problems and weaknesses of multilingual mobile learning applications, towards improving and solving them. The significance of this thesis lies in making the WRS application available in fourteen languages, and also in measuring the usability of these fourteen languages through the application of (1) Fuzzy theory and (2) SPSS software. The use of the Fuzzy theory to measure the collected data leads to obtaining accurate and precise results, facing the vagueness and ambiguities of the user's language surrounding the analysis process. In other words, this theory adds a clearer and more accurate understanding of the

vagueness of language's uncertainty, opinion and ambiguous expressions that are hidden in different users' backgrounds.

## Table of Contents

Copyright Statement.....	2
Dedications and Acknowledgements .....	3
Publications and conferences .....	4
Abstract.....	5
Table of Contents .....	7
List of Tables .....	11
List of Figures.....	13
<b>CHAPTER ONE: INTRODUCTION .....</b>	<b>14</b>
<b>1.1 Introduction.....</b>	<b>14</b>
<b>1.2 The research problem.....</b>	<b>14</b>
<b>1.3 Research motivation .....</b>	<b>15</b>
<b>1.4 Research aim and objectives .....</b>	<b>16</b>
<b>1.5 Research questions.....</b>	<b>16</b>
<b>1.6 Research significance.....</b>	<b>17</b>
<b>1.7 Structure of the thesis .....</b>	<b>18</b>
<b>1.8 Summary .....</b>	<b>19</b>
<b>CHAPTER TWO: LITERATURE REVIEW .....</b>	<b>20</b>
<b>2.1 Introduction.....</b>	<b>20</b>
<b>2.2 Background .....</b>	<b>20</b>
<b>2.3 A review of Mobile and E-learning .....</b>	<b>21</b>
<b>2.3.1 E-Learning .....</b>	<b>21</b>
<b>2.3.2 Mobile learning.....</b>	<b>22</b>
<b>2.3.3 The relationship between M-Learning and E-Learning .....</b>	<b>23</b>
<b>2.4 Localising and internationalising the mobile learning applications.....</b>	<b>27</b>
<b>2.4.1 Localisation Issues .....</b>	<b>27</b>
<b>2.4.2 Localisation Testing.....</b>	<b>29</b>
<b>2.4.3 Globalisation (g10n) and Internationalisation (i18n).....</b>	<b>30</b>
<b>2.4.4 The process of globalising the application.....</b>	<b>32</b>
<b>2.5 Usability .....</b>	<b>33</b>
<b>2.5.1 Usability evaluation method.....</b>	<b>34</b>
<b>2.5.2 Usability attributes .....</b>	<b>40</b>
<b>2.5.3 The usability and localisation.....</b>	<b>40</b>
<b>2.5.4 Usability testing of localisation.....</b>	<b>43</b>
<b>2.5.5 The usability and mobile application .....</b>	<b>44</b>
<b>2.5.6 Usability and fuzzy set .....</b>	<b>47</b>
<b>2.6 Fuzzy theory .....</b>	<b>48</b>



2.6.1	Multi criteria decision making (MCDM) .....	48
2.6.2	Fuzzy AHP method.....	49
2.6.3	Fuzzy set and fuzzy numbers .....	50
2.6.4	Fuzzy Operations.....	51
2.6.5	The procedure .....	53
2.7	Summary.....	53
<b>CHAPTER THREE: RESEARCH METHODOLOGY.....</b>		<b>54</b>
3.1	Introduction.....	54
3.2	Research methodology .....	54
3.3	Research philosophy .....	56
3.4	The research attributes.....	58
3.5	The model of the research .....	59
3.6	Data collection methods and techniques .....	60
3.6.1	Questionnaire.....	60
3.6.2	Questionnaire development process .....	61
3.6.3	The pilot study .....	62
3.6.4	Population and sample .....	63
3.6.5	The participants .....	64
3.7	Types of data .....	65
3.8	Data analysis.....	65
3.8.1	Preparing the data .....	66
3.8.2	Analysing the data .....	66
3.8.3	Interpreting data .....	67
3.9	Reliability and validity .....	67
3.10	Ethical issues.....	69
3.11	Summary.....	70
<b>CHAPTER FOUR: IMPLEMENTATION OF THE CASE STUDY (WRS) .....</b>		<b>71</b>
4.1	Introduction.....	71
4.2	Student Response System (SRS) and Wireless Response System (WRS) .....	71
4.3	Development of the WRS .....	75
4.4	Multilingual WRS process.....	79
4.4.1	The Procedures and Techniques .....	79
4.4.2	Programming the WRS .....	80
4.4.3	Translation and internationalisation.....	83
4.5	Testing WRS in all languages .....	85
4.6	The differences between the original and the developed system .....	86
4.7	Summary.....	87

<b>CHAPTER FIVE: DATA ANALYSIS AND RESULTS.....</b>	<b>88</b>
<b>5.1 Introduction.....</b>	<b>88</b>
<b>5.2 Descriptive statistics.....</b>	<b>88</b>
5.2.1 Descriptive.....	88
5.2.2 Demographic data .....	89
<b>5.3 Normality of distribution.....</b>	<b>90</b>
<b>5.4 Data analysis and results .....</b>	<b>91</b>
5.4.1 Determining the usability of the WRS using Fuzzy theory .....	91
5.4.2 Testing the research hypothesis .....	103
<b>5.5 Summary.....</b>	<b>127</b>
<b>CHAPTER SIX: DISCUSSION AND CONCLUSION.....</b>	<b>128</b>
<b>6.1 Introduction.....</b>	<b>128</b>
<b>6.2 The usability of WRS application.....</b>	<b>128</b>
6.2.1 The effectiveness of WRS.....	128
6.2.2 The efficiency of WRS .....	130
6.2.3 User’s satisfaction with WRS implementation .....	131
6.2.4 Comprehensiveness of the WRS application .....	132
6.2.5 The relationship between the effectiveness, efficiency, satisfaction, comprehensibility and the usability of the WRS application.....	134
6.2.6 The differences between the usability level of the English language and the other languages.....	135
6.2.7 Translating the WRS application and its overall usability.....	136
6.2.8 Summary of results .....	137
<b>6.3 Contributions.....</b>	<b>138</b>
6.3.1 Theoretical contributions.....	138
6.3.2 Practical contributions.....	139
<b>6.4 Implications for future research.....</b>	<b>140</b>
<b>6.5 Limitations.....</b>	<b>141</b>
<b>6.6 Summary.....</b>	<b>141</b>
<b>References.....</b>	<b>143</b>
<b>APPENDICES.....</b>	<b>153</b>

## **List of Abbreviations**

AOU: Arab Open University.

E.L: Electronic Learning.

E.L: Electronic Learning.

G10n: Globalization.

GILT: Globalization, Internationalisation, localization and translation

i10n: localization.

i18n: Internationalisation.

ICT: Information and Communications Technology.

IDE: Integrated Development Environment.

ITU: International Telecommunication Union.

LAN: local Area network.

M.L: Mobile Learning.

SEU: Saudi electronic university.

UAE: United Arab Emirates.

UID: unique identifier.

WRS: Wireless Response System.

XDIR: XML Database and Information Retrieval.

XML: Extensible Markup Language.

## List of Tables

Table 2.1 The differences between the M-learning and E-learning.....	22
Table 2.2 A general view of all testing requirements.....	30
Table 4.1 Compiling the resource bundles in Flex builder .....	79
Table 4.2 WRS Interface Translation .....	80
Table 4.3 Attributes for the system interface.....	126
Table 5.1 Descriptive statistics .....	89
Table 5.2 Demographic data .....	90
Table 5.3 Normality of distribution .....	91
Table 5.4 Likert scale.....	92
Table 5.5 Rates values .....	94
Table 5.6 Rates values .....	95
Table 5.7 Weights values.....	95
Tables 5.8 Sub-attribute 1: Rates and weights.....	95
Tables 5.9 Sub-attribute 2: Rates and weights.....	96
Tables 5.10 Sub-attribute 3: Rates and weights.....	96
Tables 5.11 Sub-attribute 4: Rates and weights.....	97
Tables 5.12 Rates * weights attribute A .....	97
Table 5.13 Rates * weights attribute B .....	98
Table 5.14 Rates * weights attribute C .....	99
Table 5.15 Rates * weights attribute D.....	100
Table 5.16 Rates * weights for the usability.....	101
Table 5.17 Usability for all languages .....	103
Table 5.18 Group Statistics.....	105
Table 5.19 Independent Samples Test .....	105
Table 5.20 T-test comparing the effectiveness of the WRS in English language and all other languages .....	107
Table 5.21 T-test comparing the efficiency of the WRS in English language and all other languages .....	111
Table 5.22 T-test comparing the user's satisfaction with WRS implementation in English language and all other languages.....	115
Table 5.23 T-test comparing the comprehensiveness of the WRS in English language and all other languages.....	119

Table 5.24 Regression analysis for the research variables..... 120

Table5.25 T-test comparing the usability of the WRS in English language and all other languages .124

## List of Figures

Figure 2.1 Inter-relationship GILT. ....	31
Figure 2.2 Interdependence of all stages in GILT cycle .....	32
Figure 2.3 The Process of Globalisation .....	33
Figure 2.4 Fuzzy membership function $\mu(z)$ .....	51
Figure 3.1 Representation of the theoretical framework as a model for study .....	59
Figure 4.1 WRS Application (Teachers).....	74
Figure 4.2 The Architecture of WRS .....	78
Figure 4.3 The technique to localise languages into the WRS .....	80
Figure 4.4 Initial step in the programming process.....	81
Figure 4.5 The coding .....	83
Figure 5.1 Hierarchical structure for usability.....	93
Figure 5.2 Membership function of the levels of linguistic variables.....	94
Figure 5.3 Rate value for the Effectiveness.....	98
Figure 5.4 Rate value for the Efficiency .....	99
Figure 5.5 Rate value for the Satisfaction.....	100
Figure 5.6 Rate value for the Comprehensibility .....	101
Figure 5.7 Rate value for the Usability .....	102
Figure 6.1 Effectiveness values for all languages.....	129
Figure 6.2 Efficiency values for all languages.....	130
Figure 6.3 Satisfaction values for all languages.....	132
Figure 6.4 Comprehensibility values for all languages.....	133
Figure 6.5 Usability for all languages. ....	133
Figure 6.6 Values for the four attributes.....	133

## **CHAPTER ONE: INTRODUCTION**

### **1.1 Introduction**

This chapter offers an overview of the current thesis in terms of its research problem, aim and objectives, and its theoretical and practical relevance. First, this introductory chapter discusses the research problem that emerged, based on reviewing the extant literature and the salient theories. Second, the aim and objectives are presented, with a particular focus on the research questions. Third, this chapter stresses the significance that this thesis will have, and finally, the structure of the thesis is also presented.

### **1.2 The research problem**

A rapid increase in using new technologies around the world has influenced the system of how we teach and learn. There is a remarkable increase in the use of mobile devices to enhance the learning process. The adoption of mobile applications in the learning environment involves special measures and requirements. Using mobile learning worldwide needs to take into account cultural differences, since every culture or country has its own unique localised needs. These can be measured according to the usability and its acceptability to the user of the technical tools, and the mobile applications that bring a disruptive change to the education system, by changing the learning system into an informal process, which is faster, inexpensive and better motivated (Al-Amoudi, AlMazrui, Al-Moaiqel, AlOmar, & Al-Koblan, 2013).

The aforementioned change is becoming more and more evident on a global scale. A Wireless Response System (WRS), as an example of mobile learning software, can assist this change (Albalooshi, Mohamed, & Al-Jaroodi, 2011), offering a faster, cheaper and flexible opportunity of E-learning. The Wireless Response System (WRS) is a new learning application, which has been designed and developed at the University of Huddersfield by the XDIR group, under the supervision of Professor Joan Lu. This application enables teachers and students to ask questions and provide feedback using hand held mobile devices, such as smartphones and tablets.

To make such a system available on a global scale, the internationalisation process of mobile learning applications is the initial step to make it available in different languages. The internationalisation process requires different techniques and approaches, which are essential to understand other languages and cultural specifics, in order to create a more globalised E-learning environment.

This thesis, therefore, aims to use the WRS as a case study to ascertain the technical procedures to internationalise the mobile learning application, as well as investigate the issues and the problems that face the process of turning the application from its origin interface (English) into other interfaces: Arabic, Chinese, Dutch, French, German, Italian, Malay, Polish, Portuguese, Romania, Russian, Spanish, Swedish and Turkish. Moreover, it will investigate the usability of WRS, by measuring effectiveness, efficiency, user satisfaction and comprehensibility in order to discover the needs and the requirements behind a successful internationalised mobile learning application.

### **1.3 Research motivation**

Given the present insufficient academic attention on mobile learning applications that are operating on a global scale (with different languages), the researcher was motivated to cover this gap in practice. In addition, based on the academic and professional experience of the researcher, the main aim of this thesis was invoked to allow students with different languages to access a mobile learning application with their different languages, with a view towards making the mobile education system more extensive and comprehensive.

Specifically, the Wireless Response System (WRS), as a new learning application, was adopted for the present thesis to be further developed into fourteen different languages. This application has been designed and developed at the University of Huddersfield by the XDIR group under the supervision of Professor Joan Lu.



## 1.4 Research aim and objectives

The main aim of this thesis is to measure the usability of the WRS application in fifteen different languages. To achieve this, seven objectives were developed, which are as follows:

**Objective 1:** Investigate the effectiveness of using WRS in all languages.

**Objective 2:** Investigate the efficiency of using WRS in all languages.

**Objective 3:** Investigate user satisfaction with WRS implementation in all languages.

**Objective 4:** Investigate the comprehensiveness of the WRS application in all languages.

**Objective 5:** Examine how effectiveness, efficiency, satisfaction and comprehensibility lead to a greater usability of the WRS application.

**Objective 6:** Examine the differences between the usability level of the English language and the other languages.

**Objective 7:** Explore how translating the WRS application into other languages may affect its overall usability.

## 1.5 Research questions

As the mobile learning application is currently being used only in English, the researcher will seek to answer the following key question:

*How usable is the WRS application? What challenges does it face?*

To answer the main question, there are seven sub-questions that must be answered first, which are as follows:

**Question 1:** What is the effectiveness of the WRS application in all languages?

**Question 2:** How efficient is the WRS application in all languages?

**Question 3:** What is the satisfaction level of users of the WRS application in all languages?

**Question 4:** What is the comprehensibility level of the WRS application in all languages?

**Question 5:** Does the effectiveness, efficiency, satisfaction and comprehensibility of the application lead to greater usability of the WRS application?

**Question 6:** Are there any differences between the usability level of the English language and the other languages?

**Question 7:** Does translating the WRS application into different languages affect its overall usability?

## **1.6 Research significance**

This thesis will make the WRS and other learning applications more accessible for many new users, who will have access to the mobile learning applications in their native languages. This access will help teachers and students in educational contexts, and make teaching and testing accessible, efficient, and effective. The study will ascertain the challenges of internationalisation approaches to mobile learning applications, and moreover, will provide the field with a testing strategy to ensure the successful internationalisation of the mobile application. The literature review will add further information and knowledge to the field of internationalisation, globalisation and approaches to mobile applications.

Specifically, the primary contribution of this research is to create and design a multilingual mobile learning application. Studies on the usability evaluation of multilingual mobile learning applications are conducted using the Fuzzy test theory. This approach is new in the history of usability tests on internationalised mobile learning applications.

Testing and evaluating this application in the context of usability and adopting the application into different cultures will add to the context of how different cultures can adopt the same mobile application, and will further show how Fuzzy theory can be used to evaluate and scale the usability test. The results of this evaluation will provide helpful guidelines to develop the usability of multilingual mobile learning applications, since different locales and cultures need to develop high quality mobile learning applications. The results of the data will be evaluated, and finally, we will identify the overall usability issues that need to be improved upon and taken into account while designing multilingual mobile applications.

## 1.7 Structure of the thesis

This section depicts the structure of the thesis, which includes six chapters.

*Chapter two* aims to offer a theoretical background for the present thesis, by reviewing the extant literature. It presents the background of the thesis, offering a general overview of the problem under study, whilst concentrating on the definitions of E-learning and Mobile learning. Additionally, a review of the localisation issues is presented, with a particular focus on testing and evaluating the internationalisation outcomes. Then, aside from the internationalisation process, this chapter explains the globalisation and internationalisation of the mobile application. This chapter also offers a detailed illustration of the usability of mobile applications in terms of its evaluation and its attributes. Finally, this chapter illustrates the Fuzzy theory as a theoretical underpinning for the present thesis.

*Chapter three* highlights the philosophical premises of the thesis, and explains the research methodology that was used to achieve its aims and objectives. This chapter is organised as follows. First, with a view towards re-contextualising this thesis, it presents the definitions of the variables, the model of the study, the hypotheses of the research, and the case study that was used. Second, it illustrates the research process, which includes the questionnaire development and data collection processes. Third, the chapter provides a detailed discussion of the quantitative data analysis techniques, with a further explanation of the case study. Finally, it touches on the ethical issues of conducting this research.

*Chapter four* offers a detailed review of the wireless response system (WRS), with a view to provide a holistic image of this system in terms of its history, purpose, implementation and capabilities. This chapter starts by describing the original system (i.e., developed by others), and then moves to explain what the researcher of this thesis done. Specifically, the chapter discusses how this system operates in fourteen different languages. This includes a review of the platform of the system, the procedures conducted towards this end, the programming techniques, internationalisation processes and the testing of the final system. Finally, this chapter touches on the differences between the original and the developed system.

*Chapter five* explains the techniques that were used to evaluate the usability of the WRS towards achieving the research objectives. This chapter begins by re-introducing the research model and hypothesis to link them with data analysis techniques. Then, the descriptive data is presented, including some demographic information of the surveyed sample, as well as information on the distribution of the data. Additionally, this chapter offers the steps that were used to evaluate the usability of the WRS application, following (1) the Fuzzy theory and (2) the SPSS software in order to test the research hypothesis.

*Chapter six* discusses the results and findings of the present thesis, based on the objectives that emerged towards evaluating the usability of the WRS application. The structure of this chapter is as follows. First, a detailed discussion of the effectiveness, efficiency, user satisfaction and comprehensibility of the WRS application is offered, whilst discussing their relationship with the usability of the WRS application. Furthermore, this section also describes the differences between the usability level of the English language and the other languages. Second, this chapter describes the contributions achieved by this research, with a particular focus on its limitations, with a view to highlight possibilities for future work.

## **1.8 Summary**

This introductory chapter offered a general overview of the thesis by touching on the research problem that this thesis seeks to address. This chapter also discussed the research aim, objectives and questions that emerged based on the practical and theoretical premises. In addition, this chapter described the structure of the thesis. The next chapter presents a comprehensive view of the extant literature and salient theories.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This chapter aims to offer a contextual and theoretical background for the current thesis, by reviewing the extant literature. The structure of this chapter is as follows. First, it describes the background of the thesis, offering a general overview of the problem under study, whilst concentrating on the definitions of E-learning and mobile learning. Second, a review of the localisation issues is presented, with a particular focus on testing and evaluating the internationalisation process outcomes. Also, aside from the internationalisation process, this chapter explains the globalisation and internationalisation of the mobile application. Third, the chapter offers a detailed illustration of the usability of the mobile applications in terms of its evaluation and its attributes. Finally, the chapter discusses the Fuzzy theory, as the theoretical underpinning for the present thesis.

### **2.2 Background**

Multilingualism within mobile learning systems remains a problem, and has not received sufficient attention by researchers. The present research is important in order to contribute towards the provision of a new model of educational process, making the mobile education system more extensive and comprehensive, so that many different users in their cultures and languages can use it. Mobile learning contributes more to the provision of flexible and appropriate learning experiences for different types of learners globally, in order to meet the needs of each learner and their circumstances. It also possesses the appropriate flexibility and interactivity, despite using multiple languages and cultures.

Mobile devices have been described as a new learning style, which help us learn during work or leisure, in a very active way (Laouris & Eteokleous, 2005; Shackel, 2009). Getting access to education via mobile devices is not only a necessity, it is also a real possibility, which has already been accomplished by many students. It is no coincidence that M-Learning is becoming a priority issue in educational technology research (Brantes Ferreira, Zanela Klein, Freitas, & Schlemmer, 2013).

The number of articles on this subject has dramatically increased in academic databases, especially after 2010. (G. J. Hwang & Tsai, 2011) state that scientific publications on the subject have grown exponentially in the last 5 years (G. J. Hwang & Tsai, 2011, p. 8), and further define M-Learning as “the using of mobile technologies to facility learning”. (Traxler, 2009) believes that M-learning is sometimes considered an extension of E-Learning, since it is seen as an E-Learning initiative accomplished through the use of mobile devices (Mahat, Ayub, & Luan, 2012, p. 9).

### **2.3 A review of Mobile and E-learning**

The following section reviews the extant literature on E-learning and M-learning in terms of its definitions, application, their relationships and the application of mobile learning on a global scale.

#### **2.3.1 E-Learning**

E-learning is a term that dates back to the 1980s. Bates defines E-learning as an “education process exchanged on a new technology device, such as a PC computer, desktop computer, tablet or smart mobiles which can be used to performance learning process ”(Bates, 2005). The goal of using E-learning is to provide a framework for understanding the application of E-learning in higher education. The use of E-learning has been described as a revolution in higher education (DiBiase, 2000).

Others have suggested that E-Learning technology is unique (Kaye, Mason, & Harasim, 1989). E-Learning supported the increase of the speed and the power of communication, and also allows more hand held devices to send, receive and use information (Gress et al., 1999, p. 57). Additionally, it reduces and facilitates the bridge between time and space for educational purposes. E-Learning is defined in its formal context as spontaneously arbitrated synchronous technical communication for the purpose of creating and delivering knowledge. The internet is the technological foundation for E-learning. The term E-learning is from the

mid-1990s, following the rapid development of the World Wide Web and an interest in asynchronous chat groups (Galliers, Merali, & Spearing, 1994).

E-learning is described as a modern method of using computers and information technologies to create an informal learning experience. This definition offers the freedom to choose how knowledge is created without restricting and limiting the process. E-learning can be delivered in different ways, including “online courses, practical classroom courses, learning games embedded with E-Learning, combined learning, portable learning and knowledge management (Sun & Lin, 2009).

### 2.3.2 Mobile learning

Different authors ((Mostakhdemin-Hosseini & Tuimala, 2005) describe the phenomenon of mobile learning as the development of E-learning, through adding the feature of wireless technology. It is also described as a new phase of the E-learning process (Caudill, 2007) (Bidin & Ziden, 2013).

E-Learning	M-Learning
Computer	Mobile
Bandwidth	GPRS, G34, Bluetooth
Multimedia	Objects
Interactive	Spontaneous
Hyperlinked	Connected
Collaborative	Networked
Media rich	Light weight
Distance Learning	Situated Learning
More formal	In formal
Simulated situation	Realistic Situation
Hype learning	Constructivism Situation ism, Collaborative.

**Table 2.1 The differences between M-learning and E-learning (Dirin, 2016)**

Among these common features, there are differences in the terminological description between E-Learning and M-Learning. For instance, in E-Learning, the dominant terms are multimedia interaction, hyperlinks, and the media-rich atmosphere in the mobile-Learning context produces terms such as “spontaneous, intimate situated, connected, informal, lightweight, private, personal, etc.” (Dirin, 2016). Table 2.1 shows the differences between E-learning and M-learning.

(Pinkwart, Hoppe, Milrad, & Perez, 2003) define E-learning as a learning process delivered through mobile tools, such as tablets, smart phones, laptops since “E-learning uses mobile devices and wireless technologies to deliver knowledge. On the other hand, (C. Quinn, 2000)) defines it as an “informal learning process that is supported by the help of mobile devices.” (C. Quinn, 2000)

### **2.3.3 The relationship between M-Learning and E-Learning**

E-learning is defined by (C. N. Quinn, 2011) as the development process or activity that motivates learners to increase their creativity when cooperating through the digital portal devices that individuals utilise. Different improved technologies have been presented to simplify and assist with the value of the teaching and learning process. There has been a rapid growth of mobile application users; mobile devices are attractive as accessible tools to use for learning. Using a mobile device in the learning process facilitates and motivates the system of education (Mostakhdemin-Hosseini, 2003).

In fact, M-Learning is one area that has greatly impacted the teaching and education sectors. Therefore, having an internationalised mobile learning system is fundamental for students and teachers to exchange information and knowledge between each other and motivate the process of learning (Reiser & Dempsey, 2012). Simkova et al (2012) highlighted how mobile learning is considered an interesting technique that improves the learning process. Unfortunately, many countries have not caught on, and it is still basically an unknown concept (Simkova et al, 2012)



The widespread use of wireless technologies has motivated schools, colleges, universities and other education institutions to use mobile technology to improve their learning and teaching methods (Abu-Al-Aish & Love, 2014). These devices have facilitated interaction and collaboration between teachers and students (Khaddage, Lanham, & Zhou, 2009). Previous studies have defined the M-Learning process as the features of the mobility of learners, mobile devices and applications. (Khaddage, et al., 2009)

(Berge & Muilenburg, 2013) observed that the relationship between M-Learning is dependent on the use of wireless mobile devices, which simplifies the learning process (Berge & Muilenburg, 2013). Some have defined mobile learning in terms of its technology (Naismith et al, 2004), whereas others have defined it in terms of the mobility of the same (Keegan, 2005). Pointing out the fact that devices are easy to carry and use at any time, Keegan excludes laptops from his definition, even though they are portable (Pachler, Bachmair, Cook, & Kress, 2010).

Ronchetto's (2003) focus is on the size of the device and its autonomy. Similarly, Nikolaj (2006) views M-Learning as the natural next step in the evolution of E-Learning (Crescente & Lee, 2011). M-Learning is also described as the interaction between web-based learning and E-Learning, providing an anytime, anywhere solution to learning (Khaddage, et al., 2009). Sapounas (2004) believes that M-Learning and E-Learning intersect to design an anytime, anywhere learning practice. Liu and Han (2010) suggest that the use of M-Learning will be crucial to modern learning and educational channels (Lam, Wong, Cheng, Ho, & Yuen, 2011).

#### **2.3.4 Mobile learning applications in a global scale**

There are different reasons to encourage the use of mobile technologies to enhance learning systems (Kukulaska-Hulme, 2005). The reasons for this can be summarised as follows: (1) to improve access to materials resources of learning, (2) to explore the potential learning process and foster a collaborative learning environment, and (3) in terms of academic and

practitioner requirements, M-learning can also be used within different learning theories, including practical, combined and situated learning (Kearney, Schuck, Burden, & Aubusson, 2012) (Ally & Tsinakos, 2014).

Most universities are developing their own mobile applications to assist students with keeping in contact with their course resources. The Open University in the United Kingdom was the first university to roll out a mobile application campus. This mobile application offered mobile access to all undergraduate academic materials and resources (Ferran-Ferrer et al., 2014).

According to (Buck, Horbel, Kessler, & Christian, 2014), 21 billion mobile applications were downloaded worldwide in 2013 alone. In 2014 (Gao, Bai, Tsai, & Uehara, 2014) the income of mobile applications around the world was expected to grow larger than \$330 billion by 2015. Moreover, it is noticeable that there has been a significant increase in the use of mobile applications. A recent study by Meeker and Lu highlighted how worldwide Internet traffic would increase in 2015 by more than 15% with access from mobiles, compared with access by desktop (Meeker, 2013).

Today, many application enterprises in areas such as banking, shopping markets and other sectors, such as healthcare and education, are directing the global audience, which breaks down borders and works with users without the limitations of time or space, in order to ensure that applications have suitable global versions (Eisenmann, Parker, & Van Alstyne, 2006).

The rapid increase of mobile devices all over the world has seen local industries adopt the use of mobile applications. The use of mobile applications helps in improving the quality of services introduced to people, for example, in health services, banking and education (Mahat, et al., 2012). It is clear that the rapid increase in the improvement of development tools and technologies has increased motivation to use mobile devices for education purposes (Little, 2013).

The number of mobile users has increased from 1 billion in 2000, to over 6 billion in 2014. Due to the rapid development of mobile devices, mobile learning strategies have a great opportunity to develop effective learning tools (Rossing, Miller, Cecil, & Stamper, 2012). The development of mobile device technologies has simplified the use of multimedia in mobile applications and allows learners access to a wide range of knowledge and information materials (Jeng, Wu, Huang, Tan, & Yang, 2010), using mobile devices and helping learners to obtain learning material anytime and anywhere (Aresta, Pedro, & Santos, 2015; Embi & Nordin, 2013).

The use of mobile applications in the learning process has been applied to several different countries, in both developed and developing countries. For example in Portugal, mobile learning applications have been developed for analogy electronics courses for higher education. The motivation behind this project is to help students, and offer knowledge and information anywhere and anytime, but not replace the traditional methods of teaching (Guerra, Francisco, & Madeira, 2011).

In New Zealand, Auckland, a mathematics tutor application has been created for primary students. The application is designed to assist students with learning and practising single digit addition and subtraction by using numbers and images (Henderson & Yeow, 2012). A graphical user interface with colours has been chosen to ease the learning process and make it fun in order to attract children. When they complete a certain level, they receive models to encourage them to learn. Another element of the application is designed to include functionalities such as a language section and an exercise mode selection (Lamberton & Stephen, 2016) . In Argentina, Susana et al (2015) applied research to mobile technologies in engineering education, and investigated basic technologies, applied technologies and training, along with complementary training. (Susana et al , 2015)

In the West Indies, (Balbag et al.) designed a mobile mathematics application to investigate the value of personalisation in a mobile learning application. This application was created for high school students and consists of lessons, examples, tutorials, quizzes and games (Balbag, et al.). In 2003 (Seppälä & Alamäki, 2003) a teaching mobile learning application was

introduced to aid teacher training. This was a multi-media application which supported the students and teachers to exchange information via text messages, while using images and pictures to provide direct insights into the classroom (Seppälä & Alamäki, 2003).

In 2008, a study was conducted to examine the effectiveness of mobile learning, while using podcast revision lectures. Podcasting is a technique that assists students in revising multimedia any time after finishing a course in the department of information and communication technology (ICT). During the final exam, the students can use a revision podcast to revisit the course materials (Evans, 2008).

Hashim, Ahmad and Ahmad (2011) designed an M-Learning application in order to enable students to revisit the resources and materials of a course. The application was created for use both online and offline and deals with three different subjects: Science, English and Mathematics. Students can review their lectures using this application (Hashim, et al., 2011).

## **2.4 Localising and internationalising the mobile learning applications**

This section discusses localisation issues and the testing of mobile learning applications, and the process of internationalising and globalising these applications, with a particular focus on their relationships.

### **2.4.1 Localisation Issues**

According to Esslinek (2000), no two localisations are the same, because each project that is under the localisation process faces surprises when it goes through this process in a positive or negative sense. Huge and complex technical projects may easily finish this operation, but small projects may become a nightmare and become more complex during this process (Esselink, 2000b).

Cyr and Trevor Smith (2004) indicate that there are some aspects that should be considered during the localisation process. These include language representation, variations in the use of symbols, content, and structural characteristics across cultures. Pym divided these issues into two main categories, with the sub sections of linguistic issues and cultural issues (Pym, 2004). The localisation process faces different issues, since it is a complex technique, and employs different methods and techniques (Amant, 2005; Barber & Badre, 1998; Tomlinson, 1999).

Esslink (2002) shows that testing can have different meanings in the context of software localisation. The cosmetic test is conducted during the process of localisation, and it is essential to focus on discovering problems, rather than verifying whether or not the application works (Esselink, 2000b). The cosmetic test is the first, which focuses on the internationalisation test. This is a very important phase, and helps minimise problems during the localisation process, by ensuring that the function of the original application is not affected (Gambier & Van Doorslaer, 2009). Esslink (2002) shows that testing can have different meanings in the context of software localisation. Localisation includes the adoption of the cultural elements of the target language's locale. The technical elements concerned with the localised target culture are listed below (Esselink, 2000).

There are a number of issues that affect the localisation of any website (Becker & Mottay, 2001). One of the most common issues is page layout in Latin languages, since web interfaces were originally designed left to right, with the appearance of text lines below each other. However, Arabic and Hebrew are right to left languages. The languages of East Asian countries, such as Japanese, are laid out top to bottom, with lines right to left. This issue concerns the colour of the interface in western countries - red describes wariness, and white reflects peace, black means sadness, and green reflects growth or money (Klein et al., 2012). However, in Asia, red is joyful, white indicates sadness, and black is lucky. In Arabic and Muslim countries, green has a holy meaning (Klein, et al., 2012).

Another issue is the display of the interface content. In the west countries, the most important object should be displayed in the upper left corner of the interface, whereas in Arabic

countries, Israel, and East Asia, the most essential object should be appear in the upper right side of the interface. One of the most important things that should be taken into consideration is examining the meaning of the colours of the web page or interface (Becker & Mottay, 2001).

An additional issue is navigating between the web site pages, and their structure, network or hierarchy. Cultures that are high in uncertainty avoidance (Hofstede, Hofstede, & Minkov, 2010) may not be happy with links that do not have an exact order, especially when the operator can become confused. There is a comparison between German and US web sites that indicates how the design of German sites has a hierarchical navigational structure with a few links to related sites, whereas US sites use more hyperlinks within a particular site and with related sites (R. W. Collins, 2001). Moreover, language is one of biggest issues for localisation. Most translation software supports the translation of content from one language to another, but it must be taken into account that a direct translation may offer a literal translation, which will affect the meaning (Lopes & Costa, 2008).

#### **2.4.2 Localisation Testing**

Testing any localised application is a very important procedure to ensure the product meets the requirements of the local language, market, and the user's culture and habits (Khan, Mustafa, & Ahson, 2007; Mustafa & Khan, 2007).

Test Model	Test Contents	Test characteristics	Examples
<b>Integrated testing model</b>	All the test contents (functionality test, user interface test, and language quality test) would be completed( <a href="#">Y. Yu, et al., 2008</a> ; <a href="#">Zhao, et al., 2010</a> ).	In this model, the tester of the language being tested is a native language speaker where higher localisation testing efficiency and quality is required( <a href="#">Zhao, et al., 2010</a> ).	This testing model would be more suitable if a simplified to the target language version is tested in target country because native speakers will be found easily.
<b>(one-plus-one) Testing model</b>	Testers or a group with one or a group language staff member to implement functionality tests, user interface, and language quality test together( <a href="#">Mustafa &amp; Khan, 2007</a> ; <a href="#">A. Yu, 2001</a> ).	This model is chosen when testers test non-native localisation products ( <a href="#">Miguel A. Jimenez-Crespo, 2013</a> ; <a href="#">Y. Yu, et al., 2008</a> ).	The localised test of traditional Chinese, Japanese or Korean in China, the testing staff of these countries could be arranged with the domestic testers to implement testing together.
<b>Distribution testing model</b>	This model provides the test content in detail and in chronological order, arranging personnel with different skills to execute the testing of localisation functions, user interface, and language quality separately( <a href="#">Mustafa &amp; Khan, 2007</a> ).	This model is applicable for occasions where various localisation languages are tested and, at the same time, a large number of European native full time testers would be recruited( <a href="#">A. Yu, 2001</a> ; <a href="#">Zhao, et al., 2010</a> ).	The localisation of more than ten kinds of European languages is tested in one single project in china.

**Table 2.2 A general view of all testing requirements**

This process of localisation would create a product according to the essential requirements of the language and culture of the country's regional language, and market the product accordingly (Alcivar, Hu, Tang, & Yang, 2003; Y. Yu, Jones, & Harrold, 2008).

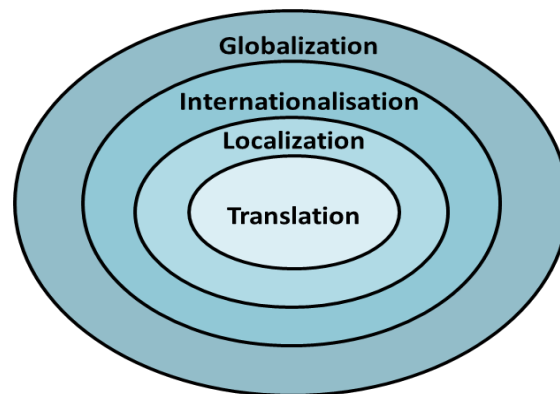
The test for a localised product is a complicated process, which requires the design of test cases based on the localisation of products. These test cases aim to identify errors and report on and detect software defects following this process (Mustafa & Khan, 2007). The test to link the functionality and performance with the target product and the source product is therefore ensured (C. Zhao, He, & Zeng, 2010; S. Zhao et al., 2010). Table 2.2 summaries the above and provides a general overview of all testing requirements.

### **2.4.3 Globalisation (g10n) and Internationalisation (i18n)**

Globalisation and internationalisation have been used interchangeably by some (Smith-Ferrier, 2006), whereas others have chosen to distinguish between them, which has often

caused confusion. Globalisation for software developers and companies is more of a strategy than a task (A. Yu, 2001). The term “Internationalisation” can be described as the “process of generalising a product so that it can handle multiple languages and cultural conventions, without the need for redesign. Internationalisation takes place at the level of programme design and document development.” (Esselink, 2000a).

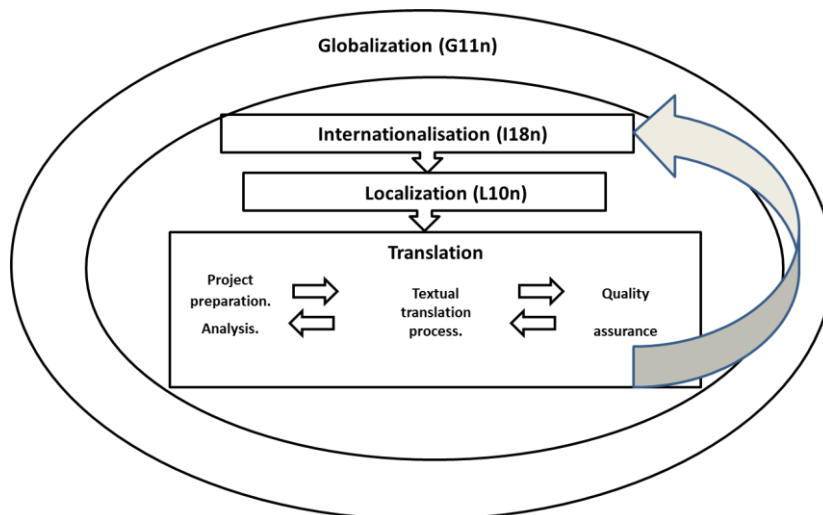
The i18n of software is a process of designing and coding software to support localisation and translation into various languages and local dialects (Casteleyn, Daniel, Dolog, & Matera, 2009). This term has an inter-relationship with translation, localisation, and globalisation. Figure 2.1 shows the layers of these processes.



**Figure 2.1 Inter-relationship GILT**

The above Figure shows how the translation process is an essential phase, and is part of the localisation procedure. Localisation is the central approach to internationalisation (De Liso & Leoncini, 2010). It is clear that the globalisation technique manages the process of enabling software to be globally usable. Internationalisation is a process that makes a product available to users in the worldwide market (Del Galdo & Nielsen, 1996), the idea being that the language can be changed without redesigning the product.





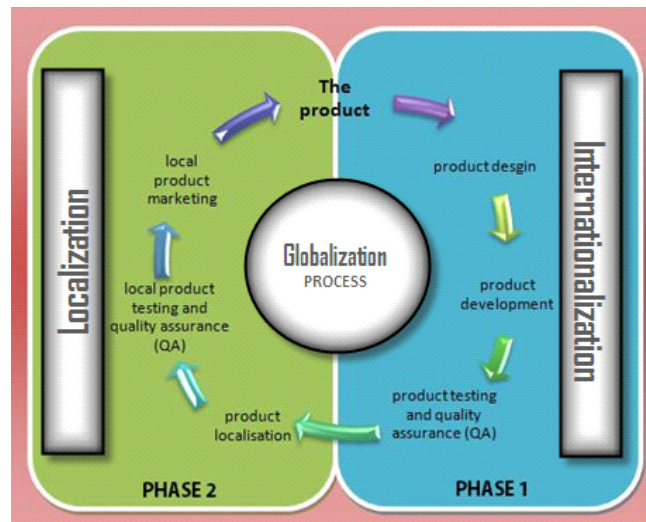
**Figure 2.2 Interdependence of all stages in GILT cycle (Jimenez-Crespo, 2013)**

Localisation is an important phase, which adjusts the adapted application into the specific linguistic and cultural differences of a given region. Translation is the method of changing the source language text into a target one (De Liso & Leoncini, 2010; Marinov & Marinova, 2011). Figure 2.2 shows the interdependence of all stages in the GILT cycle.

Other proposals from the TS perspective have suggested that we should refer to the global cycle as globalisation (Gambier & Van Doorslaer, 2009; Mazur, 2007), because no matter how deep the translation and/or localisation might be, products always retain certain globalisation features that cannot be adapted into any target locale from the TS perspective. The global GILT process shows deep insight into the actual power that creates the features of the final localisation of websites (LISA, 2006). The presence or absence of any stage can, for example, configure the translation task itself and impose specific constraints or freedoms upon localisation. For example, it is common to identify localisation errors that, even when the organisation might be one of them, are often not fixed (Jimenez-Crespo, 2013).

#### **2.4.4 The process of globalising the application**

There are several steps in the process of globalising an application, each step often having a number of smaller steps (O'Hagan & Ashworth, 2002).



**Figure 2.3 The Process of Globalisation(Chavala, 2012)**

The larger the software application, often measured in terms of the number of features and functions (or the number of lines of code or even the complexity of functionality), the more this will dictate how complex the task of globalisation will be (Sreenath 2011). The task often requires many skills and resources and a specific project plan to achieve a successful result. However, the process can be generalised into several specific steps. These steps are shown in Figure 2.3.

It is clear from the research that the globalisation of software cannot be an after-thought (O'Hagan & Ashworth, 2002). This was one of the lessons learnt from WRS globalisation. Had the software been designed from the ground up to accommodate globalisation and multiple languages, the task would have been much simpler (Pattie, 2012). Even at this stage, it is clear that the WRS in its current form, as an Actions Script application, would benefit from a redesign, or perhaps even a re-evaluation of the technologies used.

## **2.5 Usability**

Nielsen (2003) describes usability as the study of the quality of elements that measure the ability of users to use an interface easily. Moreover, usability is introduced to ascertain how efficiently users learn to use a new system, remember the essential steps and perform these tasks without errors or minimise them and display satisfaction with the design of the

application (Nielsen, 2003). The International Standard Organisation (ISO) defined usability as “the extent to which a product can be used by specified users to achieve specified goals with effective efficiency and satisfaction in a specified context of use” (Barnum, 2010).

Different usability guidelines are presented in the literature. To help designers create a usable system, usability experts have developed a full and comprehensive set of usability guidelines. There are many different methods used to assist with the quality and the usability of any software, such as the heuristic evaluation suggested by Nielsen and Molich (1990) and the cognitive walk-through designed by Polson et.al (1992) (Nielsen, 1990).

### **2.5.1 Usability evaluation method**

There are different usability methods that have been developed in order to identify the problems of usability. They are described as a set of methods used to assist and evaluate human interaction with a product, application, website or system. Usability evaluation methods are used to discover issues or weak areas in a product in order to improve it and increase its usability value (Gray & Salzman, 1998).

The evaluation of the usability of a product contains different categories, the most well-known one are the categories from Nielsen and Mack (1999), who classified the method to evaluate usability in four categories: the automatic method (the evaluator uses software to evaluate the interface or system), the empirical tool (involves the actual users who interact with a system or interface) the formal approach (combining the use of models to assess the quality of an interface), and the informal tool (where evaluators use rules in addition to the support of their skills, information, understanding and experience to evaluate an interface) (Nielsen, 1999b). Moreover, Gray and Salzman (1998) offer two sets, which are described as analytic and empirical. In general, the analytical approach involves technique tools, such as heuristic evaluation and cognitive walkthrough, whereas the empirical method has technique tools, which include methods and processes indicated as “user testing” (Gray & Salzman, 1998).

### **2.5.1.1 Evaluator-based usability**

This approach is used to identify usability issues through involving the evaluator. Nielsen and Mac (1994) describe these as usability inspection methods, and explain that these are essential methods that are required to support the evaluators to investigate or examine the usability aspects of users during interactions with an interface. They then offer their ideas and recommendations to add improvements to the quality of the interface (Nielsen, 1994a).

#### **2.5.1.1.1 Heuristic**

Heuristic evaluation was created by Nielsen and Molich (1990). To conduct this method, a group of evaluators assess the system or interface and evaluate it using their judgement to ascertain whether or not it follows the usability principle, known as the usability heuristic (Nielsen & Molich, 1990). The usability heuristic involves ten principles, which are: visibility of the relationship between the system and the real world, the control and freedom of the user, standard and consistency, avoiding errors, flexible and efficiency use, recognition rather than recall, simple and attractive design, assisting users to realise, detecting and recovering from errors, and help and documentation (Nielsen, 1990).

#### **2.5.1.1.2 The pluralistic walk through**

This tool includes the four participants of a group of evaluators, which includes representative users, developers and usability experts (Hollingsed & Novick, 2007; Nielsen & Mack, 1999). In this approach, participants review the usability problems of a system related to each step in a scenario (Andre, Hartson, Belz, & McCreary, 2001). These scenarios are presented through a number of screens in a form (Larkin et al., 2007). The benefit of applying this tool is that it gathers direct feedback from the users who are involved in the evaluation (Hollingsed & Novick, 2007).

#### **2.5.1.1.3 Cognitive walk through**

This approach was created to evaluate whether or not an interface is easy to learn through exploration (Wharton et al .1994). This tool has been used to evaluate different interfaces and systems (Hollingsed & Novick, 2007), where the evaluators are developers, designers, and programmers. In each step, a story based on four questions needs to be answered. These questions were created by Wharton et al (1994) - if the story cannot be told, then suggestions for improving and solving the problems will be introduced (Bransford, Sherwood, Hasselbring, Kinzer, & Williams, 1990).

#### **2.5.1.1.4 Guideline reviews**

Guideline reviews are an online comprehensive method; the evaluators or the developers put forth their usability guidelines, which are then used to evaluate an interface or website. This method possesses similarities with the heuristic evaluation method, but has more length and more detailed guidelines used by the evaluators, whereas heuristic evaluators have a short list of less than a dozen items (Gray & Salzman, 1998; Lazar, Fleischut, & Regan, 2013; Tripoliti & Fotiadis, 2009).

#### **2.5.1.1.5 Consistency inspections**

This approach is performed by experts, who review all the web pages of a website to examine and ensure that the layout, terminologies and colour of the design of the webpage are consistent (Lazar, et al., 2013). This tool can also inspect the consistency of multiple sites, and ensure all the common functions work in the same way across the sites. The consistency of a system or interface could affect the operators, performance and satisfaction, and then increase the error rate (Lazar, et al., 2013).

#### **2.5.1.1.6 Standards inspection**

This approach involves an expert who examines if an interface complies with certain interface standards, as followed by other systems in a similar market (Buttenfield, 1999; Nielsen, 1999b). These standards are written in official languages and therefore, the expert should be familiar with the usability standards (Traxler, 2005). The usability standards of ISO 9241 can be used as a reference, which is included with the requirements and the recommendations of the hardware, software and the environment attributes (Traxler, 2005).

#### **2.5.1.2 User based usability evaluation methods**

The user based usability approach is a group of methods that includes the actual users. This tool is performed by recording a user's performance while using a system or interface. This will test a user's preferences or satisfaction with the interface. This approach only considers the users to evaluate an interface, while the other methods are a mixture of user testing approaches and supplementary techniques that could be used along with a user testing method. It also involves different methods, which can be used in evaluations. ((Buttenfield, 1999; Dumas & Redish, 1999; Nielsen, 1999b)

##### **2.5.1.2.1 User testing**

User testing is the most important and useful approach, because it gives direct information and feedback in order to show how real users use the interface. It explains the exact issues that the users face during their interaction with the interface ((Buttenfield, 1999; Dumas & Redish, 1999; Nielsen, 1999b). This includes different techniques to collect data testing sessions, such as the writing of notes, recording audio, video, interactions, and log files, to investigate the performance of the task. Moreover, a user's feedback can be collected using questionnaires and interviews. This can be used to collect data regarding user satisfaction (Dumas & Redish, 1999; Lee, 1999; Nielsen & Landauer, 1993).

#### **2.5.1.2.2 Think aloud method**

The think aloud method is performed by asking users to evaluate the system by ‘thinking aloud’ while using an interface (Lazar, et al., 2013; Nielsen, 1999b). This approach shows how users understand, view or interpret an interface ((Nielsen & Landauer, 1993).

#### **2.5.1.2.3 Constructive interaction**

Constructive interaction is performed using two users who work and interact together to complete the task (Holzinger, 2005; Nielsen & Landauer, 1993). During the task, the comments and exchanged ideas can be collected from both users to evaluate the interface and solve the salient issues (Holzinger, 2005; Nielsen & Landauer, 1993).

#### **2.5.1.2.4 Retrospective testing**

Retrospective testing involves using video recording during users sessions to collect users’ comments whilst reviewing the recording (Lazar, et al., 2013; Nielsen, 1999b). The developer reviews the tape of the users, who may give additional detailed comments along with comments they recorded when working on the tasks. Moreover, further comments can be gathered while reviewing the recorder, which involves the users asking questions (Nielsen & Landauer, 1993).

#### **2.5.1.2.5 Questionnaires and interviews**

This approach is performed by using different types of questionnaires and interviews. This tool is considered a useful and simple technique that collects feedback regarding satisfaction and preferences with an interface (Bidgoli, 2004; Jeffrey & Chisnell, 1994; Sharp, Rogers, & Preece, 2007).

These approaches may be used as a combined technique with the user testing method, or they could be used alone. Using this technique alone is an indirect usability method, because this does not evaluate the user interface directly, but show user's opinions about the interface (Holzinger, 2005; Nielsen & Landauer, 1993). Dumas and Redish (1999) advise this cannot be used to observe and record a direct user's interactions with a system, and can be used to collect users' opinions, attitudes, behaviours and preferences with an interface (Holzinger, 2005).

Some have criticised this tool. For example, in the case of questionnaires used to obtain significant results, a sufficient number of responses are needed (Holzinger, 2005). Detractors also claim that it is time consuming for both the interviewer and the participants (Lazar, et al., 2013). Moreover, using email and online questionnaires allows users to respond quickly, and which affects the users' answers (Bidgoli, 2004; Pretorius, Calitz, & van Greunen, 2005).

#### **2.5.1.2.6 Focus group**

The focus group technique is used to collect information concerning the required features, opinions and attitudes of actual users while using an interface (Dumas & Redish, 1999; Lee, 1999; Nielsen & Landauer, 1993). This method involves about six to nine users who discuss selected topics (which could be the different functions and features of a website), and then receive the assistance of a moderator, and explain issues during their interaction (Dumas & Redish, 1999; Lee, 1999; Nielsen & Landauer, 1993).

#### **2.5.1.3 Tool based usability evaluation methods**

To evaluate the usability of a system, the software approach is used assist the quality of the software. It involves two tools - one is an automatic usability evaluation and the other is a web analytic tool (Brinek et al., 2001).



### **2.5.2 Usability attributes**

Usability has been primarily built on a fundamental variety of attributes. These attributes were originally suggested by Nielsen, and involves five aspects: learnability, efficiency, memorability, errors, and satisfaction (Nielsen). Other attributes which were suggested by Shacle (1991) are effectiveness, learnability, flexibility, ease of use, and user attitudes. (Sonderegger & Sauer, 2010; Tractinsky, 1997). Furthermore, attractiveness was added as an additional attribute. Tractinsky (1997) indicates the attributes of usability in the following definition: “the extent to which a product can be used by a specified user to achieve specified goals with efficiency, effectiveness and users satisfaction a specified context of use” (Shackel, 2009; Sonderegger & Sauer, 2010; Tractinsky, 1997) These attributes are effectiveness, efficiency, and satisfaction. ISO 9241 offers a greater description for every one of these attributes. Effectiveness: the users use the system with accuracy and completeness to achieve specified targets. Efficiency: the operator uses the system in an accurate and efficient way to achieve goals. Satisfaction: the users use the system in a comfortable and acceptable way. The ISO provides a definition of usability aimed at user and business needs (Green & Pearson, 2006).

Based on the research questions, objectives, research hypotheses and related literature, the researcher used four attributes to examine and investigate the usability of the mobile learning application (WRS). These attributes are:

- 1- Efficiency
- 2- Effectiveness
- 3- Satisfaction
- 4- Comprehensibility

### **2.5.3 The usability and localisation**

According to Nielsen, internationalisation is the process that intends design to be used internationally. It is a method of turning any application into other locales. To perform a

successful localisation application, it is important to ensure that any localised application should be culturally neutral. Internationalisation is an effective step that minimises the need for new resources and provides more time for localisation, and is designed for consistency (Nielsen, 1999a).

Nielson (1999) explains how localisation is the process to make an adopted version of internationalisation design towards making its contents linguistically and culturally adopted to specifically target users in a specific country. During the process of localisation, one should ensure that the interface content, such as the graphics, colours and sounds effects, are suitable for the localised culture. Localisation is a process to design a system for a local population by considering the local population's specifics, such as language, culture, religion and laws, in order to ensure the system is culturally appropriate (Nielsen, 1999b).

Anthony Pym discussed how Nielsen's form model questions cannot be used as a fixed pattern for all cultures. Each particular local should answer the questions (Pym, 2011b) Choi 2008). Choi noticed that design has high usability in Korea, and may have very low usability in Mexico. Web usability in the context of localisation is the measurement of users' perceptions of website effectiveness and efficiency and their overall satisfaction with the website (Pym, 2011b).

Web usability testing for any localisation application should not be context dependent and should measure international online user perception of website effectiveness. The framework should also be flexible enough to incorporate the measurement of culture adoption to determine whether or not the website meets the end user's cultural expectations (Pym, 2011b).

Recently, different studies have investigated usability across cultures, where culture usability or culture ability has put into consideration a number of localisation issues, such as culture differences, globalisations, locations, user testing, the interaction of the design, and user product interaction. Elemmensen, Rose & Zolo investigated usability issues, and how

localisation shows that quality attributes may not be valued equally across different cultures. In fact, culture affects how usability is understood, and offers additional factors to our knowledge of the influence of culture on usability. Many studies have been conducted to study culture verities and usability attributes. Steve Wallace (2013) investigated users' attitudes towards using mobile phones. These users were culturally different in order to investigate the differences between them when placed on a variety of usability attributes and helped in ascertaining whether or not values of cultures had an influential factor on these differences. Furthermore, the study found a significant relationship between differences between countries, and differences between usability attributes of the usability and the dimensions of culture differences (Evers & Day, 1997). The results of software usability across cultures demonstrated that Chinese users evaluate the effectiveness of software more highly than its ease of use, whereas Indonesian users value the ease of use of a system higher, while effectiveness and satisfaction has less value. Studies such as this were also conducted by Vo-bringer-Kuhant (2002), who stated that users in South Africa and Australia evaluate efficiency and satisfaction with a higher value, whereas American and European users offer more value to effectiveness (Vo-bringer-Kuhant 2002).

A recent study that examined differences between countries and differences within a given country was performed to investigate the importance of the usability attributes of email and word processing software for Chinese and Danish users. They found that Danes give higher value to efficiency than satisfaction, while they give more value to effectiveness, rather than ease of use. In contrast, Chinese users valued ease of use higher than effectiveness. They also found that the Danish measure the effectiveness and efficiency of the system higher than the Chinese users did. Furthermore, Chinese users give more importance to satisfaction than the Danes (Frandsen- horlacijs et al, 2009). In contrast, Ford and Kotze's created their usability conceptual model, which is known as the only usability model that does not give more importance to the relationship between usability attributes and culture differences (Ford & Kotzé, 2005).

Clemmens' culture model of usability does not give consideration to the different culture place on usability attributes, however, he noted that the understanding of a culture provides a deeper understanding of their influence on usability (Clemmens, 2009).

A study that compared users' attitudes towards computer applications by survey was conducted on Chinese, Danish, and Indian users. Hertzum et al (2007) found a difference between these cultures, which is in opposition to other findings, and indicate that these results are linked to how users understand usability in different ways. Users in India and Denmark show more differences between systems created on measures such as easy to use, intuitive, etc. The Chinese participants produce a variety of thoughts, which include the type of the task, security, training process, and system issues (Wallace, Reid, Clinciu, & Kang, 2013).

Evers and Day, Frandsen-Thorlacious et al, and Vohringer-Kuhnt all noticed that most countries valued effectiveness as the most valued usability factor, whereas satisfaction gained less value than efficiency. In Western country studies, they also noticed that efficiency is more important than for the users in Asian countries, while the participants in Asian countries give more value to the satisfaction factor. Australian and South African users value effectiveness more than Western countries and also hold great importance on satisfaction (Wallace, et al., 2013).

#### **2.5.4 Usability testing of localisation**

According to Faulkner, internationalisation is the process of designing one product to be used internationally. It is an approach that turns the content of any application into other particular locales. To perform the successful localisation of an application, it is important to ensure that any localised application should be culturally neutral. Internationalisation is an effective step that helps minimise the time and resources needed for localisation. Internationalisation is designed for consistency (Faulkner, 2003).

Nielson (1999) explains that localisation is an approach to adopt a version of the internationalisation design towards the process of adopting the cultural and linguistic content of a specific target audience in specific locales. During the process of localisation, one should ensure that all the interface's content, such as the graphics, colours and sound effects, should

be culturally suitable. Localisation is the design for a local by considering culture, language religion, laws, currency and text and number and data formats, and ensuring all are culturally appropriate (Nielsen, 1999b; Rosenbaum et al., 1999).

Anthony Pym mentioned how Nielsen's form model questions are not set as a pattern for all cultures. These questioned should be answered for each particular locale (Pym, 2011a). G.Choi and et al (2008) noticed that high usability products in Korea may be less usable in Mexico (Liu et al., 2008). Web usability in the context of localisation is the measurement of users' perceptions of a website's effectiveness and efficiency and their overall satisfaction with the website (Pym, 2011b).

Web usability testing for any localisation application should not be context dependent and should measure international online user perception of website's effectiveness. Such a framework should also be flexible enough to incorporate the measurement of culture adoption to determine whether or not the website meets end user cultural expectations (Pym, 2011b).

### **2.5.5 The usability and mobile application**

(Papanikolaou & Mavromoustakos, 2006) describe usability as "the capability of the software product to be understood, learned, used and attractive to the user, when used underspecified condition" (Hussain & Ferneley, 2008; Papanikolaou & Mavromoustakos, 2006). (Adipat & Zhang, 2005, p. 26) state that there is more research conducted on the study of the usability and the user interface design issues regarding the use of smart phones. These studies found that mobile devices have limited features, where usability creates usability challenges, such as screen size and connectivity. The design of mobile applications should take into consideration all the users' technological ability skills, and language proficiency. The developer should be careful with design, bearing in mind the culture, language, proficiency, technical and user interface design, which will reduce the level of quality and usability with all its sub-attributes. (Baran, 2014) studied how to help users exchange knowledge and information in a classroom using smartphones. This approach was used to enable students to exchange their questions and answers and evaluate each classmate's

questions. The survey was conducted to obtain feedback on the usability of this tool (Lee, 1999).

The general results of this survey revealed that the users presented their satisfaction with the system and interacted more while responding to the questions. While using this approach, the users' feedback showed that a high level of usability would increase the value of the discussion. This would make the user less engaged with the mobile learning tool (Nielsen, 1994c).

(Sheng, Nah, & Siau, 2005) developed a system using smart phones. This method introduced the users to educational functions that allowed the users to exchange information between themselves, monitored the students online and made the instructor aware of their activities. The study found that this system is helpful and motivates both students and instructors (Sheng, Nah, & Siau, 2005)

(Wu et al., 2012)) developed a mobile blogging system. This system is used by the students of the engineering department at Cheng Kung University in Taiwan. The system includes five topics, and the students make their discussion based on these topics using this system. After two months of using this system, the participants were asked to provide their feedback. The results indicated that the students evaluated the mobile application as an effective and useful tool to increase their learning experience and knowledge (Wu, et al., 2012).

Developers of mobile applications use common terminology, which is used in most mobile applications, such 'main-menu', 'select', 'option', 'OK', 'cancel', etc. The study's usability survey indicates that the students were very happy and satisfied with the interface of the mobile application. The participants offered some suggestions that would increase the usability of the application. These suggestions explained how the application has weakness in its design. The students indicated that some of the terminology used in the application is not perfect, for example, the students recommended that to improve the navigation process between the pages, the 'back' button should be presented in every page (Council, 2012).

In 2011, the mobile system analyses and design application were designed. The main goal of this application was to allow students to revisit their notes during their free time. This application is recommended to be used as a case study to investigate the usability of mobile learning applications. The primary study found issues with the design, which were then recommended to be adjusted in order to improve its quality. A heuristic evaluation was designed. The results indicate that to improve the usability of the mobile application some features can be added to the design (Law & Hvannberg, 2002).

To evaluate interaction between the users and the usability of the system, it was found that usability is a fundamental characteristic when the application or system targets users, such as university students, who did not receive direct training or support. The evaluation found that mobile applications should be simple (Kukulska-Hulme, 2007; Terrenghi, Kronen, & Valle, 2005; Wahab, Osman, & Ismail, 2010). To assist with the design of the interface, it should include an appropriate colour and font size. This would make different mobile applications more usable and appropriate for different users (Fetaji, Dika, & Fetaji, 2008). Also, to make mobile applications more usable, the developer should consider input capacity. They must limit data input to a minimal required date and use automatically filled-in blacks and pre-fixed options (Fetaji, et al., 2008).

The main issue with using mobile phones in the learning process is the screen size, which restricts the education process (Kukulska-Hulme, 2007). Another issue is that the use of an operating system in a public environment leads users to enter incorrect information (Terrenghi, et al., 2005). This results in errors relating to input, slowness, and accuracy. The usability issues of mobile devices are unacceptable for mobile applications. (Han, 2011; Kukulska-Hulme, 2007; Terrenghi, et al., 2005) point out that to ensure that the system will be accepted, it is essential to investigate the usability requirements of the users who will be using it (Terrenghi, et al., 2005). Different studies have found that there are important pedagogical aspects to the usability of mobile learning applications (Terrenghi, et al., 2005).

### 2.5.6 Usability and fuzzy set

There is no accurate and fixed consensus to measure usability attributes and quality. As well as obtaining significant and accurate measurements, it is important to value a user's language and opinion (Albert & Tullis, 2013). (Tullis, Albert, Dumas, & Loring, 2008) advise that ordinary tools are not enough to understand the vagueness of language uncertainty, opinion, and ambiguous expressions that are hidden in feedback and judgements, which are expressed through the users' language. To deal with the uncertainty and vagueness of a user's language, different studies have applied the fuzzy tools to measure and scale usability ((Brooke, 1996); (Hub & Zatloukal, 2008); (Hub & Zatloukal, 2010)).

The study was conducted to define and describe the model that will measure the user's language and avoid any uncertainty and any vague expressions of their language. On the other hand, they describe traditional measurements tools, which are expensive, consume evaluators and testers, and cannot face the vagueness and ambiguities of the user's language surrounding the evaluation process. Additionally, their results are not clear enough to rely on them as accurate measurements (Albert, Tullis, & Tedesco, 2009; Zatloukal, 2009); (Hub & Zatloukal, 2008); (Hub & Zatloukal, 2010).

The researchers of this article describe the advantages of using the fuzzy set model to scale and evaluate the usability as follows:

1. It produces quick, precise results that can be easily analysed.
2. The measurements will give a single value score.
3. It can face the ambiguity of the user's language, which is full of confused expressions and terms.
4. It uses mathematical principles to value usability.
5. It can be applied to evaluate the usability of different kinds and systems.
6. It can be used to summarise the usability of evaluation principles that cannot be measured by using numerical methods (Zatloukal, 2009).



(Hub & Zatloukal, 2008) created an approach to applying fuzzy and proposed the methodology of fuzzy to evaluate usability. Their approach explains in full detail the necessary guidelines to complete the procedures, evaluate usability and obtain an accurate final score. They describe this methodology as a suitable usability approach, which can be applied to various system types and different backgrounds of interface users. The implications of this model could be described as a practical application, rather than theoretical (Hub & Zatloukal, 2008).

## **2.6 Fuzzy theory**

Fuzzy sets theory has been described as an approach that deals with various problems of human languages, such as ambiguities, uncertainties, inaccuracy, vagueness and subjectivity (Anand Raj & Nagesh Kumar, 1999; Cheng, Lin, & Tseng, 2011; Filipowicz, 2008; Kabir & Hasin, 2012). Fuzzy set theory was first created by Zadeh (1965) - the main goal of this theory was to describe and solve the ambiguity and uncertainty of human judgements. Zadeh developed the Fuzzy approach to be an explanation for the 'fuzziness' of human language. These explanations are mathematically performed to solve problems of ambiguity and vagueness. The value rating from zero to one was proposed by Zadeh in order to present the membership function (Bhutia & Phipon, 2012). These fuzzy numbers, which are represented triangularly, can be used to measure the linguistic variables that are expressed by the users, who give their judgement and opinion to evaluate the usability of multilingual mobile learning applications (Bhutia & Phipon, 2012).

### **2.6.1 Multi criteria decision making (MCDM)**

Generally, a decision-making problem means that there are more alternative decisions on offer. The original and traditional method of MCDM approach was made up by selecting an alternative by using one criteria. However, there is the claim that using one criteria is not sufficient when the analysed alternatives have important values (Wang & Dey, 2013). Since the result of the goal of MCDM is to define the priorities of various alternatives relating to actions, objects scenarios and projects need to have a more in-depth analysis of the problem,

by considering all the aspects of the criteria. This will further make the procedure of the analysis more complicated (Wang & Dey, 2013).

MCDM goes back decades and is considered much more in the classical literature available in this field (Järvelä, Näykki, Laru, & Luokkanen, 2007; Shen, Wang, & Pan, 2008). Huang, Jeng, and Huang (2009) described it as a ranking methodology, which can be used to cope with cases where value and relative importance were randomly independent variables with specified distributions (Huang, Jeng, & Huang, 2009). The literature of MCDM shows that it is a quantitative approach, which is used to measure the value of the parameters in a numerical manner - the primary approach to conduct this is through using fuzzy sets (Ziefle & Bay, 2005).

(Wahab, et al., 2010) advise that fuzzy concepts are ranked and assume the criteria value and the relative of importance of the fuzzy concept (Wahab, et al., 2010). The study developed the classical weighted average rating approach to fuzzy numbers. Carlsson C. and Fuller R. introduce a comprehensive study of the fuzzy MCSDM approach, with an emphasis on fuzzy and its relationship with the classical simple additive weighting method, by considering the value of linguistic terms for criteria and weight (C.-L. Hwang & Yoon, 2012).

### **2.6.2 Fuzzy AHP method**

The Analytic Hierarchy Process (AHP) will be applied in this research to assist with the evaluation of the usability of the multilingual mobile learning application. The AHP method was first developed by Saaty (Hashim, et al., 2011) and was later accepted as a useful, simple and flexible MCDM tool used to discover complex decision problems in different research domains (Ziefle & Bay, 2006). In a usability engineering domain, the AHP approach is used, since the AHP method has been used to define the value of the weights of different alternatives and components in order to perform the evaluation process. It is also applied to conduct a comprehensive and accurate comparison (Zatloukal, 2009).

The AHP is an approach that works directly on finding and deriving the appropriate weights created through expert opinion and judgements, and has been used in the literature to compare the relative usability of different alternatives. It is a confidential technique that can be used as an MCDM tool for usability testing purposes. The combination of the AHP and fuzzy approach will improve our ability to capture the uncertainties and vagueness of usability opinion and attitudes that are expressed by the experts. However, some claim that AHP faces two limitations. Firstly, it ignores the aspects of ambiguity that are usually hidden in the language expressed by humans, and secondly, it disregards the aspects of interdependencies among attributes during combination (Vaidya & Kumar, 2006).

### **2.6.3 Fuzzy set and fuzzy numbers**

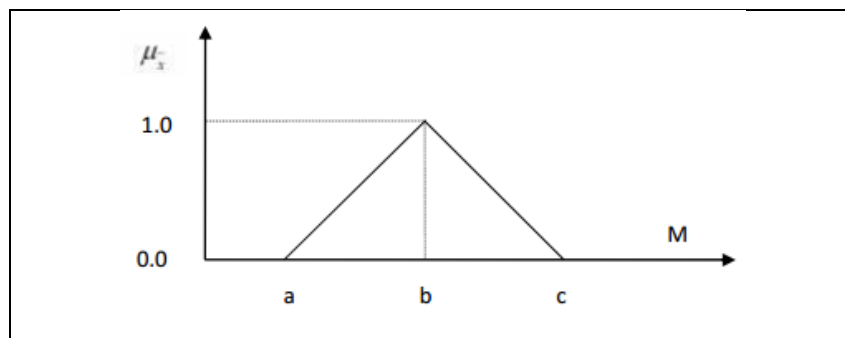
Fuzzy set theory introduces an accurate mathematical framework used to study the vague conceptual phenomena in a more precise and rigorous manner (Deng & Chan, 2011). The Fuzzy set approach is a comprehensive and reasonable tool that strengthens the decision making process (Deng & Chan, 2011).

This theory is a significant measurement method used to scale the ambiguity of concepts that are provided through human judgements, which are hidden in linguistic terms. It also clears up the degree of satisfaction, which is often vague. A linguistic variable is described as a variable whose value is expressed in terms and phrases, but not in numbers. Conceptual linguistic variables are useful in dealing with complex and ill-defined situations, which then can be reasonably expressed in conventional quantitative expressions (Deng & Chan, 2011). For example, the linguistic terms of 'satisfied' and 'not satisfied' are usually considered natural expressions of humans' opinion or judgement (Deng & Chan, 2011).

(Herrera & Herrera-Viedma, 2000) point out that linguistic terms are easy to use naturally when decision makers offer their opinion through the vagueness of their assessments and evaluation, rather than using numbers. Moreover, the Fuzzy Logic approach is a great tool to solve decision problems. Fuzzy Logic offers an accurate and simple way to deliver prices and

logic conclusions from highly imprecise, vague, and ambiguous language when compared with other methods. Using fuzzy logic supports us in understanding human decision making, and more closely helps us investigate approximate data to find solutions more precisely. This is in contrast with theories such as classical logic, which requires a deeper understanding of the system (Herrera & Herrera-Viedma, 2000).

Furthermore, the Fuzzy logic model relies on the experience of the operators, rather than technical understanding of subject. Figure 2.4 shows how Fuzzy sets are represented in fuzzy membership function  $\mu(z)$ , by adding some details and changing the figure (Cheng, et al., 2011; Filipowicz, 2008; Kabir & Hasin, 2012).



**Figure 2.4 Fuzzy membership function  $\mu(z)$**

## 2.6.4 Fuzzy Operations

The operation that will be performed to find the net of the usability of every internationalised language of the mobile learning application is the weighted average techniques of the fuzzy set. The fuzzy principles operation can be applied, and these are summarised in three steps: fuzzy addition, fuzzy multiplication, fuzzy function and defuzzification, which are explained below (Fons, Achari, & Ross, 2004).

### 2.6.4.1 Fuzzy Multiplication

Putting a, b, c and x, y, z in two triangular fuzzy sets.

After the fuzzy multiplication for triangular fuzzy sets is processed, this can be expressed as

follows:

$$(a, b, c) \times (x, y, z) = (a \times x, b \times y, c \times z).$$

#### 2.6.4.2 Fuzzy Addition

After putting  $a, b, c$  and  $x, y, z$  in two triangular fuzzy sets, the fuzzy addition is performed:

$$(a, b, c) + (x, y, z) = [\max(a, x), \max(b, y), \max(c, z)].$$

#### 2.6.4.3 Fuzzification

Fuzzification is a step that transforms the real time problem into fuzzy sets.

The fuzzification process is performed using a rule base, which defines the range of the fuzzy set real time values. If the matrix is 10, then the corresponding fuzzy value is High (H).

#### 2.6.4.4 Defuzzification

Defuzzification is the final process to convert the set of fuzzy triangular into real time data. This is performed by applying the centroid method, which has been adopted to defuzzify the triangular fuzzy sets.

$$\text{Centroid Formula } z^* = \frac{\int \mu(z)z \, dz}{\int \mu(z) \, dz}$$

Here  $z^*$  is the defuzzified crisp value,  $z$  is the value on the  $x$  - axis, and  $\mu(z)$  is the membership function (Fons, et al., 2004).

### 2.6.5 The procedure

The suggested process to evaluate the usability of multilingual mobile learning applications is applied by (putting the references) and can be summarised in the following steps.

First, we must create a metric, which is obtained through questionnaires. Then, the required inputs of the ratings of the metrics and weights at various levels (criteria and sub-criteria) are obtained from the participants using the questionnaire to investigate the usability net of multilingual mobile learning application (Fons, et al., 2004).

Step 1: Putting fuzzy ratings ( $r_i$ ) to each and every metric.

Step 2: Putting fuzzy weights ( $w_i$ ) criteria and sub-criteria.

Step 3: Finding the rating average of the metrics (using their weights and ratings)  $=r_1 \times w_1 + r_2 \times w_2 + \dots + r_n \times w_n = \sum r_i \times w_i$

The obtained fuzzy rating in this has to be de-fuzzified by using the centroid Formula to obtain the crisp value of the software quality. (Fons, et al., 2004).

## 2.7 Summary

This chapter reviewed the extant literature, which relates to the topic of this thesis, such as, e-learning, mobile application, internationalisation, globalisation, usability and the Fuzzy theory. Specifically, this chapter explained the four attributes that were adopted to evaluate the usability of the mobile application. Moreover, it illustrated and justified the use of the Fuzzy theory as a theoretical direction. In the next chapter (Methodology), we will discuss the methodological approaches and philosophical premises that are followed in this thesis.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This chapter highlights the philosophical premises of the present thesis, and explains the research methodology that was used to achieve its aim and objectives. This chapter is organised as follows. First, with a view towards re-contextualising this thesis, it presents the definitions of the variables, the model of the study, the hypotheses of the research, and the case study that was used. Second, it illustrates the research process, which includes the questionnaire development and data collection processes. Third, this chapter provides a detailed discussion of the quantitative data analysis techniques, with further explanation of the case study. Finally, it touches on the ethical issues in conducting this research.

### **3.2 Research methodology**

The methodology of this research can be defined as a system of explicit guidelines and procedures and sequences in clarifying the ideas that the researcher goes through, in order to uncover many of the secrets, mysteries and ambiguities that surround some of the topics or issues that are difficult for some to solve or deal with. This is with a view to simplify and benefit from them in different areas of life (J. Collins & Hussey, 2003; Frankfort-Nachmias & Nachmias, 2001).

A research method is a technique that is used to collect data (B. Hanson, 2008). Despite the claim that the dominant methods associated with interpretivist philosophy are qualitative, Collis and Hussey (2003) point out that in this kind of philosophy the researcher can use quantitative data (Collis & Hussey, 2003).

Choosing an appropriate type of data collection method is an important strategy that the researcher is required to perform in order to undergo the appropriate investigation more successfully. The correct data collection process method is supportive, because it helps the researcher work with empirical data. Certain major criteria should be taken into consideration

in order to collect good data; the collected data must be reliable, relevant, and representative. The reliability of the data means that it must offer consistent and accurate calculations. Relevance refers to how the data provides the intended statistic measurements. Repetitiveness means that the data described in the study can be measured. Two well-known methods are used to collect the data, i.e. quantitative and qualitative data collecting methodologies (Creswell, Plano Clark, Gutmann, & Hanson, 2003; Jackson, Gillaspay Jr, & Purc-Stephenson, 2009; Jaeger, 2006; M. L. Saunders & Lewis, 2009; Silverman, 2016).

*Qualitative research* is way to comprehensively study a social and cultural phenomena and analyse the quality of human experience and, at the same time, involves non-numeric data, or data that cannot be quantified (Postgate et al., 2009). Qualitative researchers typically create passive observations with no intent of directing a case variable (Jackson, et al., 2009). This method of collecting data is used to describe meaning in a deeper way (Jackson, et al., 2009).

Quantitative research is conducted by using certain procedures that describe human experience in numerical data (statistics). It usually begins with hypotheses for testing, observing and collecting data. The data is analysed and finally, a conclusion is written, along with a description of the results (Jackson, et al., 2009).

In the quantitative method, the researcher uses questionnaires and experiments to deliver data that can be investigated statistically, and are accurate and reliable. Quantitative data is a method used when researchers need to study a comparison between two or more things by using numbers and statistic to illustrate the data. This study will use quantitative methods, since the main goal of the research is to investigate a multilingual mobile learning application. A usability questionnaire will be used to investigate the multilingual interface. The researcher will record numerical data - the rating of users in response to the usability questionnaire. (Jackson, et al., 2009).



### **3.3 Research philosophy**

The philosophy of the research is based on a positivist model, in which the problem of research emerges from the literature itself, where the researcher seeks to cover a range of gaps in the existing literature. The research design should start with the selection of a philosophy or paradigm and topic (Creswell & Clark, 2007; W. E. Hanson, Creswell, Clark, Petska, & Creswell, 2005). The philosophy of the research, or the paradigm, means that ‘the scientific practice is a process based on philosophies of people and assumptions about the nature of knowledge’ (Harwood & Garry, 2003; Srivastava & Thomson, 2009).

The research philosophy introduces the outline, presents the theories, methods and ways of defining the data, and describes the relationship between the data and the theory (Easterby-Smith, Thorpe, & Jackson, 2012; Srivastava & Thomson, 2009). The research philosophy is an essential step and the foundation of the research process, since it offers a good opportunity to improve research skills. It enables researchers to choose a suitable methodology in a confident way (Holden & Lynch, 2004). However, there are two essential philosophic assumptions that form the view of science research. These are known as epistemology and ontology. Epistemology assumes what is the best way to study the world and the best way to use a subjective or objective approach to study reality, whereas ontology is based on an assumption of how to view the world, and whether the world is changing constantly or if it depends on the dynamics of the social system (Bhattacharjee, 2012). In the present study, it is very important to understand the philosophical issues - the reason behind this is illustrated below (Easterby-Smith, et al., 2012).

The research philosophy can help clarify the design of the research in terms of considering what form of evidence is essential to the study and is a way to obtain evidence, the way it can be interpreted, and describes how the research questions will be answered. The research philosophy can help the researcher ascertain which type of research design will work and which will not be suitable towards answering the research questions. Moreover, it helps the researcher uncover how a particular approach is limited (J. Saunders, Fernandes, & Kosnes, 2009). It can help the researcher develop designs that may be not connected to the researcher’s experience. It may also give the researcher suggestions to adjust their research

according to the limitations of different knowledge structures (J. Saunders, et al., 2009). The design process and the method of the research are built on two essential research philosophies. These are known as the positivism approach and the interpretivism approach. These approaches have different procedures according to common assumptions, which are concerned with the methods of obtaining knowledge.

Concerning a positivism philosophy, the study should include an investigation method, due to the requirements of studying a social or human phenomenon (or issues), by choosing and testing a theory. The variables of the theory are measured through numerical data and then analysed using a suitable statistical method. The results assist the researcher to ascertain whether or not to generalise the theory (Banks & Zeitlyn, 2015). In order to receive real knowledge according to this approach, the observed phenomena should be measured by using the developed statistic measures (J. Collins & Hussey, 2003). The positivism approach uses an objective methodology to examine theories and discover the cause and effect scientifically (Nicholas, 2006). This philosophy is independent, is natural and is external to the researcher; the phenomena can be observed and measured in a natural and objective manner by using a questionnaire as the collection method (Collis & Hussey, 2013; Creswell, 2012).

With a positivism philosophy, the researcher uses the deductive approach to obtain knowledge (Walliman, 2006). Using a deductive approach in any study should be driven by a theory. This approach uses an expressed statement called the hypotheses. The hypothesis should be based on earlier literature and research (Brown, Treviño, & Harrison, 2005). Therefore, a study that applies to this type of approach can be called reductionistic. This is because in the reductive philosophy, there is a small, discrete set of ideas that should be tested (i.e. the variables that are part of the hypotheses). Therefore, including a developed hypothesis increases the procedure of data collection discovered in the research, which is used to confirm or reject the hypotheses (Bryman, Becker, & Sempik, 2008).

Moving to the second philosophical stance, in interpretivist research, the researcher studies the subjective meaning of social action (Bryman, et al., 2008). This kind of approach was designed as a reaction to criticisms of the positivism philosophy (J. Collins & Hussey, 2003).

The interpretivist philosophy was founded because of the belief that there is a strategy for different between people and objects in the science of nature. Therefore, in this philosophic approach, using an interpretivist philosophy makes the researcher believe that: “the process of the research cannot be affected by the real results” (J. Collins & Hussey, 2003). The reality in this approach is subjective and socially created and can be studied by observing and investigating participants in the research (J. Collins & Hussey, 2003).

In the interpretivist philosophy, the researcher minimises the distance between what is studied and what is reached (living with or observing information or an actual collaboration), but in positivism, the researcher keeps distance between him/herself and what is being researched (Creswell & Clark, 2007). In the interpretivist philosophy, knowledge can be obtained by using an inductive or subjective approach (Walliman, 2006).

The inductive research approach begins with observation, while conclusions are created from the researcher’s experience (Nicholas 2006). In inductive research, theoretical ideas are derived from the data and are not derived before collecting data, whereas the opposite is the case with the deductive approach (Walliman, 2006). The researcher in inductive studies has the opportunity to receive insightful empirical generation but he/she obtains a little theory (Walliman, 2006).

Overall, given that this thesis will use a survey questionnaire to collect the data, and will follow the deductive method of reasoning in constructing the hypothesis, a positivism philosophy was adopted towards reaching more objective results.

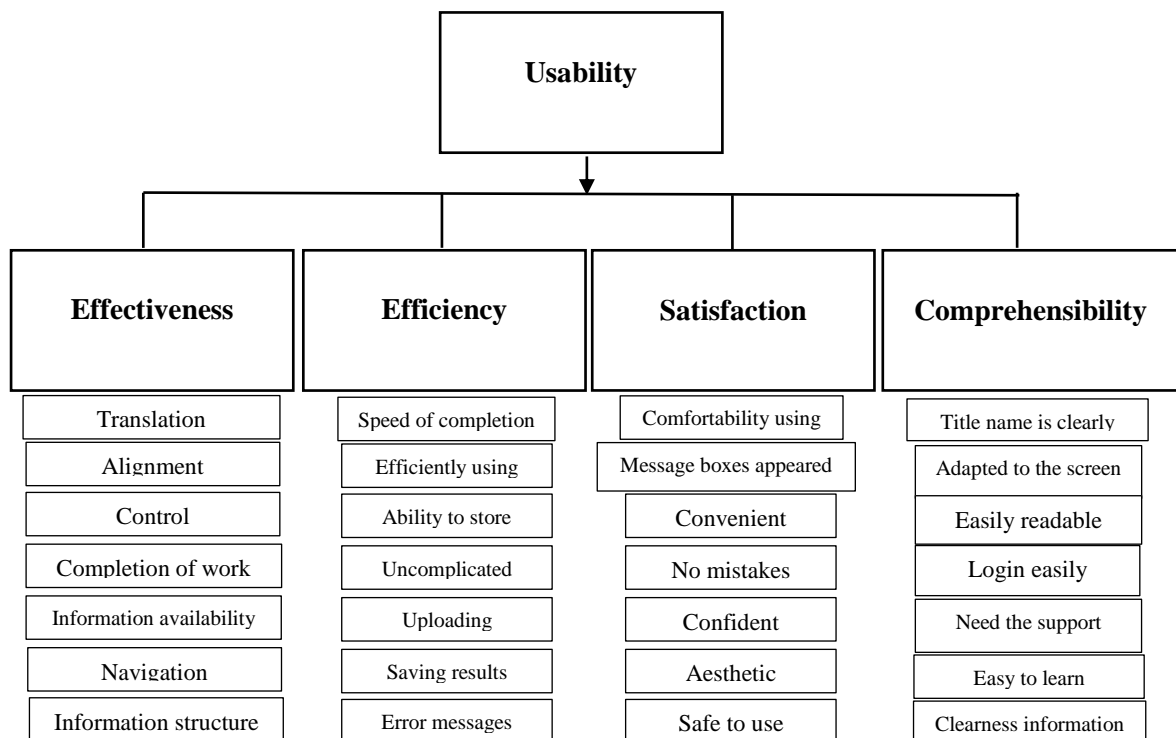
### **3.4 The research attributes**

The adopted framework seeks to test the "ease of use of multilingual mobile learning (WRS)". Based on the research questions, objectives, research hypotheses and related literature, the researcher used four attributes in an attempt to investigate the usability of the mobile learning application (WRS). These attributes, as evidenced by the literature, are:

- 1- Efficiency
- 2- Effectiveness
- 3- Satisfaction
- 4- Comprehensibility

The researcher has developed a theoretical model showing the relationship between variables that affect the ease of use of multilingual mobile learning, and presents below a model for the study of the subject.

### 3.5 The model of the research



**Figure 3.1 Representation of the theoretical framework as a model for study**

The above theoretical model illustrates the relationship between the four independent variables that affect the dependent variable (ease of use to apply mobile learning).

In light of the reviewed literature (chapter two) and the emerged theoretical framework, this thesis developed the following hypotheses:

**H1:** There is a significant difference in the effectiveness of the WRS application between the English language and other languages.

**H2:** There is a significant difference in the efficiency of the WRS application between the English language and other languages.

**H3:** There is a significant difference in the user's satisfaction level of the WRS application between the English language and the other languages.

**H4:** There is a significant difference in the comprehensibility of the WRS application between the English language and the other languages.

**H5:** Effectiveness, efficiency, satisfaction and comprehensibility lead to a greater usability of the WRS application.

**H6:** There is a significant differences in the usability of the WRS application between the English language and the other languages.

**H7:** Translating a mobile learning application (i.e., WRS) will not affect its overall usability.

### **3.6 Data collection methods and techniques**

The questionnaire was used as a primary source of data collection in this study, while statistics, images, articles and references were used as secondary data collection sources. Two copies of the questionnaire were designed for this study, one for teachers and the other for learners, in order to obtain perceptions of all stakeholders from different cultures about how easy to use the application was. The questionnaires were designed to achieve the research objectives and answer the research questions. A pilot study was carried out to detect the study instrument in terms of whether or not it met good psychometric test requirements for the study, which will be dealt with using the SPSS.

#### **3.6.1 Questionnaire**

A questionnaire is a method used to collect data through a direct procedure. The opinions of the users of a system can be collected via this method. Questionnaires are also used to measure user satisfaction and user preferences (Holzinger, Searle, & Nischelwitzer, 2007). Further discussion and a description of the questionnaire will be presented in the following sub-section.

The questionnaire includes the formulation of questions that assist with data collection, so that respondents can provide answers. Questions are designed in advance and tested to determine if they are biased. The questions that have been developed are based on research questions, which will help in collecting data that will help answer the research questions. Questions in all research are either closed or open. However, the researcher adopted the method of closed questions, where the candidate will choose from a list of answers prepared by the researcher in advance and placed in the questionnaire based on the five-point Likert scale.

The questionnaire includes five main sections used to measure the following variables: efficiency, effectiveness, satisfaction, comprehensiveness, and ease of use, along with questions about demographic information (age, gender, income, education, device quality and language). The test questions paper is also presented to test the application before starting the questionnaire. The full questionnaire is listed in Appendix A.

### **3.6.2 Questionnaire development process**

First: Determine the dimensions that form the questionnaire.

The researcher took the WRS as a scientific subject for study and research. Four main measurements of this study were identified according to the objectives and hypotheses of the study and drawn out of the literature on the topic of multi-lingual mobile education, as follows:

- 1- The effectiveness of the application
- 2- The efficiency of the application
- 3- User's satisfaction with the application
- 4- Comprehensibility of the application

Second: Writing the items of the questionnaire.

Based on the above theoretical aspects of the study, through literary studies and guided by the instructions of researchers in the fields of psychology, the methods of research enable the researcher to write 7 questions under each of the four dimensions mentioned above. The adopted questionnaire was designed and used by IBM (Lewis, 1995; Nielsen, 2002).

The total number of items in the questionnaire are 28 items, where the items on the Likert scale were measured from five points, ranging from 1 to 5 (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree).

Third: Evaluation of the content of the questionnaire.

The researcher presented the first draft questionnaire to five arbitrators and specialists and asked them to comment on the questionnaire. This process is explained in a further detail in section 4.8.

### **3.6.3 The pilot study**

A pilot test for the questionnaire is important to validate the questionnaire and ensure an acceptable level of validity and reliability. Beside this, a pilot test can be used for the preliminary testing of the hypotheses, with a view to reduce the number of unanticipated problems, save time and money, and offer new ideas. This test usually occurs through distributing the questionnaire to few participants prior to the real data collection (Walliman, 2010). Therefore, given that the pilot study enables the researcher to capitalise on various advantages before starting the real data collection, in the current thesis, a pilot study was conducted to offer the researcher further ideas and approaches that may assist with the main study

The questionnaire was distributed to users (i.e., students and member of staff-university of Huddersfield) by hand in October 2015. A total sample of 70 users participated in this pilot study to pre-test the questionnaire. Given that this thesis seeks to evaluate the usability of different languages, participants from different backgrounds were involved: Arab, Chinese, French, German, Romanian, Spanish and Turkish.

The questionnaire includes questions regarding some attributes that will be used in the main data collection. Some examples are as follows:

- 1- Is the application display adapted to the screen size?
- 2- The application text, icon, labels, button and structure - are they clear, visible and appropriate?
- 3- Does the application accept blanks, characters and symbols?

The researcher capitalised on a number of advantages from the pilot study. For instance, according to a German language participant, there was a problem in translation, involving the text's spaces and the use of some shortcuts for some of the words. Also, in the Turkish language, similar problems were detected.

### **3.6.4 Population and sample**

The study community refers to all the languages of the world used to communicate across different media. The size of the sample indicates the selection of a few of these languages for use in the study, because it is impossible to collect data from all the world's languages. Hence why it is important to select an appropriate sample whose results represent all global languages.

Since the subject of the research is to investigate the usability of a mobile learning application, the researcher chose an objective sample of the main users of this application. Teachers and students, and speakers of different languages were already selected (Arabic,



French, German... etc.). These languages have been selected as the most widely used languages in the world. The samples were not distributed equally across all languages, so the researcher relied on what could be obtained from the users. The total sample size for all languages was well suited to obtain good and accurate information. The sample size is greater than 30 and less than 500 for most research.

### **3.6.5 The participants**

Since the subject of the research is to study and investigate the usability of a learning mobile application, the researcher chose an objective sample consisting of the main users of this application (teachers and students), who speak in different previously selected languages (Arabic, Chinese, Dutch, English, French, Italian, Malay, Netherlands, Polish, Portuguese, Romanian, Russian, Spanish, Swedish and Turkish). The sample size within the same language shall not be less than 7 participants, with a view to providing accurate results.

The number of participants is not fixed during the usability test. Nielsen, on his website, claims that the number of participants is the same whether you are testing websites, PC applications or mobile applications. Nielsen noticed that for quantitative studies, when gathering usability measures, testing 20 users typically offers a reasonably tight confidence interval. The various metrics (learning time, efficiency, memorability, user errors and subjective satisfaction) are different to the human factors. Nielsen also found that many users are required, due to the “substantial individuals differences in user performance (NIELSEN, 2012). Different researchers have attempted to ascertain how many testers were needed to perform the usability test on an application. In 1990, many researchers suggested that five participants would yield 80-85% of the findings of the usability test (Lewis, 1995; Nielsen, 1992, 1994b; Nielsen, Tahir, & Tahir, 2002). Rubin explains that “to achieve generalizable results for a given target population one may need to test 10-12 participants per condition to be on the safe side, a factor that may require one to test 40 or more participants to ensure statistically significant results” (Rubin & Chisnell, 2008, p. 29).

The mobile application users will be chosen from students of the University of Huddersfield. These students should be native speakers of each of the chosen internationalised languages,. Then, they will be asked to complete the questionnaires. The researcher is keen to involve the largest number of participants who can be found in educational institutions close to the city of Huddersfield in the United Kingdom (where the researcher is located), in order to reduce costs in time, effort and money. Furthermore, the researcher intends to obtain accurate results. The participants were from the University of Huddersfield. They were undergraduates and postgraduate international students who speak different native languages and have different cultural backgrounds. The research is conducted on about 295 participants.

### **3.7 Types of data**

Primary data is data that has been obtained by the researcher in order to answer and investigate the research questions of their study. Primary data are original data and are not reused, or collected from other sources. This type of data is more concerned with the research problems; it is data that are more related to understanding the objective of the research - more so than secondary data (Wiid & Diggines, 2010). On the other hand, secondary data is a type of data analysis that uses pre-existing quantitative data in order to investigate and answer new questions. Overall, the type of data that is adopted in this research is primary data (Wiid & Diggines, 2010).

### **3.8 Data analysis**

Analysing the collected data is a fundamental stage towards answering the research question. The first step involves creating an investigation strategy that guides the researcher in achieving the best analysis in order to observe the problems. The researcher must understand how this should be performed (Richards & Morse, 2012). The data analysis steps in case study research always begin after gathering the required data when it is complete. The main goal of collecting data and investigating it is to test the research hypotheses. Hypotheses

testing involves comparing the observed data with the patterns predicated by the hypothesis. The results of the statistical analysis can verify or falsify the hypotheses (Dul & Hak, 2007).

### **3.8.1 Preparing the data**

Analysing data involves three essential steps: (1) preparing the data, (2) analysing the data and (3) interpreting the data (Edens, Campbell, & Weir, 2007). Preparing the data involves collecting and entering the data into the SPSS (statistical software package), where the data are categorised into four categories.

In the following step, the rates and scores of the users are gathered from the questionnaires and entered into SPSS in order to categorise and group the data, and prepare it for study. The numerical data is quantified using the SPSS.

### **3.8.2 Analysing the data**

Quantitative data is numerical and holds the evidence required to answer the main questions of the research. To answer these questions, the researcher needs to rely on a variety of statistical processes that can help researchers describe and examine the results to find the correct answer to the research question (Marshall & Jonker, 2011). It is noted that there are two types statistical analysis of collected data:

- 1- Descriptive statistics are a way to examine the relationship between independent and dependent variables, then describe this data.
- 2- Inferential statistics is a method that can be used to calculate the probability that the participants are different and the experimental interference did have an effect.

This research intends to use both statistics methods. The researcher intends to use descriptive statistics to investigate and explain the trends of the variables in this study, e.g., the number

of users, the user's technical background and their native languages. The inferential statistics will help the researcher discover the relationship between the variables and the individuals who are from different cultural backgrounds and speak different languages. This will lead to conclusions that can be drawn about their feedback of the mobile learning application. This will also help ascertain if different users of cultural and languages background have different opinions about the same mobile learning application. The statistic results will show if the hypotheses of the research are true or not.

### **3.8.3 Interpreting data**

In this interpretation step, the researcher interprets the results of the analysis data to rationalise the findings. The results will explain and potentially provide answers for the research questions. To perform this step in a logical way, there are different sub-steps. These can be summarised by the following questions:

Do the analysed data show any surprising results?

Do the findings answer the research questions?

Do the compared data results require more attention?

Do the results verify the hypotheses?

Do the results make sense?

### **3.9 Reliability and validity**

Reliability is defined as the extent to which the questionnaire provides the same results as the repeated experiments, whereas validity indicates the extent that the survey questions can measure what the researcher wants to measure accurately (Richards & Morse, 2012; Seara-Cardoso, Neumann, Roiser, McCrory, & Viding, 2012). The questionnaire was based on a sample test of validity and reliability, by distributing the questionnaire to a random sample of 20 respondents according to the mechanism adopted by the researcher in collecting the data.

The researcher tested the validity and reliability of the questionnaire from a statistical point of view, which is described below.

Validity and reliability are famous tests for instruments. Validity is used to answer the following question: does the chosen instrument measure what the researcher wanted to measure? Reliability demonstrates whether or not the results can be consistent and repeatable at the same time. The measuring instrument usually provides the same findings when repeatedly using the same measure (Sekaran & Bougie, 2003).

To perform the internal consistency test, the questions are gathered through a questionnaire to measure the same concept or construct. Several statistical techniques are used to measure internal consistency. Cronbach's alpha, developed by Lee Cronbach in 1951, is one of the most commonly used techniques, since this type of measurement is often used to find out how well the different items complement each other when measuring the same concept from a sample of participants. Cronbach's alpha is the method used to measure the reliability of a test or a scale and it ranges between 0 and 1. If the result has value of 0.7 or a higher, then the reliability is acceptable. For the current scales, the reliability test shows that some of the instruments need some amendment regarding future work ( Lee Cronbach, 1951).

Validity emphasises the level to which an instrument measures the expected measurements (Tavakol & Dennick, 2011). (Yin, 2013, p. 37) defines validity as the best available calculation to understand the truth or falsity of a particular inference, conclusion or assumption. To establish validity in the present thesis, there are different types of validity, which are considered below.

Content validity ensures that the items identified in the survey questionnaire are measuring what they really intend to measure (Salkind, 2010). This type of validity is measured through expert evaluation to ensure that the items in the questionnaire are measuring what they should measure (Salkind, 2010). This type of validity was conducted by distributing the

questionnaire to five academics, and based on their comments, important changes were made, related mostly to the language and the layout of the questionnaire.

Internal validity refers to the extent to which changes in the dependent variables are caused by variations in an independent variable (Patzner, 1996). In other words, it refers to the cause-effect relationship. This type of validity was established through testing the relationship between the variables under study.

External validity ascertains how the researcher generalised the results. In the present thesis, the researcher made the external validity test a requirement to generalise the results regarding the usability of the mobile application. This was achieved through conducting a survey questionnaire. Thus, by reaching an equivalent sample size, the results can be generalised (Salkind, 2010).

### **3.10 Ethical issues**

There are no significant concerns regarding ethical issues in this research. The data was collected without any intent to gather personal information. Names were not requested during the survey. The research is only interested in the participant's ideas and views with regards to the system that is being used. The consent form is handed to the participant, with clear details about the task and what is required throughout the experiment, and also offers them the right to stop completing the questionnaire at any time. In addition, the form explains that the data will be used without any identifying information about the participants. Appendix B shows the ethical approval from the ethical community at the University of Huddersfield.

The experiment aspect of the study presented no safety hazards. The participants will merely be using a mobile learning application; the users will test the application and then offer their feedback about the application by completing the 28 questions in the questionnaire. Every time the researcher asked the users to use the mobile application in different internationalised interfaces, the participants were given the following:

- 1- A mobile device (tablet or smart phone), on which the application was already downloaded.
- 2- A printed paper of the questionnaire.
- 3- A pen to complete the questionnaires.

### **3.11 Summary**

This chapter offered a coherent picture of the methodological approach and philosophical premises followed in this thesis. It began by re-contextualizing the research aim and objectives, followed by a discussion of the data collection protocol, in terms of the questionnaire development process, population, sample, and the participants. Finally, this chapter discussed the quantitative data analysis, taking into account various ethical considerations. To offer a more precise explanation of the mobile application that was selected as a project for this thesis (i.e., wireless response system WRS), the next chapter explains this in a further detail.

## **CHAPTER FOUR: IMPLEMENTATION OF THE CASE STUDY (WRS)**

### **4.1 Introduction**

This chapter offers a detailed review of the wireless response system (WRS), with a view to provide a holistic image of this system in terms of its history, purpose, implementation and capabilities. This chapter starts by describing the original system (i.e., developed by others), and then moves to explain what the researcher of this thesis has done. Specifically, this chapter depicts how this system was operated in fourteen different languages. This includes a review of the platform of the system, the procedures conducted towards this end, programming techniques, internationalisation processes and testing of the final system. Finally, this chapter points out the differences between the original and the develop system.

### **4.2 Student Response System (SRS) and Wireless Response System (WRS)**

The Student Response System is the original version of the WRS application. This application can be used via wired devices, such as a PC or laptop. It exchanges the questions and answers between teachers and students. It is divided into different categories and numbers of responses to the questions during the lecture (J. Lu, 2011). This system makes the process of learning more active and informal. The responses and the information can be represented immediately and the results can be represented in the interface (Meng & Lu, 2011). The use of computers in the collection of students' answers goes back to 1960. These types of response systems have been widely used in different educational domains, such as Mathematics lessons, Engineering fields, economic research, medical studies and science, because of its many advantages (Bruff, 2011) (Z. Lu & Global, 2012).

The SRS has been applied to education systems using different technical tools, which have been improved upon over time. Technologies that have been used to adopt it in education processes include wired PCs, PDAs and mobile devices (Mundy, Stephens, & Dykes, 2010). The improvement of SRS presents new a development generation, which is the Wireless Response System (WRS).



The idea behind the WRS is to enable users to offer feedback and respond via using portable devices, such as smart phones tablets and laptops. The reason behind this application is to make interaction between the teacher and the users more interactive and simple, where users can learn in a more technical and modern style, which can also save time, space and resources.

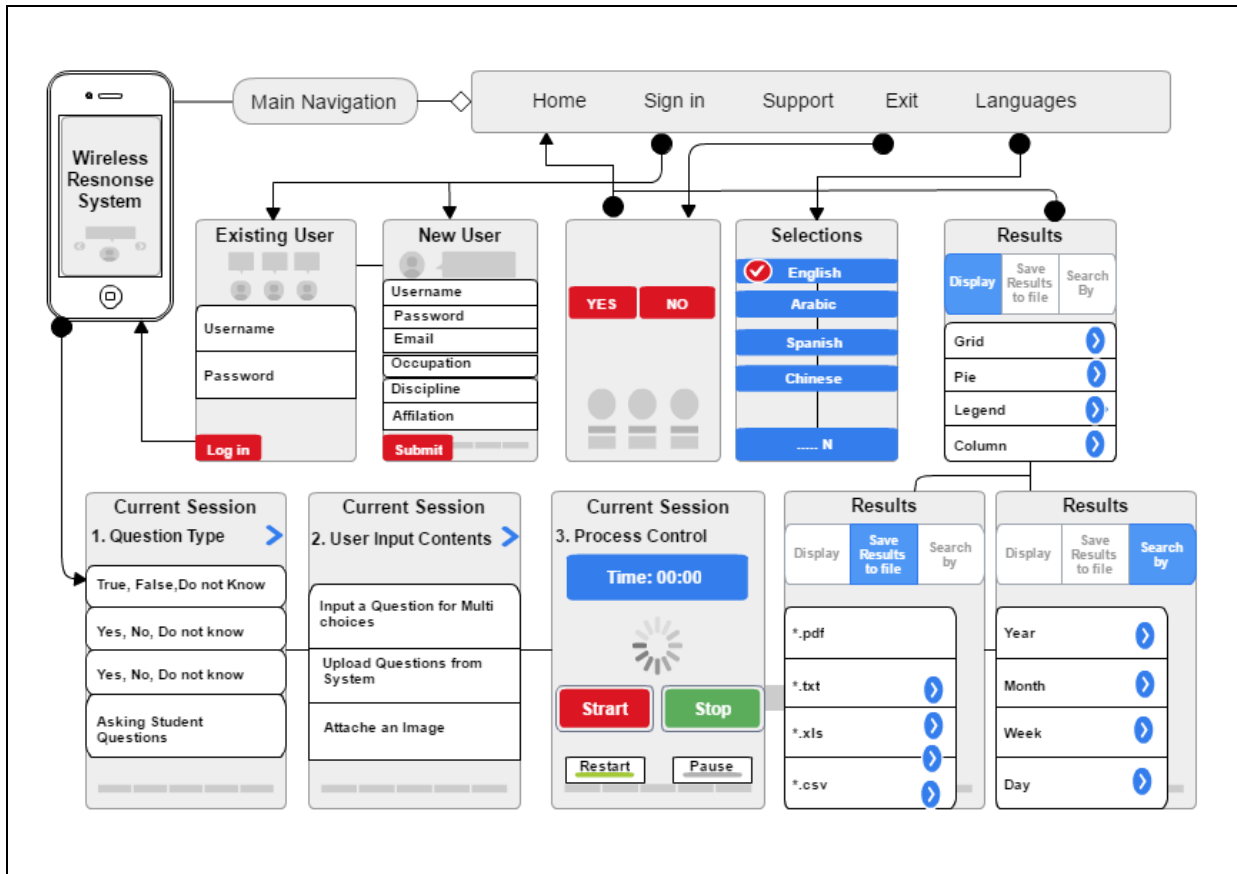
WRS is an M-Learning application, which can be used on a wide range of platforms, including PC's, laptops, tablets, and smart phones. This makes it a convenient application, because it is accessible from anywhere and anytime. WRS supports an informal learning process. It can be used in school trips, museums and in the laboratory.. This is because it enables the instructor or the teacher to exchange questions between each other while they are fully involved in other learning activities.

WRS has been described as a dynamic and flexible application, in comparison to other online desktop assessment systems (Hošková-Mayerová, 2014). To improve the efficiency of the operation of exam applications, a new model was built-in (Meng & Lu, 2011). WRS allows users to answer questions instantly. The format of the questions is multiple choice, which can be provided through various types of media (Sawsaa, Lu, & Meng, 2012). This application can be used independently or can be combined with different learning formats, such as smart boards, and online resources such as Blackboard Learn. It can be installed on mobile devices on any network, such as 3G, 4G or Wi-Fi. WRS applications were originally built in English, but they can be localised in different languages, due to the design and format of the system (Ali & Lu, 2014). It has various features, which can be summarised as follows:

1. Different types of mobile application can be used to develop any content.
2. The application is simple and clear to use for users with various technical backgrounds.
3. It has interactive and active content.
4. It can be developed continuously through different experimental tests.
5. It provides the ability to track the actions of and its use by students through wireless methods (without concerns for time and space).
6. It is designed to be localised into multi-languages.

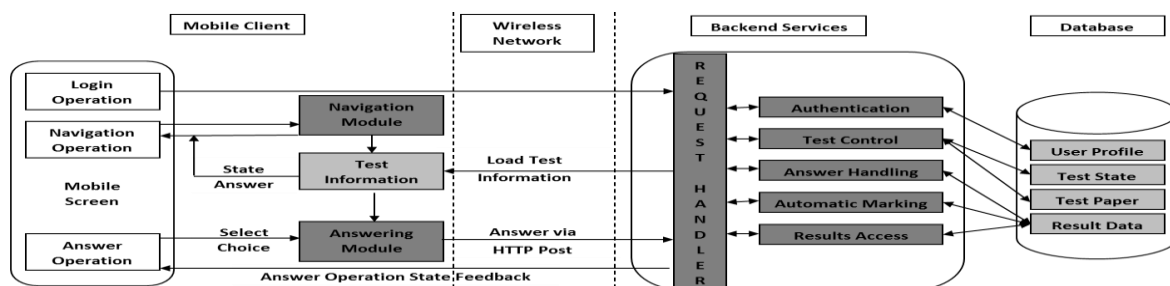
- 7. It can be described as economical and well-costed. (Ally & Tsinakos, 2014).
- 8. It is not complex and has no need for special programmers or technical experts.
- 9. It can be used in research to answer different statistical surveys.

To portray the elements of the WRS, Figure 4.1 depicts the interface for WRS.



**Figure 4.1 WRS Application (Teachers and Students)**

The system is designed with an architecture that provides logical control for the assessment and exam process. The systems of the application are built on two sides, as shown in Figure 4.2. In this system, the exam and the questions are being controlled by the instructors in what is named the teacher side. The other side is being used by the students, who use mobile devices to login and give their feedback and answer the questions. The results are gathered by the server, which is then managed by the back end database.



**Figure 4.2 The Architecture of WRS(Meng & Lu, 2011)**

The back-end server is designed with six fundamental function elements, and the data is classified into four categories, which are loaded onto the database in terms of user profiles, test state, test paper, and the result data. The students' side is divided into two parts: one part contains the questions and the other part provides answers. When the user logs in with an authorised ID and valid test ID, the exam paper is loaded onto the user. The exam paper, along with its information, is saved onto the device. Because most of the process is completed on mobile devices, this reduces the exchanged information with the back end server. Moreover, when users respond, the server loads the requests and gives feedback to inform the student about the state of the response process.

PHP internationalisation is used to nationalise the student's interface. PHP has helped store the content of the interface in a database or file system. This forms the process of the internationalisation of the students interface to give it the following two characteristics. Firstly, the developer provides the mechanism and method for the content to be accessible for the eventual translation of the program and its interface (internationalisation). Secondly, the translator adapts the content into a specific language during the actual localisation. There are various internationalisation mechanisms which differ in their complexity, implementation

time, flexibility, efficiency, and ease of use for the user or translator (Dalvit, Tsietsi, Terzoli, Sam, & Mapi, 2008). These mechanisms include internationalised strings directly in the code, storing the strings in a relational database, storing the strings in arrays, storing the strings in JSON, and using the language resource file. One of these has been used to internationalise WRS into Arabic.

On the other hand, the security of this application is strong when compared with other applications. There are three main features to support and guarantee security. (1) Authentication, in which both registered users (teachers and students) can only login into the device after their ID is identified. (2) Privacy, in which the exchanged information between the registered users and administrators is kept private and protected. (3) Information encryption is used to avoid unauthorised tapping, where the information exchanged between the users and the server is encrypted via HTTP.

Overall, to implement the application with its above design, the following devices, tools, communication medium, and technologies are required:

- The mobile device must be Apple IOS or Google Android.
- The network must have a wireless infrastructure: Wi-Fi, 4G or 3G.
- The management settings are: Flex Builder Application on Pcs and Mac Machines.
- The type of service Architecture is Apache / PHP / My SQL.
- The formats to exchange the information are: XML, JSON (Java Script objective Nation).

In the light of the aforementioned discussion, the following section illustrates the development of the WRS.

### **4.3 Development of the WRS**

The researcher spent time using the WRS to become familiar with it and gain some hands on experience with its features and functions. This was a valuable exercise in helping the researcher to understand how it works. This was done by installing the WRS Teacher

application on a PC and experimenting with it. The student interface was also installed and tested on a number of different smart phones and tablet platforms. Once again, the aim was to gain familiarity and hands on experience. This provided an insight into WRS from a student perspective, through different platforms. The XML Database and Information Retrieval (XDIR) Research Group at the University of Huddersfield developed the Wireless Response System (WRS) (Meng & Lu, 2011).

WRS was developed using Adobe® AIR® runtime and ActionScript® with Adobe Flash Builder 4.6. This enables it to run on a range of desktops, smartphones, and tablets. The Web Server is Apache with PHP and a MySQL Database (Granbäck, 2009). One limitation of the WRS is its English Language interface. As a result, the need for the internationalisation of WRS was identified. The main aim here is to make it more accessible to a wider international community of teachers and students.

The following discussion illustrates, in further detail, the procedure that was followed to develop the WRS in fourteen languages. This includes a discussion on the platform of the system, programming procedure, multilingual WRS processes and testing the final layout of the system.

The below tools were used to conduct the aforementioned work:

- Hardware PC, Macs, Smart Phones and Tables Computers.
- Operating Systems - Windows OS and Mac OS, iOS.
- Eclipse IDE.
- Adobe Flex builder 4.6.
- Action Script.
- PHP.
- MySQL.

In order to support the sub-attributes of the WRS application, different techniques were used, with an aim to minimise the load for both the server of the database and the devices, and to support speed and efficiency.

- **Make this system more effective:** This is done by reducing data interaction whilst the exam is on. This technique is helpful in making the system quicker and more efficient. This takes into consideration the first steps of designing this application.
  
- **Lightweight information technologies:** The designs intend to use a light-weight data format exchange, such as XML and JSON in order to reduce internet latency and cater for the limited bandwidth of the network.

The design of a Two-Tier navigation model has been adapted to offer efficient navigation between the questions. The navigation model is designed in two tiers. The first tier navigation button is on top of the interface and the second has a place on the bottom, for example, button 1-5 in the first tier navigates to questions from 1 to 5. The students can see only one question displayed on the screen. This will represent the information in a clear and unconfused style.

The user presses the button to respond to the question, then the state of information is returned to help the students know whether the operation is finished successfully or not; this pressed button is highlighted in a different colour. The user can be notified which answers were selected in the previous questions by keeping the pressed button highlighted while navigating back between the questions.

In addition, Flex builders were used to code the WRS-Teachers application's Arabic interface. The property files contain translations for each language. The Flex builder framework offers two approaches to how these files are handled (Adobe, 2013; Noble & Anderson, 2008), which are:

- *Compiling the resource bundles directly into the application* (Bihis, 2010).
- *Compiling the resource bundle externally, and loading then into the application at runtime* (Bihis, 2011; Noble & Anderson, 2008).

Approaches A and B have some advantages and disadvantages shown in Table 4.1.

Approach A	
Advantages	Disadvantages
<ul style="list-style-type: none"> <li>• Definitely the easier and quicker approach.</li> <li>• Properties files are easy to read and modify(Noble, et al., 2010).</li> <li>• No increased load-time added to the application to load resource modules(Bihis, 2010).</li> </ul>	<ul style="list-style-type: none"> <li>• The properties files are turned into resource bundles which are then compiled directly into the application. Depending on the number and size of each properties file, this can have a noticeable effect on the size of your application's deliverable SWF(Adobe, 2013).</li> <li>• Any change to the properties files requires a complete recompilation of your entire project(Adobe, 2012).</li> </ul>
Approach B	
<ul style="list-style-type: none"> <li>• Since your resource bundles are compiled into resource modules separately from your application, they have no effect on the size of your application's main SWF(Bihis, 2011).</li> <li>• You can modify your localisation strings without having to. recompile your entire project(Adobe, 2012).</li> <li>• If your application is set up to read the available locales dynamically, then you can actually add new locales at any time(Adobe, 2013).</li> </ul>	<ul style="list-style-type: none"> <li>• This requires a more involved process for generating and loading resource modules.</li> <li>• Modifying a localisation string requires a recompilation of the resource module(Adobe, 2012).</li> <li>• Loading the resource modules at runtime, initially, will take longer than if they were compiled into the application. Also, depending on how your application is set up, this may also require additional network calls(Adobe, 2013).</li> </ul>

**Table 4.1 Compiling the resource bundles in Flex builder**

This is the first approach that was adopted for WRS. A review will need to be undertaken to understand how the size of the language files affects the overall size of the install and runtime files, after which the approach can be changed by compiling the resource files externally.

## **4.4 Multilingual WRS process**

This section explains the Multilingual WRS process, including the procedures, techniques, programming and internationalisation.

### **4.4.1 The Procedures and Techniques**

Choosing a suitable environment and platform is very important towards the design of any application or website. Adobe Flex Builder was chosen as an environment under the eclipse platform to build the WRS application. Flex Builder has been used to create interactive and expressive websites and applications. The processes of internationalisation of the WRS involves a Flex application, which has sets of assets that create multilingual applications. It uses a combination of languages and a country's code. Flex localisation also supports audio files, images and videos.

To internationalise WRS, resource bundles have been used to provide simple amended steps, due to the separation of content and code. The structure of the resource bundles shows that the localisation properties files for each language are defined in strings. The images and the texts are localised (translated) and then added to the properties file. Every internationalised language has separate steps. Then, the data is displayed according to the language that the user selects. More languages can be internationalised to the application by defining new properties files.



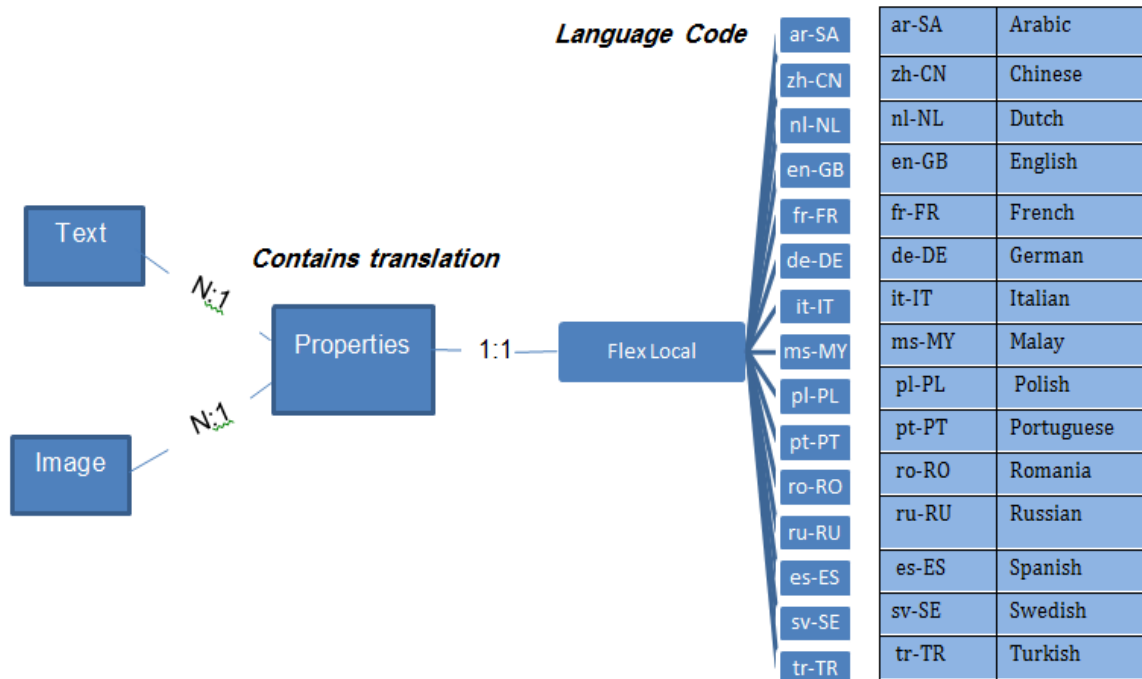


Figure 4.3 The technique to localise languages into the WRS

#### 4.4.2 Programming the WRS

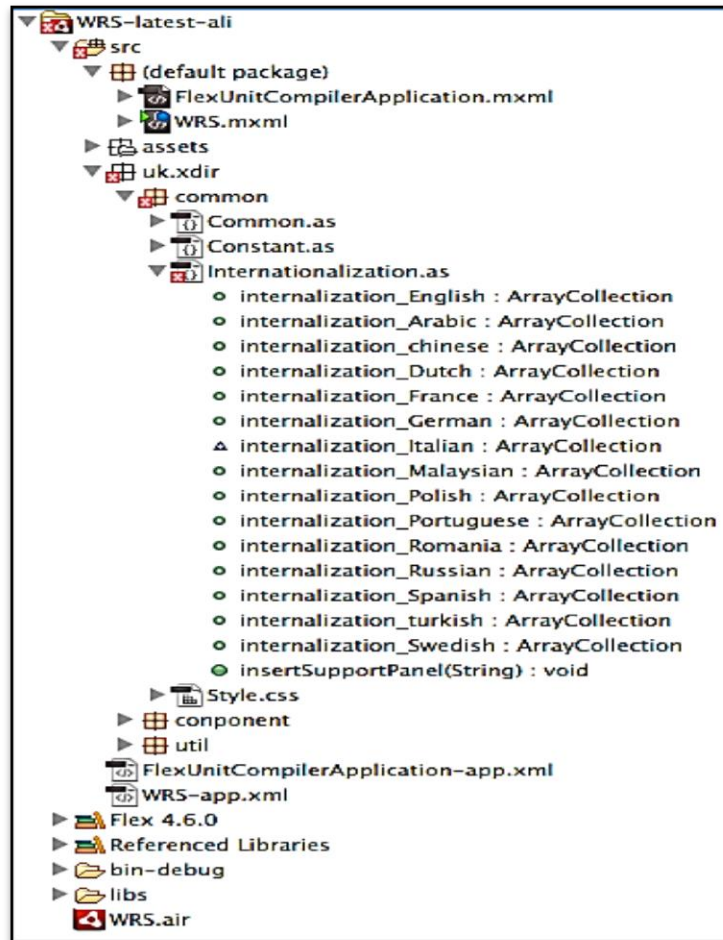
The English language text used in the interface was compiled in a document. This was useful as it highlighted all the words and phrases used in the interface. A document was produced to manage the WRS Interface text. An extract from this table is shown in Table 4.2. This document is maintained by developers and language translators.

#### Text

UID	English	العربية
1	Wireless Response System	نظام الاجابة اللاسلكية
1_1	Sign in	تسجيل الدخول
1_2	Support	دعم

Table 4.2 WRS Interface Translation

As an initial step in the programming procedure, a file was opened for each individual language, as shown in Figure 4.4. In addition, Figure 4.5 shows, as an example, the coding process. For full access to the coding, see Appendix C (1) – C (5).



**Figure 4.4: Initial step in the programming process**

```

        private function changeLTR():void {
this.id_position.setStyle('layoutDirection', 'ltr');
this.parentApplication.id_sign_in_create_account_component.id_position_login.setStyle('layoutDirection',
'ltr');
this.parentApplication.id_sign_in_create_account_component.register_component_id.ntusr.setStyle('directio
n', 'ltr');
this.parentApplication.id_sign_in_create_account_component.register_component_id.ntpwd.setStyle('directi
on', 'ltr');
this.parentApplication.id_sign_in_create_account_component.register_component_id.nemail.setStyle('directi

```

```

on', 'ltr');
this.parentApplication.id_sign_in_create_account_component.register_component_id.id_ti_work.setStyle('direction', 'ltr');
this.parentApplication.id_sign_in_create_account_component.register_component_id.area_id.setStyle('direction', 'ltr');
this.parentApplication.id_sign_in_create_account_component.register_component_id.affiliation_id.setStyle('direction', 'ltr');
this.parentApplication.id_sign_in_create_account_component.login_component_id.id_textinput_username.setStyle('direction', 'ltr');
this.parentApplication.id_sign_in_create_account_component.login_component_id.id_textinput_password.setStyle('direction', 'ltr');
this.parentApplication.entry_component_id.id_entrycomponent.setStyle('layoutDirection', 'ltr');
this.parentApplication.preparequestion_component_id.questiontype_1.setStyle('layoutDirection', 'ltr');
this.parentApplication.history_component_id.id_history_for_result.setStyle('layoutDirection', 'ltr');
this.parentApplication.history_component_id.id_search1.setStyle('layoutDirection', 'ltr');
this.parentApplication.history_component_id.id_search2.setStyle('layoutDirection', 'ltr');
this.parentApplication.history_component_id.id_search3.setStyle('layoutDirection', 'ltr');
this.parentApplication.layout_direction = "ltr";

```

```

        private function changeRTL():void {
this.id_position.setStyle('layoutDirection', 'rtl');
this.parentApplication.id_sign_in_create_account_component.id_position_login.setStyle('layoutDirection', 'rtl');
this.parentApplication.id_sign_in_create_account_component.register_component_id.ntusr.setStyle('direction', 'rtl');
this.parentApplication.id_sign_in_create_account_component.register_component_id.ntpwd.setStyle('direction', 'rtl');
this.parentApplication.id_sign_in_create_account_component.register_component_id.nemail.setStyle('direction', 'rtl');
this.parentApplication.id_sign_in_create_account_component.register_component_id.id_ti_work.setStyle('direction', 'rtl');
this.parentApplication.id_sign_in_create_account_component.register_component_id.area_id.setStyle('direction', 'rtl');
this.parentApplication.id_sign_in_create_account_component.register_component_id.affiliation_id.setStyle('direction', 'rtl');
this.parentApplication.id_sign_in_create_account_component.login_component_id.id_textinput_username.setStyle('direction', 'rtl');
this.parentApplication.id_sign_in_create_account_component.login_component_id.id_textinput_password.setStyle('direction', 'rtl');
this.parentApplication.entry_component_id.id_entrycomponent.setStyle('layoutDirection', 'rtl');

```

```
this.parentApplication.preparequestion_component_id.questiontype_1.setStyle('layoutDirection', 'rtl');  
this.parentApplication.history_component_id.id_history_for_result.setStyle('layoutDirection', 'rtl');  
this.parentApplication.history_component_id.id_search1.setStyle('layoutDirection', 'rtl');  
this.parentApplication.history_component_id.id_search2.setStyle('layoutDirection', 'rtl');  
this.parentApplication.history_component_id.id_search3.setStyle('layoutDirection', 'rtl');  
this.parentApplication.layout_direction = "rtl";
```

**Figure 4.5: The coding**

### **4.4.3 Translation and internationalisation**

This process was conducted and applied to all languages used in this study. In the following section, the focus will be on the Arabic language as an example. In the Arabic language, the layout is different from the many other languages (i.e., from right to left), while in other languages, the layout is often from left to right. This complicated issue was tackled and addressed. A detailed discussion of this is explained below.

Two approaches have been considered for the translation of WRS into Arabic. The first was the evaluation of an on-line translation tool, such as Google Translator. The initial test showed this was prone to errors. The second approach was to use a native Arabic speaker. This was selected, since it provides a more precise translation. The researcher sent the application (WRS) to a professional translation company in December 2014, to ensure an acceptable level of reliability. The name of the company is Certified Translation Services, located in Manchester, UK.

The researcher sent the application to the translation company because this is the most frequent route to develop equivalent application in cross-national and cross-lingual context. Further, the researcher used a professional company to prevent any linguist mistake in terms of grammar, style and vocabularies. Also, to ensure valid and reliable results, the translation process took a place.

Developers can add any new text used in the application to this document. The translators maintain the translations for each language. This makes it simpler to code each language into

localisation files (Schinsky, 2011) and a unique identifier (UID) is used to identify each pair. The translation involved an analysis of each word and its use in this context. This helped in translating it to Arabic. The next step was to encode the translation into the application. The WRS will support several languages. Each language will have its own folder and file. This file will localise the application to one particular locality. With this structure, the WRS will be able to support any additional languages that are needed in the future.

The final step of the translation process for the developers and translator involved testing the Arabic interface. First, a walk-through test was completed to ensure that all the English text was showing in Arabic. Then, a side by side comparison was made between the two interfaces.

#### **4.4.3.1 Translation challenges**

As an example, after creating the WRS for Arabic speaking users, it was essential to evaluate the application to ensure its usability by native speakers of the language. To test the application properly, it became apparent that the testers would need to be shown how to use the application in order to test it fully. The best approach was to ask native Arabic speakers to use the application with both the teacher's and student's interface.

The Arabic script can lead to specific problems. The main issues faced in internationalising the Arabic language interfaces can be summarised as follows (Al-Amoudi, et al., 2013): Character code and encoding, character shaping and text direction algorithms. Using software that supports the code-sets solves these two problems.

Internationalising the Arabic language from the English language as a source can affect the file size, because Arabic translation typically expands 30% in size from English. Also, the direction of writing Arabic from right to left was a further problem.

Overall, as illustrated in the previous chapter, the seventh hypothesis posits that translating the WRS will not affect its overall usability. The next chapter (i.e., data analysis) explains, in further detail, how translating the WRS in all languages affects (or does not affect) the usability of the application.

#### **4.5 Testing WRS in all languages**

Internationalisation testing should be conducted on each language. Every internationalised language should have its own internationalisation test. This was completed through the following steps: (a) cosmetic testing and (b) linguistic testing.

Cosmetic testing is user interface testing. The goal is to focus on all visual aspects of the internationalised application: the dialogue box, menus, reports and messages. The following questions should be taken into account during the cosmetic test.

- 1- Does the internationalised application display the number of menus, options and commands of the source application?
- 2- Are the dialogue boxes properly resized, without truncation? Attention should be paid to the dialogue boxes, where objects overlap, such as buttons, fields and drop-down menus and should be used to change the items on a dialogue box, depending on the options selected by the user.
- 3- Do all extended characters display correctly?
- 4- Do all menu items, status bar messages, help balloons, and dialogue-boxes fit on the screen in all resolutions?

In the current thesis, the linguistic test was considered by following these steps:

- A review of each dialogue - box, menu and the strings of the running time of application.
- Ensuring that all the text has been translated.
- Ensuring that all the characters are displayed correctly.

- Ensuring that the system follows the rules of the localised language.

#### **4.6 The differences between the original and the developed system**

As illustrated earlier in this chapter, the WRS is an M-Learning application, which can be used on a wide range of platforms, including PC's, laptops, tablets, and smart phones. This makes it a convenient application, because it is accessible from anywhere and anytime.

One limitation of the WRS is that the original version was originally built in English. Hence, this thesis aimed to make this system available in different fourteen languages. This section touches on the difference between the original and the developed system (i.e., operates in many languages).

Initially and in terms of the programming process, the user interface was designed using Flash Builder ActionScripts to create Flex project which includes various types of MXML tags. This results in a completed system supporting 14 international languages additional to the original English language. Very complex structure of arrays and variables which controlled by thousands of php code lines (libraries and classes) was commenced in more than 5500 of programming instructions.

In the original version of the system, there was no option for users to select the language, however, in the developed one, a new feature has been included which allow the users to select their languages.

Moreover, due to the differences between languages in terms of the digits' format and character spaces, the interface for the developed system differs from the original version. For example, some words in the Russian language need more spaces than the English language for the same words. Therefore, further modifications were done to improve the final layout of the system.

## **4.7 Summary**

This chapter presented a detailed discussion about the adopted system in this thesis, i.e. the WRS. Towards achieving the aims of this thesis, this system was run through fourteen languages. As mentioned above, this chapter explained this process in detail by paying further attention to the platform of the system, programming procedure, internationalisation process and testing of the final layout of the system. The next chapter will offer a detailed discussion of the analysis with regards to reporting the results.



## **CHAPTER FIVE: DATA ANALYSIS AND RESULTS**

### **5.1 Introduction**

As discussed in the previous chapters, the main aim of this thesis is to measure the usability of the proposed WRS application. To achieve this, this chapter explains the techniques that were used to evaluate the usability of the WRS application, towards achieving the research objectives. This chapter begins by discussing the descriptive data, including details of the demographic information of the surveyed sample, as well as the distribution of the data. Additionally, this chapter presents the steps that were used to evaluate the usability of the WRS application, following (1) the Fuzzy theory and (2) the SPSS software in order to test the research hypothesis.

### **5.2 Descriptive statistics**

#### **5.2.1 Descriptive**

As an initial step and prior to testing the hypothesis, the collected data was tabulated in the SPSS software. Given that it is important to illustrate the descriptive statistics, an analysis of the descriptive part in this thesis, including calculating the mean, standard deviation, minimum and maximum values was accomplished.

The mean is commonly used to measure the central tendency of the data (Valente, 2002) as well as to detect the differences between the data. On the other hand, Standard deviation uses the mean as a reference point and determines the distance between each score and the mean to calculate variability to reflect whether the scores are close to the mean, or if they are scattered (Valente, 2002). Table 5.1 presents these descriptive data.

<b>Variable</b>	<b>Mean</b>	<b>SD</b>	<b>Minimum</b>	<b>Maximum</b>
Effectiveness	4.264	0.453	3.14	5.00
Efficiency	4.345	0.297	3.29	5.00
Satisfaction	4.396	0.354	3.43	5.00
Comprehensibility	4.172	0.425	3.00	5.00
Usability	4.619	0.311	4.00	5.00

**Table 5.1 Descriptive statistics**

### **5.2.2 Demographic data**

The SPSS software was used to offer some facts about the sample of the study. The recorded information of the sample was: gender, age, educational level, language, and occupational level. The table below presents the demographic profile of the participants in this study.

Characteristics	Categories	Frequency	Percentage
Gender	Male	117	39.7
	Female	178	60.3
Age	Less than 20	11	3.7
	21 to 30	164	55.6
	31 to 40	95	32.2
	41 to 50	21	7.1
	More than 50	4	1.4
Educational level	Under Bachelor	21	7.1
	Bachelor	132	44.7
	Masters	97	32.9
	PhD	45	15.3
Language	Arabic	35	11.9
	Chinese	20	6.8
	Dutch	18	6.1
	English	40	13.6
	French	20	6.8
	Italian	27	9.2
	Malay	20	6.8
	Netherlands	9	3.1
	Polish	21	7.1
	Portuguese	7	2.4
	Romanian	25	8.5
	Russian	7	2.4
	Spanish	20	6.8
	Swedish	6	2.0
Turkish	20	6.8	
Occupational level	Teacher	110	37.3
	Student	185	62.7

**Table 5.2 Demographic data**

### 5.3 Normality of distribution

The test of normality using Skewness and Kurtosis indicates that the research variables were normally distributed. The data will be considered as normally distributed if the value of Skewness and Kurtosis range from -1 to +1 (Oppenheim, 1992). The table below shows that the research variables are normally distributed.

<b>Variable</b>	<b>Skewness</b>	<b>Kurtosis</b>
Effectiveness	-0.667	-0.340
Efficiency	-0.624	0.866
Satisfaction	-0.441	-0.197
Comprehensibility	-0.183	-0.584
Usability	-0.849	-0.282

**Table 5.3 Normality of distribution**

## **5.4 Data analysis and results**

### **5.4.1 Determining the usability of the WRS using Fuzzy theory**

Fuzzy theory will be used to evaluate the usability of the multilingual mobile learning application. Fuzzy set theory deals with the problems of ambiguities, uncertainties, imprecision, vagueness and subjectivity associated with human judgement (Anand Raj & Nagesh Kumar, 1999; Cheng, et al., 2011; Filipowicz, 2008; Kabir & Hasin, 2012).

This theory was developed in 1965 by Zadeh. The usefulness of the theory lies in how it can define some form of uncertainty. Zadeh developed Fuzzy logic to account for the Fuzziness of natural language, for example, “well” and “not well”. This mathematical tool is used to solve problems of ambiguity and vagueness. Zadeh proposed using value ratings from zero to one to present the membership function,  $\mu_A(X) = 1$  and if it clearly doesn't  $\mu_A(X) = 0$ , the value between zero and one represents an intermediate degree of membership (Bhutia & Phipon, 2012).

Triangular Fuzzy numbers are employed to parameterise the linguistic variables used by the experts, in order to judge their opinion on the evaluation of the usability criteria of the mobile learning application. In the current thesis, usability was measured using Fuzzy theory by calculating scores for the effectiveness, efficiency, satisfaction and comprehensibility using the logic of this theory.

Based on the literature review, several articles were found that used the same procedure to measure usability by looking at different dimensions following the Fuzzy AHP theory (e.g., Challa et al. 2011; Dubey & Pandey, 2015; Dubey & Sharma, 2015; Lin & Lee, 2007; P. R. Srivastava, Singh, & Vageesh, 2010; Sengupta & Vishnupriya, 2015).

To measure the usability of every language of the WRS by applying Fuzzy AHP theory, there are steps that should be applied to ascertain the usability of every language.

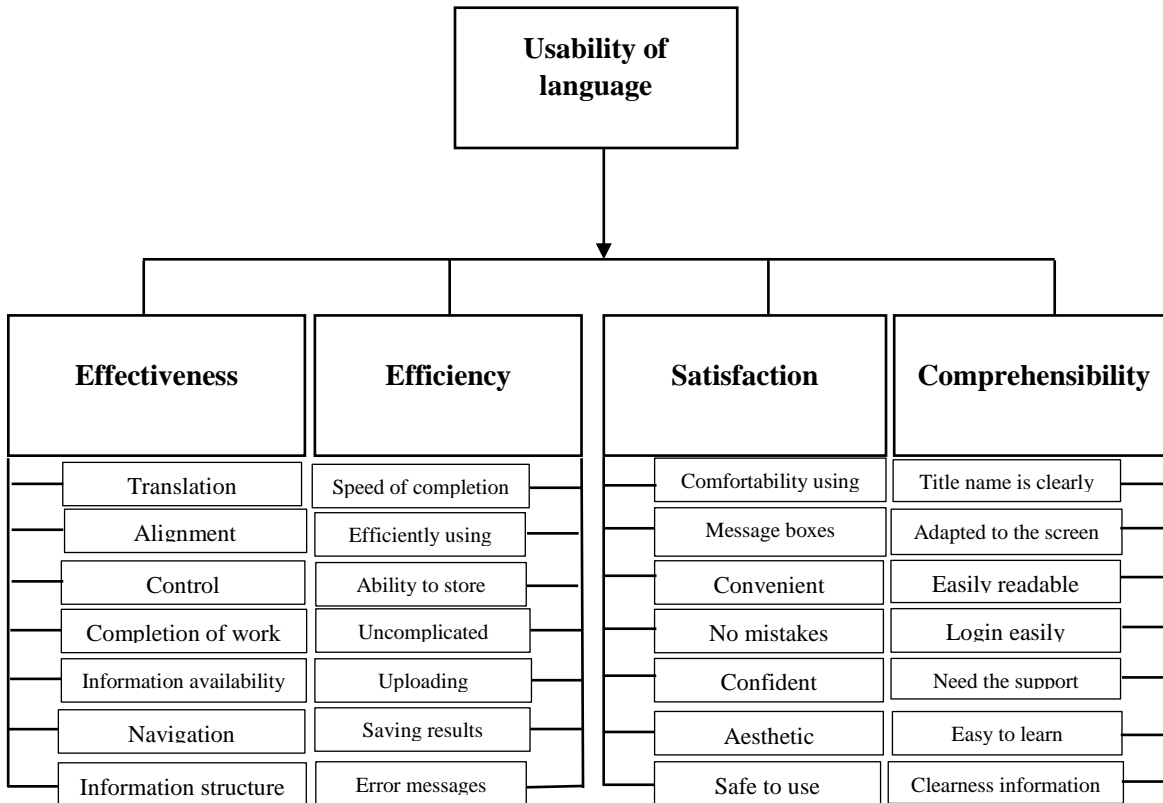
1- Assign the sub-attributes, which are represented by the questions in the every questionnaire, which is then put in a Likert scale format from one to five. Every scale has a real time value. As shown in the table: number one is strongly disagree (SD), number two is disagree (D), number three is neutral (N), number four is agree (A), and number five is strongly agree (SA).

<b>Likert scale</b>		
<b>Strongly Disagree</b>	<b>1</b>	<b>SD</b>
<b>Disagree</b>	<b>2</b>	<b>D</b>
<b>Neutral</b>	<b>3</b>	<b>N</b>
<b>Agree</b>	<b>4</b>	<b>A</b>
<b>Strongly Agree</b>	<b>5</b>	<b>SA</b>

**Table 5.4 Likert scale**

2- As suggested by Satty, the hierarchy structure was built with all the attributes and their sub-attributes, which are used to measure usability. As shown in the figure, there are four attributes assigned to evaluate the usability, which are: effectiveness, efficiency, satisfaction, and comprehensibility. Then, every attribute has its own sub-attributes. The sub-attributes of the effectiveness are: translation, alignment, control, completion of work, information availability, and navigation and information structure. The efficiency sub-attributes are: speed of completion, efficiently using, ability to store, uncomplicated, uploading, saving results and

error messages. The satisfaction sub-attributes are: comfortability using, message boxes appeared convenient, no mistake confident, aesthetic and safe to use. The sub-attributes of comprehensibility are: title name is clear, adopted to the screen, easily readable, login easily, needs support and easy to learn. All these sub-attributes were generated from the questions that were used in the questionnaire, as in the appendix A.



**Figure 5.1 Hierarchical structure for usability**

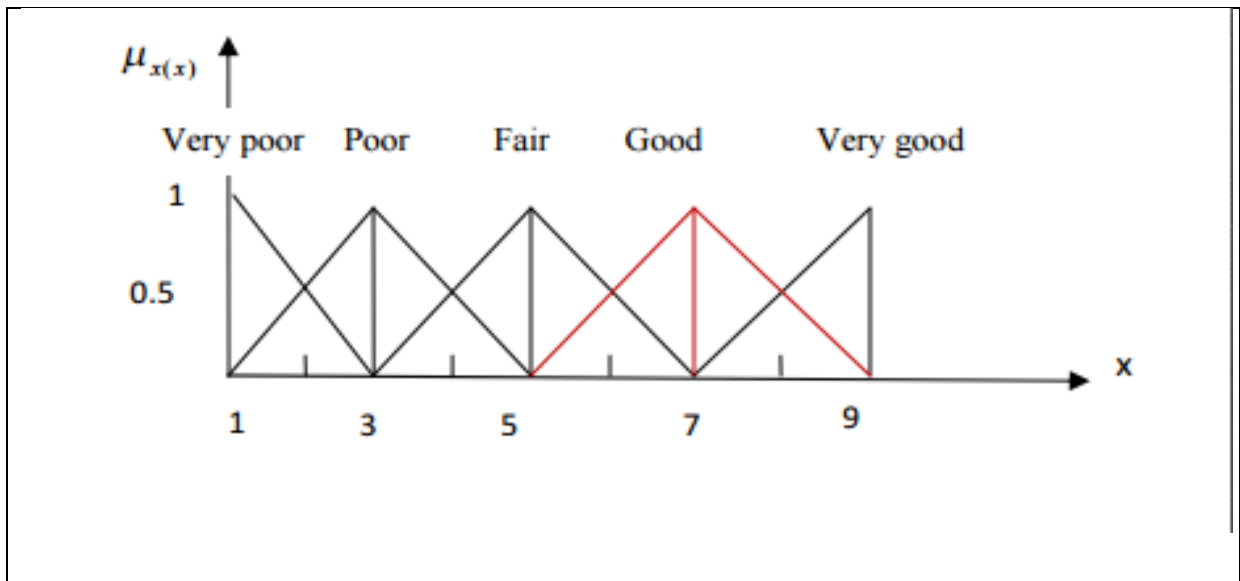
3- Performance of the fuzzification process by assigning the real time value to the fuzzy sets. The fuzzification of the value given by the users using the questionnaire represent the sub-attributes, as given in the following table. Strongly disagree (SD) is given the value very poor (VP), disagree (D) is given the value Poor (P), neutral (N) is given the value Fair (F), agree (A) is given the value Good (G), and strongly agree (SA) is given the value very high (VH).

**Fuzzification of sub-attributes**

Question Value			Fuzzy value
1	Strongly Disagree	SD	VP
2	Disagree	D	P
3	Neutral	N	F
4	Agree	A	G
5	Strongly Agree	SA	VG

**Table 5.5 Rates values**

4- The weights and the rates of every sub-attribute gained by the users are fuzzified by the triangular fuzzy set numbers. The rates are presented in table 5.6 and the weights value in table 5.7.



**Figure 5.2 Membership function of the levels of linguistic variables**

Fuzzy Rates	
VP	(0.0, 0.1, 0.3)
P	(0.1, 0.3, 0.5)
F	(0.5, 0.7, 0.9)
G	(0.7, 0.9, 1.0)
VG	(0.9, 1.0, 1.0)

**Table 5.6 Rates values**

<b>Fuzzy weights</b>	
<b>VP</b>	<b>(0.0, 0.0, 0.25)</b>
<b>P</b>	<b>(0.0, 0.25, 0.5)</b>
<b>F</b>	<b>(0.25, 0.5, 0.75)</b>
<b>G</b>	<b>(0.5, 0.75, 1.0)</b>
<b>VG</b>	<b>(0.75, 1.0, 1.0)</b>

**Table 5.7 Weights values**

The following example shows all the steps that were conducted to measure the usability of the English language, including the calculations of the rates and weights. Tables 5.8 – 5.11 show the rates and weights for the 7 sub-attributes within the four attributes (i.e., effectiveness, efficiency, satisfaction and comprehensibility).

Sub-attribute 1 (Effectiveness): Rates and weights for all seven sub-attributes for all users (N=40).

<b>Serial Numbers for users</b>	<b>Sub-attributes</b>	<b>Attribute A ( Effectiveness )</b>					
		<b>Ratings(R)</b>			<b>Weights(W)</b>		
<b>For all users</b>	1	0.85	0.98	1.00	0.69	0.94	1.00
	2	0.79	0.94	1.00	0.61	0.86	1.00
	3	0.83	0.97	1.00	0.67	0.92	1.00
	4	0.84	0.97	1.00	0.68	0.93	1.00
	5	0.85	0.97	1.00	0.69	0.94	0.99
	6	0.83	0.97	1.00	0.66	0.91	0.99
	7	0.84	0.97	1.00	0.68	0.93	1.00

**Tables 5.8 Sub-attribute 1: Rates and weights**



Sub-attribute 2 (Efficiency)

Serial Numbers for users	Sub-attributes	Attribute B ( Efficiency )					
		Ratings(R)			Weights(W)		
For all users	8	0.87	0.99	1.00	0.72	0.97	1.00
	9	0.86	0.98	1.00	0.7	0.95	1.00
	10	0.82	0.96	1.00	0.66	0.91	0.99
	11	0.84	0.97	1.00	0.68	0.93	1.00
	12	0.78	0.94	1.00	0.63	0.88	1.00
	13	0.90	1.00	1.00	0.75	1.00	1.00
	14	0.67	0.82	0.9	0.51	0.74	0.87

**Tables 5.9 Sub-attribute 2: Rates and weights**

Sub-attribute 3 (Satisfaction)

Serial Numbers for users	Sub-attributes	Attribute C ( Satisfaction)					
		Ratings(R)			Weights(W)		
For all users	15	0.84	0.97	1.00	0.68	0.93	1.00
	16	0.82	0.95	0.99	0.66	0.91	0.99
	17	0.85	0.98	1.00	0.69	0.94	1.00
	18	0.83	0.96	1.00	0.66	0.91	1.00
	19	0.86	0.98	1.00	0.69	0.94	0.99
	20	0.83	0.97	1.00	0.67	0.92	1.00
	21	0.87	0.98	1.00	0.71	0.96	1.00

**Tables 5.10 Sub-attribute 3: Rates and weights**

Sub-attribute 4 (Comprehensibility)

Serial Numbers for users	Sub-attributes	Attribute D ( Comprehensibility)					
		Ratings(R)			Weights(W)		
For all users	22	0.86	0.98	1.00	0.71	0.96	1.00
	23	0.7	0.84	0.91	0.55	0.79	0.9
	24	0.84	0.97	1.00	0.68	0.93	1.00
	25	0.85	0.98	1.00	0.69	0.94	1.00
	26	0.68	0.82	0.90	0.52	0.75	0.88
	27	0.83	0.97	1.00	0.67	0.92	1.00
	28	0.85	0.98	1.00	0.69	0.94	1.00

**Tables 5.11 Sub-attribute 4: Rates and weights**

Based on the above tables, the researcher calculated the rates and weights for the four attributes by following the below equations.

$$r_1 \times w_1 + r_2 \times w_2 + \dots + r_n \times w_n = \sum r_i \times w_i$$

Ratings (R) = (R sub-attribute 1 \* W sub-attribute 1 + ..... + R sub-attribute n \* W sub-attribute n)

Weight (W) = W sub-attribute 1 + W sub-attribute 2 + ..... + W sub-attribute

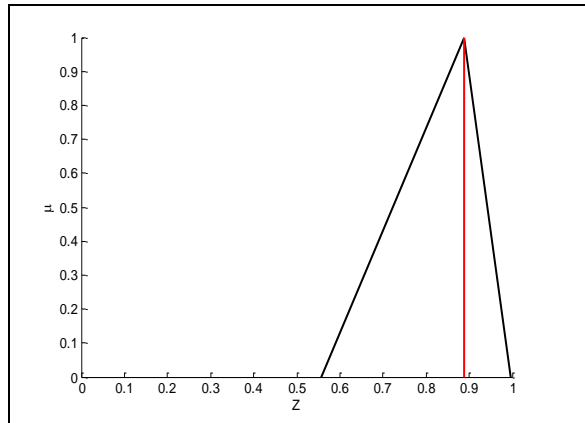
Serial Numbers for users	Sub-attribute	Attribute A - Effectiveness								
		Ratings(R)			Weights(W)			R*W		
For all users	1	0.85	0.98	1.00	0.69	0.94	1.00	0.59	0.92	1.00
	2	0.79	0.94	1.00	0.61	0.86	1.00	0.48	0.81	1.00
	3	0.83	0.97	1.00	0.67	0.92	1.00	0.56	0.89	1.00
	4	0.84	0.97	1.00	0.68	0.93	1.00	0.57	0.90	1.00
	5	0.85	0.97	1.00	0.69	0.94	0.99	0.59	0.91	0.99
	6	0.83	0.97	1.00	0.66	0.91	0.99	0.55	0.88	0.99
	7	0.84	0.97	1.00	0.68	0.93	1.00	0.57	0.90	1.00

**Tables 5.12 Rates \* weights attribute A**

Rates and weights for the effectiveness:

R attribute A = (0.557, 0.889, 0.997)

W attribute A = (0.669, 0.919, 0.997)



**Figure 5.3 Rate value for the Effectiveness**

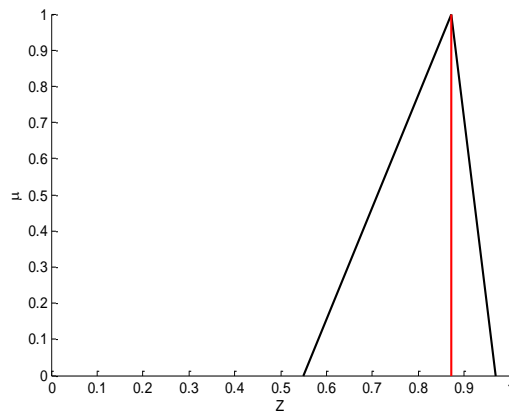
Serial Numbers for users	Sub-attribute	Attribute B - Efficiency								
		Ratings(R)			Weights(W)			R*W		
For all users	8	0.87	0.99	1.00	0.72	0.97	1.00	0.63	0.96	1.00
	9	0.86	0.98	1.00	0.7	0.95	1.00	0.60	0.93	1.00
	10	0.82	0.96	1.00	0.66	0.91	0.99	0.54	0.87	0.99
	11	0.84	0.97	1.00	0.68	0.93	1.00	0.57	0.90	1.00
	12	0.78	0.94	1.00	0.63	0.88	1.00	0.49	0.83	1.00
	13	0.90	1.00	1.00	0.75	1.00	1.00	0.68	1.00	1.00
	14	0.67	0.82	0.9	0.51	0.74	0.87	0.34	0.61	0.78

**Table 5.13 Rates \* weights attribute B**

For the efficiency

R attribute B = (0.550, 0.872, 0.968)

W attribute B = (0.664, 0.911, 0.980)



**Figure 5.4 Rate value for the Efficiency**

Rates and weights for the satisfaction.

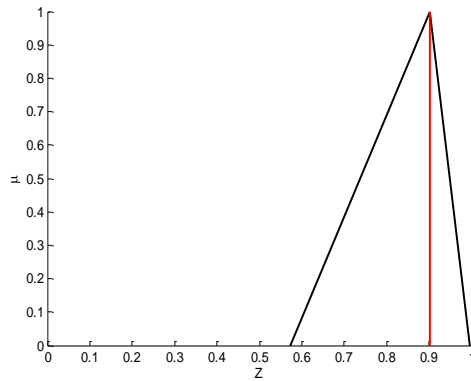
Serial Numbers for users	Sub-attribute	Attribute C - Satisfaction								
		Ratings(R)			Weights(W)			R*W		
For all users	15	0.84	0.97	1.00	0.68	0.93	1.00	0.57	0.90	1.00
	16	0.82	0.95	0.99	0.66	0.91	0.99	0.54	0.86	0.98
	17	0.85	0.98	1.00	0.69	0.94	1.00	0.59	0.92	1.00
	18	0.83	0.96	1.00	0.66	0.91	1.00	0.55	0.87	1.00
	19	0.86	0.98	1.00	0.69	0.94	0.99	0.59	0.92	0.99
	20	0.83	0.97	1.00	0.67	0.92	1.00	0.56	0.89	1.00
	21	0.87	0.98	1.00	0.71	0.96	1.00	0.62	0.94	1.00

**Table 5.14 Rates \* weights attribute C**

For the Satisfaction.

R attribute C = (0.573, 0.902, 0.996)

W attribute C = (0.680, 0.930, 0.997)



**Figure 5.5 Rate value for the Satisfaction**

Rates and weights for the comprehensibility.

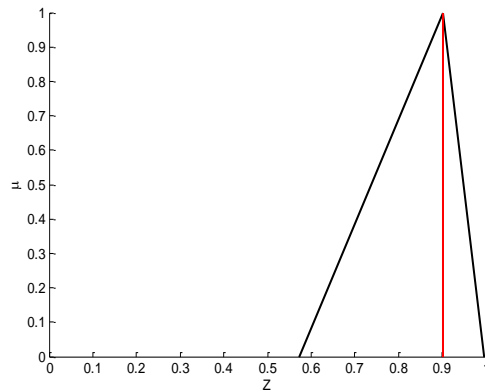
Serial Numbers for users	Sub-attribute	Attribute D - Comprehensibility								
		Ratings(R)			Weights(W)			R*W		
For all users	22	0.86	0.98	1.00	0.71	0.96	1.00	0.61	0.94	1.00
	23	0.7	0.84	0.91	0.55	0.79	0.9	0.39	0.66	0.82
	24	0.84	0.97	1.00	0.68	0.93	1.00	0.57	0.90	1.00
	25	0.85	0.98	1.00	0.69	0.94	1.00	0.59	0.92	1.00
	26	0.68	0.82	0.90	0.52	0.75	0.88	0.35	0.62	0.79
	27	0.83	0.97	1.00	0.67	0.92	1.00	0.56	0.89	1.00
	28	0.85	0.98	1.00	0.69	0.94	1.00	0.59	0.92	1.00

**Table 5.15 Rates \* weights attribute D**

For the Comprehensibility.

R attribute D = (0.521, 0.837, 0.944)

W attribute D = (0.644, 0.890, 0.969)



**Figure 5.6 Rate value for the Comprehensibility**

In this stage, to calculate the usability, the following equations were used.

$$r_1 \times w_1 + r_2 \times w_2 + \dots + r_n \times w_n = \sum r_i \times w_i$$

$$\text{Ratings (R)} = (\text{R attribute 1} * \text{W attribute 1} + \dots + \text{R attribute n} * \text{W attribute n})$$

$$\text{Weight (W)} = \text{W attribute 1} + \text{W attribute 2} + \dots + \text{W attribute n}$$

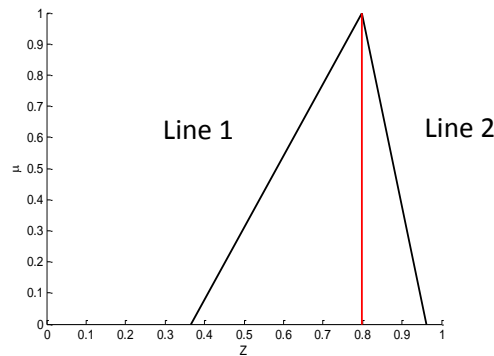
**Ratings and weights of the Usability**

The Variables	Fuzzy Rating (R)			Fuzzy weight (W)			R * W		
	<b>Effectiveness</b>	0.557	0.889	0.997	0.669	0.919	0.997	0.373	0.817
<b>Efficiency</b>	0.550	0.872	0.968	0.664	0.911	0.980	0.365	0.794	0.949
<b>Satisfaction</b>	0.573	0.902	0.996	0.680	0.930	0.997	0.390	0.839	0.993
<b>Comprehensibility</b>	0.521	0.837	0.944	0.644	0.890	0.969	0.336	0.745	0.915

**Table 5.16 Rates \* weights for the usability**

Rate of all attributes= (0.366, 0.799, 0.963).

In the final stage, to convert the rate value (0.366, 0.799, 0.963) to a value that can be used as an indicator for usability, the following integral should be used.



**Figure 5.7 Rate value for the Usability**

Centroid Formula: Usability for English language  $Z^* = \frac{\int \mu(z)z dz}{\int \mu(z) dz}$

Here  $Z^*$  is the defuzzified crisp value.  $Z$  is the value on x-axis and  $\mu(z)$  is the membership function.

Equation of line 1

$$Y = 0, X = 0.366,$$

$$Y = mx + b$$

$$M = \frac{1-0}{0.799-0.66} = \frac{1}{0.139} = 7.19$$

$$M = 7.19$$

$$Y = 7.19x + b$$

$$B = Y - 7.19 X$$

$$B = 0 - 7.19 \times 0.366$$

$$B = -2.63$$

$$\mu(z) = mz + b$$

Equation of line 1:  $\mu(z) = 7.19z - 2.63$

Equation of line 2

$$\mu(z) = mz + b$$

$$M = \frac{1-0}{0.799-0.963} = \frac{1}{-0.164} = -6.09$$

$$M = -6.09$$

$$B = 0 - (-6.09 \times 0.963)$$

$$B = -5.86$$

$$\mu(z) = -6.09z - 2.63$$

$$\text{Equation of line 2: } \mu(z) = 5.86 - 6.09z$$

$$\text{Equation of line 1: } \mu(z) = 7.19z - 2.63$$

$$\text{Equation of line 2: } \mu(z) = 5.86 - 6.09z$$

$$z^* = \frac{\int \mu(z)z dz}{\int \mu(z) dz}$$

$$Z = (\int (7.19z - 2.63)z dz (z=0.366 \text{ to } 0.799) + \int (5.86 - 6.09z)z dz (z=0.799 \text{ to } 0.963)) / (\int (7.19z - 2.63)z dz (z=0.366 \text{ to } 0.799) + \int (5.86 - 6.09z)z dz (z=0.799 \text{ to } 0.963))$$

In the current thesis, MATLAB R2013a was used to calculate the above integral. Accordingly, the usability value for the English language is **0.893**.

The same procedure for all the languages was used. For a full access to this procedure (step by step), see appendix E.

#### 5.4.2 Testing the research hypothesis

To answer the research questions, this thesis used the SPSS software to test the differences between the English language and all other languages in terms of effectiveness, efficiency, satisfaction and comprehensibility, and it was further used to examine how such attributes lead to a greater usability of the WRS application. The following sub-sections discuss the results based on the research objectives.



#### **5.4.2.1 The effectiveness of WRS**

As discussed in the previous chapters, the first objective was to investigate the effectiveness of using the WRS in all languages, in order to verify if there are any apparent differences between the English language and all the other languages. Therefore, SPSS was used to this end. Specifically, an independent T-test was run to test if the variance (in terms of effectiveness) between the English language and the other languages is significant. The tables below, for example, show that the effectiveness of the WRS in the English language is significantly better and statistically different from the Arabic language.

**Group Statistics**

	The mother language	N	Mean	Std. Deviation	Std. Error Mean
Effectiveness	Arabic	35	4.4122	.28733	.04857
	English	40	4.6643	.28854	.04562

**Table 5.18 Group Statistics**

**Independent Samples Test**

	Levene's Test for Equality of Variances	t-test for Equality of Means								
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Effectiveness	Equal variances assumed	.000	.996	-3.781	73	.000	-.25204	.06665	-.38488	-.11920
	Equal variances not assumed			-3.782	71.763	.000	-.25204	.06663	-.38488	-.11920

**Table 5.19 Independent Samples Test**

To show the variances between the English language and all other languages, Table 5.20 shows this in further details.

Languages	Levene's Test for Equality of Variances		t-test for Equality of Means					
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	
Chinese	1.435	.236	Equal variance assumed	-1.953	58	.056	-.16429	.08411
			Equal variance not assumed	-1.844	32.887	.074	-1.6429	.08908
Dutch	3.703	.059	Equal variance assumed	-6.386	56	.000	-.59286	.09284
			Equal variance not assume	-5.639	25.213	.000	-.59286	.10513
French	2.896	.094	Equal variance assumed	-7.990	58	.000	-.70000	.08761
			Equal variance not assume	-7.315	30.535	.000	-7.0000	.09569
Italian	11.974	.001	Equal variance assumed	-8.149	65	.000	-.74894	.09190
			Equal variance not assume	-7.466	39.537	.000	-.74894	.10031
Malay	9.724	.003	Equal variance assumed	-5.405	58	.000	-.55000	.10175
			Equal variance not assume	-4.551	25.497	.000	-.55000	.12085
Netherlands	2.184	.146	Equal variance assumed	-1.078	47	.286	-.10873	.10082
			Equal variance not assume	-1.436	18.482	.168	-.10873	.07573

Polish	5.717	.020	-4.875	59	.000	-.45340	.09300
Equal variance assumed			-4.307	29.510	.000	-.45340	.10527
Equal variance not assume							
Portuguese	3.273	.077	-.468	45	.642	-.05204	.11123
Equal variance assumed			-.850	24.479	.406	-.05204	.06122
Equal variance not assume							
Romanian	1.033	.313	-3.108	63	.003	-.23571	.07583
Equal variance assumed			-3.054	48.144	.004	-.23571	.07719
Equal variance not assume							
Russian	1.515	.225	-3.725	45	.001	-.41939	.11259
Equal variance assumed			-5.559	14.189	.000	-.41939	.07544
Equal variance not assume							
Spanish	7.040	.010	-7.290	58	.000	-.69286	.09504
Equal variance assumed			-6.346	27.294	.000	-.69286	.10918
Equal variance not assume							
Swedish	3.156	.083	-.575	44	.568	-.06905	.11998
Equal variance assumed			-1.091	18.816	.289	-.06905	.06332
Equal variance not assume							
Turkish	5.097	.028	-8.714	58	.000	-.80714	.09262
Equal variance assumed			-7.697	28.160	.000	-.80714	.10486
Equal variance not assumed							

**Table 5.20 T-test comparing the effectiveness of the WRS in English language and all other language**

The above table shows that the effectiveness of the WRS in the English language is significantly better and statistically different from the Dutch, French, Italian, Malay, Polish, Romanian, Russian, Spanish and Turkish languages ( $p < .05$ ). However, the results show that the effectiveness of the WRS in the English language is not significantly better and statistically different from the Chinese, Netherlands, Portuguese and Swedish languages ( $p > .05$ ).

#### **5.4.2.2 The efficiency of WRS**

As discussed in the previous chapters, the second objective was to investigate the efficiency of using the WRS in all languages, in order to verify if there are any apparent differences between the English language and all the other languages. The table below shows the results of the T-test for the research variables.

The table below shows that the efficiency of the WRS in the English language is significantly better and statistically different from the Arabic language ( $p < .05$ ). However, the results also show that the effectiveness of the WRS in the English language is not significantly better and statistically different from the Chinese, Netherlands, Portuguese, Swedish, Dutch, French, Italian, Malay, Polish, Romanian, Russian, Spanish and Turkish languages ( $p > .05$ ).

Languages	Levene's Test for Equality of Variances		T-test for Equality of Means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Arabic	3.924	.062	3.244	19	.004	.30556	.09418
Equal variance assumed			2.963	11.019	.013	.30556	.10311
Equal variance not assumed							
Chinese	2.345	.152	1.106	12	.291	.26032	.23543
Equal variance assumed			.900	4.980	.409	.26032	.28920
Equal variance not assumed							
Dutch	3.333	.088	1.732	15	.104	.19246	.11111
Equal variance assumed			1.799	12.031	.097	.19246	.10700
Equal variance not assumed							
French	.428	.523	.981	15	.342	.12103	.12344
Equal variance assumed			.997	14.678	.335	.12103	.12137
Equal variance not assume							
Italian	.139	.714	.517	16	.612	.06349	.12270
Equal variance assumed			.517	15.452	.612	.06349	.12270
Equal variance not assume							
Malay	.303	.590	-.439	15	.667	-.05754	.13101

Equal variance assumed			-.442	14.999	.665	-.05754	.13006
Equal variance not assumed							
Netherlands	.013	.909	1.101	12	.293	.17460	.15862
Equal variance assumed			1.098	8.333	.303	.17460	.15897
Equal variance not assume							
Polish	.412	.528	-.861	20	.399	-.10012	.11629
Equal variance assumed			-.845	16.201	.410	-.10012	.11847
Equal variance not assumed							
Portuguese	1.422	.261	.365	10	.723	.07937	.21764
Equal variance assumed			.282	2.531	.799	.07937	.28149
Equal variance not assumed							
Romanian	3.579	.079	1.481	14	.161	.17460	.11791
Equal variance assumed			1.603	12.320	.134	.17460	.10890
Equal variance not assumed							
Russian	.862	.375	1.532	10	.157	.26984	.17618
Equal variance assumed			2.010	6.146	.089	.26984	.13422
Equal variance not assumed							

Spanish	.261	.617	-.783	15	.446	-.12897	.16469
Equal variance assumed			-.768	12.626	.457	-.12897	.16797
Equal variance not assumed							
Swedish	3.298	.103	1.518	9	.163	.31746	.20911
Equal variance assumed			3.357	8.000	.010	.31746	.09457
Equal variance not assume							
Turkish	.021	.887	.933	15	.366	.13889	.14894
Equal variance assumed			.924	13.937	.371	.13889	.15037
Equal variance not assumed							

**Table 5.21 T-test comparing the efficiency of the WRS in English language and all other languages**



#### **5.4.2.3 User's satisfaction with WRS implementation**

As discussed in the previous chapters, the third objective was to investigate the satisfaction of the users with WRS implementation in all languages, in order to verify if there are any apparent differences between the English language and all the other languages. The table below illustrates the results of the T-test for the research variables.

The table below shows that the satisfaction of the users with WRS implementation in the English language is significantly better and statistically different from the Arabic, Chinese, Portuguese, Dutch, French, Italian, Malay, Polish, Romanian, Russian, Spanish and Turkish languages ( $p < .05$ ). However, the results also show that the satisfaction of the users with WRS implementation in the English language is not significantly better and statistically different from the Netherlands and Swedish languages ( $p > .05$ ).

Languages	Levene's Test for Equality of Variances		T-test for Equality of Means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Arabic	.432	.513	-4.160	73	.000	-.25510	.06133
Equal variance assumed			-4.176	72.584	.000	-.25510	.06108
Equal variance not assumed							
Chinese	4.220	.044	-3.333	58	.002	-.29286	.08787
Equal variance assumed			-2.935	27.964	.007	-.29286	.09980
Equal variance not assumed							
Dutch	1.002	.321	-7.528	56	.000	-.54603	.07253
Equal variance assumed			-8.269	41.512	.000	-.54603	.06604
Equal variance not assumed							
French	2.924	.093	-7.919	58	.000	-.67143	.08479
Equal variance assumed			-7.126	29.348	.000	-.67143	.09422
Equal variance not assume							
Italian	.710	.402	-6.379	65	.000	-.45344	.07109
Equal variance assumed			-6.241	51.650	.000	-.45344	.07265
Equal variance not assume							
Malay	.118	.732	-6.064	58	.000	-.46429	.07657

Equal variance assumed			-5.907	35.578	.000	-.46429	.07860
Equal variance not assumed							
Dutch	.391	.535	-1.469	47	.149	-.14127	.09617
Equal variance assumed			-1.813	15.935	.089	-.14127	.07793
Equal variance not assume							
Polish	1.055	.308	-2.561	59	.013	-.19796	.07730
Equal variance assumed			-2.450	36.073	.019	-.19796	.08081
Equal variance not assumed							
Portuguese	1.491	.228	-3.388	45	.001	-.36122	.10661
Equal variance assumed			-4.827	12.911	.000	-.36122	.07484
Equal variance not assumed							
Romanian	.060	.807	-3.897	63	.000	-.28286	.07259
Equal variance assumed			-3.798	46.849	.000	-.28286	.07448
Equal variance not assumed							
Russian	1.252	.269	-2.035	45	.048	-.21837	.10733
Equal variance assumed			-2.693	11.364	.020	-.21837	.08107
Equal variance not assumed							
Spanish	.328	.569	-5.769	58	.000	-.45000	.07800

Equal variance assumed			-5.527	34.095	.000	-.45000	.08142
Equal variance not assumed							
Swedish	3.347	.074	-.336	44	.738	-.03810	.11331
Equal variance assumed			-.620	17.193	.544	-.03810	.06148
Equal variance not assume							
Turkish	1.794	.186	-7.785	58	.000	-.64286	.08258
Equal variance assumed			-7.132	30.580	.000	-.64286	.09014
Equal variance not assumed							

**Table 5.22 T-test comparing the user's satisfaction with WRS implementation in English language and all other language**

#### **5.4.2.4 The comprehensiveness of the WRS**

As discussed in the previous chapters, the fourth objective was to investigate the comprehensiveness of the WRS in all the languages in order to verify if there are any apparent differences between the English language and all the other languages. The table below illustrates the results of the T-test for the research variables.

The table below shows that the comprehensiveness of the WRS in the English language is significantly better and statistically different from the Netherlands, Dutch, French, Italian, Malay, Polish, Romanian, Spanish and Turkish languages ( $p < .05$ ). However, the results also show that the comprehensiveness of the users of the WRS in the English language is not significantly better and statistically different from the Arabic, Chinese, Portuguese, Russian and Swedish languages ( $p > .05$ ).

Languages	Levene's Test for Equality of Variances		T-test for Equality of Means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Arabic	10.543	.002	-1.828	73	.072	-.15867	.08679
Equal variance assumed			-1.901	60.061	.062	-.15867	.08346
Equal variance not assumed							
Chinese	5.328	.025	-1.823	58	.073	-.20357	.11167
Equal variance assumed			-2.168	56.834	.034	-.20357	.09389
Equal variance not assumed							
Dutch	2.309	.134	-4.719	56	.000	-.56230	.11915
Equal variance assumed			-5.517	48.348	.000	-.56230	.10192
Equal variance not assumed							
French	.631	.430	-4.639	58	.000	-.61071	.13165
Equal variance assumed			-4.465	34.510	.000	-.61071	.13676
Equal variance not assume							
Italian	3.384	.070	-4.744	65	.000	-.47765	.10069
Equal variance assumed			-5.147	64.898	.000	-.47765	.09280
Equal variance not assume							

Malay	.035	.853	-5.743	58	.000	-.71071	.12375
Equal variance assumed			-5.882	40.614	.000	-.71071	.12084
Equal variance not assumed							
Netherlands	1.054	.310	-2.287	47	.027	-.37183	.16260
Equal variance assumed			-2.891	16.651	.010	-.37183	.12863
Equal variance not assume							
Polish	.092	.762	-5.039	59	.000	-.60765	.12059
Equal variance assumed			-5.201	44.499	.000	-.60765	.11684
Equal variance not assumed							
Portuguese	1.111	.297	-1.664	45	.103	-.30153	.18118
Equal variance assumed			-2.332	12.518	.037	-.30153	.12930
Equal variance not assumed							
Romanian	4.223	.044	-3.014	63	.004	-.31214	.10358
Equal variance assumed			-3.328	62.958	.001	-.31214	.09379
Equal variance not assumed							
Russian	3.256	.078	-1.114	45	.271	-.19949	.17913
Equal variance assumed			-1.821	17.706	.086	-.19949	.10954
Equal variance not							

assumed							
Spanish	.255	.615	-5.263	58	.000	-.63214	.12010
Equal variance assumed			-5.590	44.758	.000	-.63214	.11309
Equal variance not assumed							
Swedish	1.817	.185	-.484	44	.631	-.09405	.19429
Equal variance assumed			-.726	10.453	.484	-.09405	.12956
Equal variance not assume							
Turkish	1.661	.203	-4.490	58	.000	-.53929	.12012
Equal variance assumed			-4.767	44.737	.000	-.53929	.11312
Equal variance not assumed							

**Table 5.23 T-test comparing the comprehensiveness of the WRS in English language and all other language**



#### 5.4.2.5 The relationship between the effectiveness, efficiency, satisfaction and comprehensibility on the one hand, and the usability of the WRS application on the other

As discussed in the previous chapters, the fifth objective was to investigate the relationship between the effectiveness, efficiency, satisfaction and comprehensibility and the usability of the WRS application. The table below shows that the results of the regression analysis determine the influence of the effectiveness, efficiency, satisfaction and comprehensibility on the usability of the WRS application.

Table 5.24 shows that each variable of effectiveness, satisfaction and comprehensibility has a significant effect on the usability of the WRS application ( $p < .05$ ). However, there is no significant influence of efficiency on the usability of the WRS application ( $p > .05$ ). This indicates that the high level of effectiveness, satisfaction and comprehensibility in the WRS application will lead to a high level in the usability of the WRS application.

Variables	$\beta$	t	P
Effectiveness	.467	9.044	.000
Efficiency	-.526	-.526	.600
Satisfaction	.238	4.194	.000
Comprehensibility	.326	5.893	.000

**Table 5.24 Regression analysis for the research variables**

#### **5.4.2.6 The differences between the usability level of the English language and the other languages**

The sixth objective was to investigate the usability level of the WRS in all the languages in order to verify if there are any apparent differences between the English language and all the other languages. The table below illustrates the results of the T-test for the research variables.

The table below shows that the usability level of the WRS in the English language is significantly better and statistically different from the Netherlands, Dutch, French, Italian, Swedish, Russian, Romanian, Spanish and Turkish languages ( $p < .05$ ). However, the results show that the usability level of the WRS in the English language is not significantly better and statistically different from the Arabic, Chinese, Portuguese, Malay and Polish languages ( $p > .05$ ).

Languages	Levene's Test for Equality of Variances		T-test for Equality of Means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Arabic	.176	.676	-1.794	73	.077	-.11339	.06322
			-1.800	72.542	.076	-.11339	.06298
Chinese	4.770	.033	-1.577	58	.120	-.10625	.06738
			-1.894	57.380	.063	-.10625	.05609
Dutch	3.437	.069	-4.721	56	.000	-.40347	.08547
			-4.362	27.561	.000	-.40347	.09249
French	1.608	.210	-2.981	58	.004	-.24375	.08177
			-2.812	32.809	.008	-.24375	.08668
Italian	12.309	.001	-5.082	65	.000	-.39884	.07849
			-4.838	46.304	.000	-.39884	.08244

Malay	.277	.601	-1.946	58	.057	-.15625	.08030
Equal variance assumed			-1.864	34.078	.071	-.15625	.08383
Equal variance not assumed							
Dutch	2.229	.142	-2.027	47	.048	-.19514	.09626
Equal variance assumed			-3.128	26.853	.004	-.19514	.06238
Equal variance not assume							
Polish	1.014	.318	-1.863	59	.067	-.15149	.08130
Equal variance assumed			-1.754	34.563	.088	-.15149	.08638
Equal variance not assumed							
Portuguese	.897	.349	-.497	45	.622	-.05625	.11321
Equal variance assumed			-.539	8.861	.603	-.05625	.10436
Equal variance not assumed							
Romanian	4.213	.044	-2.376	63	.021	-.14625	.06154
Equal variance assumed			-2.680	62.583	.009	-.14625	.05458
Equal variance not assumed							
Russian	.897	.349	-2.705	45	.010	-.30625	.11321
Equal variance assumed			-2.935	8.861	.017	-.30625	.10436
Equal variance not assumed							

Spanish	5.187	.026	-2.816	58	.007	-.24375	.08657
Equal variance assumed			-2.547	29.699	.016	-.24375	.09570
Equal variance not assumed							
Swedish	.014	.907	-2.146	44	.037	-.26458	.12326
Equal variance assumed			-2.079	6.458	.080	-.26458	.12727
Equal variance not assume							
Turkish	1.894	.174	-3.352	58	.001	-.26875	.08017
Equal variance assumed			-3.215	34.196	.003	-.26875	.08359
Equal variance not assumed							

**Table 5.25 T-test comparing the usability of the WRS in English language and all other languages**

#### **5.4.2.7 Translating the WRS application and its overall usability**

The seventh objective was to investigate how translating the WRS application in all other languages may affect its overall usability. To confirm whether or not translating the WRS into other languages affects its usability, the researcher asked the participant to evaluate the usability of the WRS using a survey questionnaire based on their origin language. For example, Chinese participants used the application in their language and once they finished, they were asked to offer their evaluation of the WRS usability in terms of direction of layout (L to R), screen size limitation, format for digits, date and time, abbreviation and character space. This procedure was followed to evaluate the WRS in all languages.

The following table shows the issues and the problems that occur during the translation process. All these issues can be related to the differences between the language of the original version (English) and the other targeted internationalised languages. After reviewing the table, we can find that after internationalising the application into the Arabic language, there is an issue of the direction of the layout, namely because Arabic is a bi-directional language, which is written from right to left. The most noticeable issue is the size of the language, because the size of the source language does not fit with the size of some targeted languages, such as Arabic, Chinese, German and Malay. Abbreviation issues have also been found in different languages. The original language uses abbreviations within the interface, such as user 'ID'. The icon space is very limited and is not designed to fit the whole word. Additionally, some languages do not use abbreviations within their linguistic vocabulary. For further information regarding all languages, see Table 5.26. Appendix D presents some examples of the pictures for the WRS in all languages.

Overall, hypothesis 7 was not fully supported given that translating the WRS into other languages affected some attributes of its overall usability, as shown in the table below.

Attributes	The translated languages													
	Arabic	Chinese	Dutch	French	German	Italian	Malay	Portuguese	Polish	Romania	Russian	Spanish	Swedish	Turkish
<b>Direction of layout L to R</b>	X	√	√	√	√	√	√	√	√	√	√	√	√	√
<b>Screen size limitation</b>	X	X	√	√	X	√	X	√	√	√	X	√	√	X
<b>Format for digits</b>	X	√	√	√	√	√	√	√	√	√	√	√	√	√
<b>Dates and time</b>	X	√	√	√	√	√	√	√	√	√	√	√	√	√
<b>Abbreviation</b>	X	X	√	X	X	√	X	√	√	√	X	X	X	X
<b>Character space</b>	X	X	√	√	X	√	X	√	√	√	X	X	√	X

**Table 5.26 attributes for the system interface**

## **5.5 Summary**

With a view towards testing the research hypothesis, this chapter explained the techniques that were adopted to measure the usability of the WRS application. Initially, descriptive data was invoked to depict some of the statistical indicators. Then, the chapter explained the application of the Fuzzy theory to measure the usability of the WRS application for the English language. Furthermore, this chapter explained the use of the SPSS towards testing the research hypothesis. To illustrate the findings of the current thesis, the next chapter discusses the results based on the research objectives, whilst touching on the contributions of the present research.



## CHAPTER SIX: DISCUSSION AND CONCLUSION

### 6.1 Introduction

This chapter discusses the results and findings of the present thesis, based on the objectives that emerged towards evaluating the usability of the WRS application. The structure of this chapter is as follows. First, a detailed discussion of the effectiveness, efficiency, user satisfaction and comprehensibility of the WRS application is offered, whilst discussing their relationship with the usability of the WRS application. Furthermore, this section also describes the differences between the usability level of the English language and the other languages. Second, this chapter describes the contributions achieved by this research, with a particular focus on its limitations, with a view to highlight possibilities for future work.

### 6.2 The usability of WRS application

This section offers a detailed discussion of the findings that emerged in this thesis. The following seven sections illustrate these findings based on the research objectives.

#### 6.2.1 The effectiveness of WRS

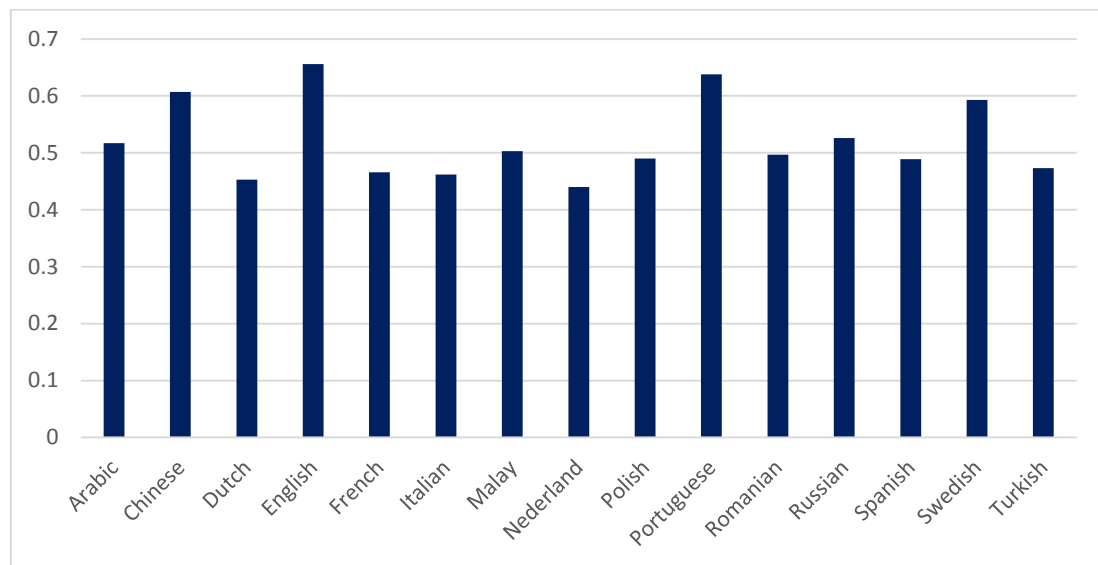
As invoked by the research model (see methodology chapter), and following the extant literature, the present thesis posits that **(H1)** there is a significant difference in the effectiveness of the WRS application between the English language and other languages. Accordingly, to test this hypothesis, this thesis aimed to answer the following question:

*RQ1 What is the effectiveness of the WRS application in all languages?*

In chapter five, the analysis procedure was illustrated to show how to measure the effectiveness level for all languages, and how to confirm if there are significant differences in

the effectiveness of the WRS application between the English language and all other languages.

As an initial step, the Fuzzy theory was used to calculate the effectiveness values for all languages. Section 5.4.1 shows this process for the English language (see appendixes for all languages). The results, as shown in Figure 6.1, depicts the effectiveness values for all languages.



**Figure 6.1 Effectiveness values for all languages.**

To test if the differences between the effectiveness values for all languages are significantly different from the English language, an independent T-test (SPSS) was used.

The results show that the effectiveness of the WRS application in the English language is significantly better and statistically different from the Dutch, French, Italian, Malay, Polish, Romanian, Russian, Spanish and Turkish languages ( $p < .05$ ). However, the results also show that the effectiveness of the WRS application in the English language is not significantly

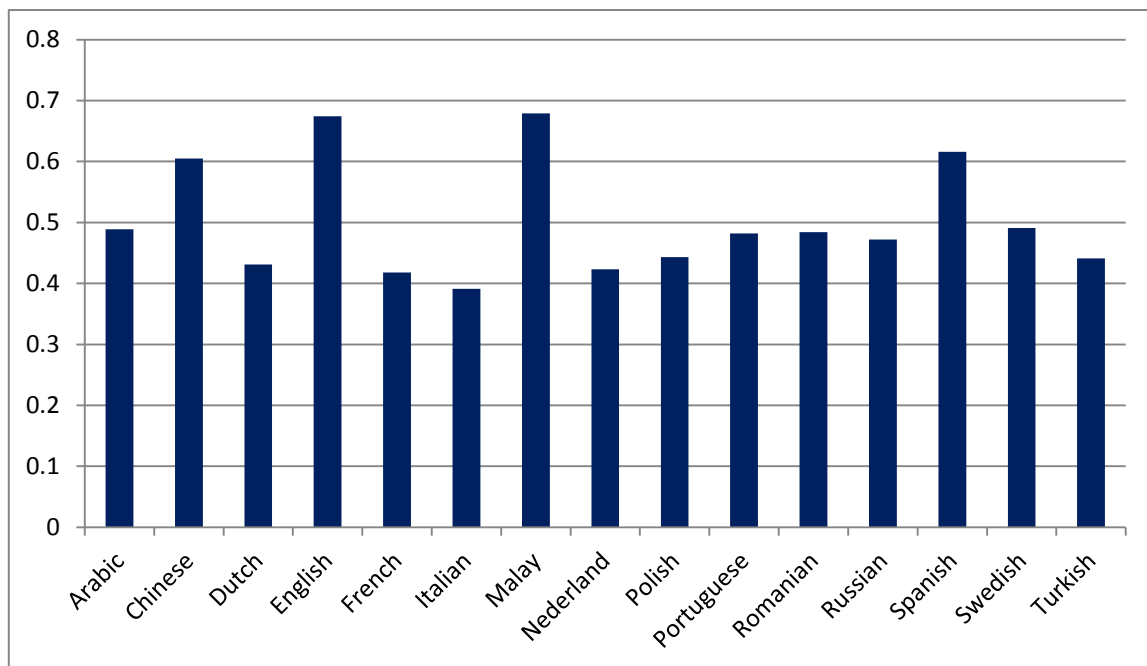
better and statistically different from the Chinese, Netherlands, Portuguese and Swedish languages ( $p > 0.05$ ).

### 6.2.2 The efficiency of WRS

As discussed in the research model (see methodology chapter), the present thesis posits that (H2) there is a significant difference in the efficiency of the WRS application between the English language and other languages. Accordingly, to test this hypothesis, this thesis aimed to answer the following research question:

*RQ2 What is the efficiency of the WRS application in all languages?*

The analysis procedure illustrated how to measure the efficiency level of all the languages, and how to confirm if there are significant differences in the efficiency of the WRS application between the English language and all other languages. The Fuzzy theory was used to calculate the efficiency values for all the languages. The results, as shown in Figure 6.2, depicts the efficiency values for all languages.



**Figure 6.2 Efficiency values for all languages.**

To measure if the differences between the efficiency values for all languages are significantly different from the English language, an independent T-test (SPSS) was used.

The results show that the efficiency of the WRS application in the English language is significantly better and statistically different from the Arabic language ( $p < .05$ ). However, the results show that the effectiveness of the WRS application in the English language is not significantly better and statistically different from the Chinese, Netherlands, Portuguese, Swedish, Dutch, French, Italian, Malay, Polish, Romanian, Russian, Spanish and Turkish languages ( $p > .05$ ).

### **6.2.3 User's satisfaction with WRS implementation**

As discussed in the research model (see methodology chapter), the present thesis posits that **(H3)** there is a significant difference in the user's satisfaction level of the WRS application between the English language and the other languages. Accordingly, to test this hypothesis, this thesis aimed to answer the following research question:

*RQ3 What is the satisfaction level of users regarding the WRS application in all languages?*

The analysis procedure illustrated how to measure the user's satisfaction for all languages, and how to confirm if there are significant differences in the satisfaction level of the WRS application between the English language and all other languages. To answer these questions, the Fuzzy theory was used to calculate the user's satisfaction levels for all languages (see chapter five). The results, as shown in Figure 6.3, depicts the Satisfaction values for all languages.



**Figure 6.3 Satisfaction values for all languages.**

To measure if the differences between the user's satisfaction levels for all languages are significantly different from the English language, an independent T-test (SPSS) was used.

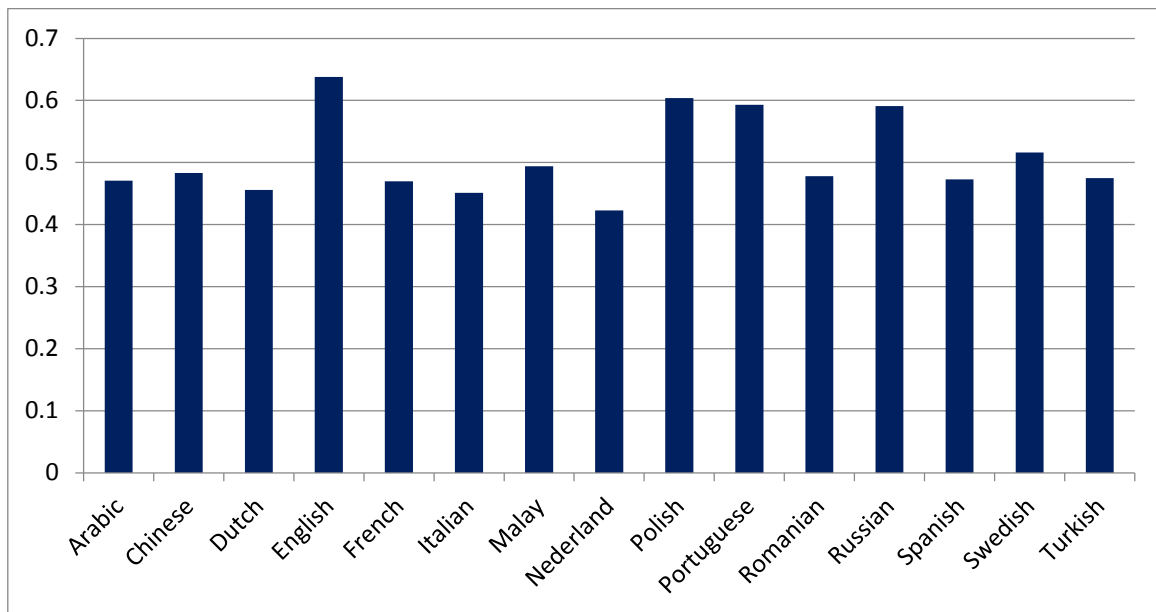
The results show that the satisfaction of the users with the WRS application implementation in the English language is significantly better and statistically different from the Arabic, Chinese, Portuguese, Dutch, French, Italian, Malay, Polish, Romanian, Russian, Spanish and Turkish languages ( $p < .05$ ). However, the results show that the satisfaction of the users with the WRS application implementation in the English language is not significantly better and statistically different from the Dutch and Swedish languages ( $p > .05$ ).

#### **6.2.4 Comprehensiveness of the WRS application**

As discussed in the research model (see methodology chapter), the thesis posits that **(H4)** there is a significant difference in the comprehensibility of the WRS application between the English language and the other languages. Accordingly, to test this hypothesis, this thesis aimed to answer the following research question:

*RQ4 What is the comprehensibility level of the WRS application in all languages?*

The analysis procedure illustrated how to measure the comprehensibility level for all the languages, and how to confirm if there are significant differences in the comprehensibility of the WRS application between the English language and all other languages. To answer these questions, the Fuzzy theory was used to calculate the comprehensibility level for all the languages (see chapter five). The results, as shown in Figure 6.4, depicts the comprehensibility level for all languages.



**Figure 6.4 Comprehensibility values for all languages.**

To measure if the differences between the comprehensibility level for all languages are significantly different from the English language, an independent T-test (SPSS) was used. The results show that the comprehensiveness of the WRS application in the English language is significantly better and statistically different from the Netherlands, Dutch, French, Italian, Malay, Polish, Romanian, Spanish and Turkish languages ( $p < .05$ ). However, the results show that the comprehensiveness of the users of the WRS in the English language is not

significantly better and statistically different from the Arabic, Chinese, Portuguese, Russian and Swedish languages ( $p > .05$ ).

### **6.2.5 The relationship between the effectiveness, efficiency, satisfaction, comprehensibility and the usability of the WRS application**

As discussed in the research model (see methodology chapter), the thesis posits that **(H5)** effectiveness, efficiency, satisfaction and comprehensibility lead to a greater usability of the WRS application. Accordingly, to test this hypothesis, this thesis aimed to answer the following research question:

*RQ5 Do the effectiveness, efficiency, satisfaction and comprehensibility lead to greater usability of the WRS application?*

The analysis procedure illustrated how to measure the relationship between effectiveness, efficiency, satisfaction and comprehensibility on the one hand, and the usability of the WRS application on the other. As explained in the data analysis chapter, a simple regression test was used to test the relationship between effectiveness, efficiency, satisfaction and comprehensibility on the one hand, and the usability of the WRS on the other.

The results show that effectiveness, satisfaction and comprehensibility have a significant effect on the usability of the WRS application ( $B = .467, P = .000$ ;  $B = .238, P = .000$ ;  $B = .326, P = .000$  respectively). However, there is no significant influence of efficiency on the usability of the WRS application ( $B = -.526, P = .600$ ). This indicates that the high level of effectiveness, satisfaction and comprehensibility in the WRS application will lead to a higher level of usability of the WRS application.

## 6.2.6 The differences between the usability level of the English language and the other languages

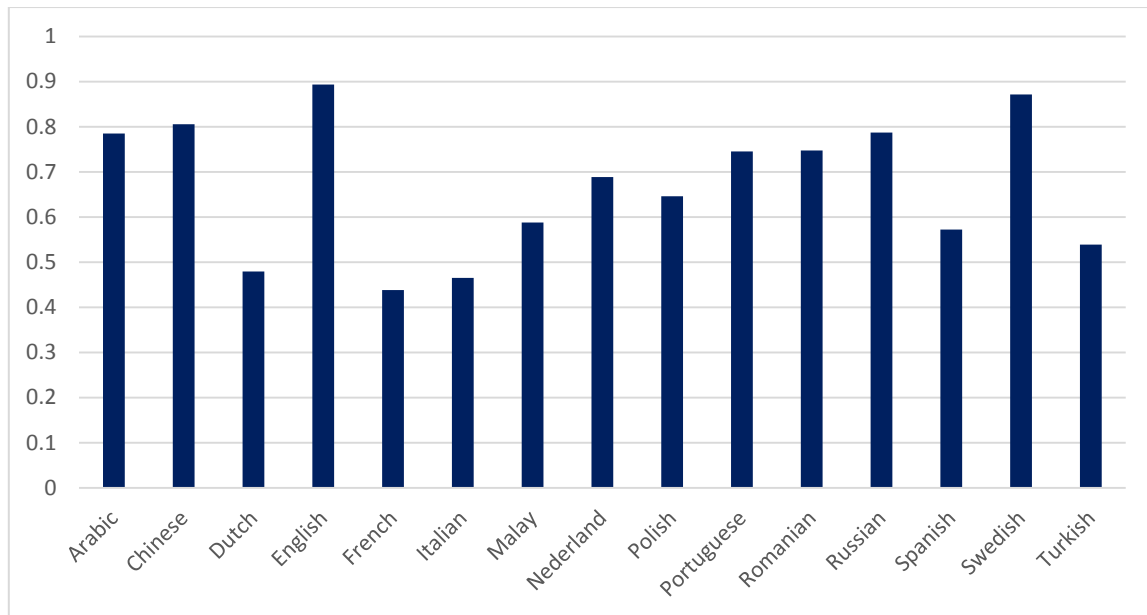
As discussed in the research model (see methodology chapter), and following the extant literature, the present thesis posits that (**H6**) there is a significant difference in the usability of the WRS application between the English language and the other languages. Accordingly, to test this hypothesis, this thesis aimed to answer the following question:

*RQ6 Are there any differences between the usability level of the English language and the other languages?*

In chapter five, the analysis procedure illustrated how to measure usability level for all languages using the Fuzzy theory, and how to confirm if there are significant differences in the usability of the mobile learning application between the English language and all the other languages (using SPSS). As explained in the data analysis chapter, a T-test (SPSS) was used to test if the differences between the English language and all the other languages are significant.

The results show that the usability level of the WRS application in the English language is significantly better and statistically different from the Netherlands, Dutch, French, Italian, Swedish, Russian, Romanian, Spanish and Turkish languages ( $p < .05$ ). However, the results show that the usability level of the WRS application in the English language is not significantly better and statistically different from the Arabic, Chinese, Portuguese, Malay and Polish languages ( $p > .05$ ). Figure 6.5 shows the usability value for the fifteen languages.





**Figure 6.5 Usability for all languages**

### 6.2.7 Translating the WRS application and its overall usability

As discussed with regards to the research model (see methodology chapter), and following the extant literature, the present thesis posits that **(H7)** translating a mobile learning application (i.e., WRS) will not affect its overall usability. Accordingly, to test this hypothesis, this thesis aimed to answer the following question:

*Question 7: Does translating the WRS application into different languages affect its overall usability?*

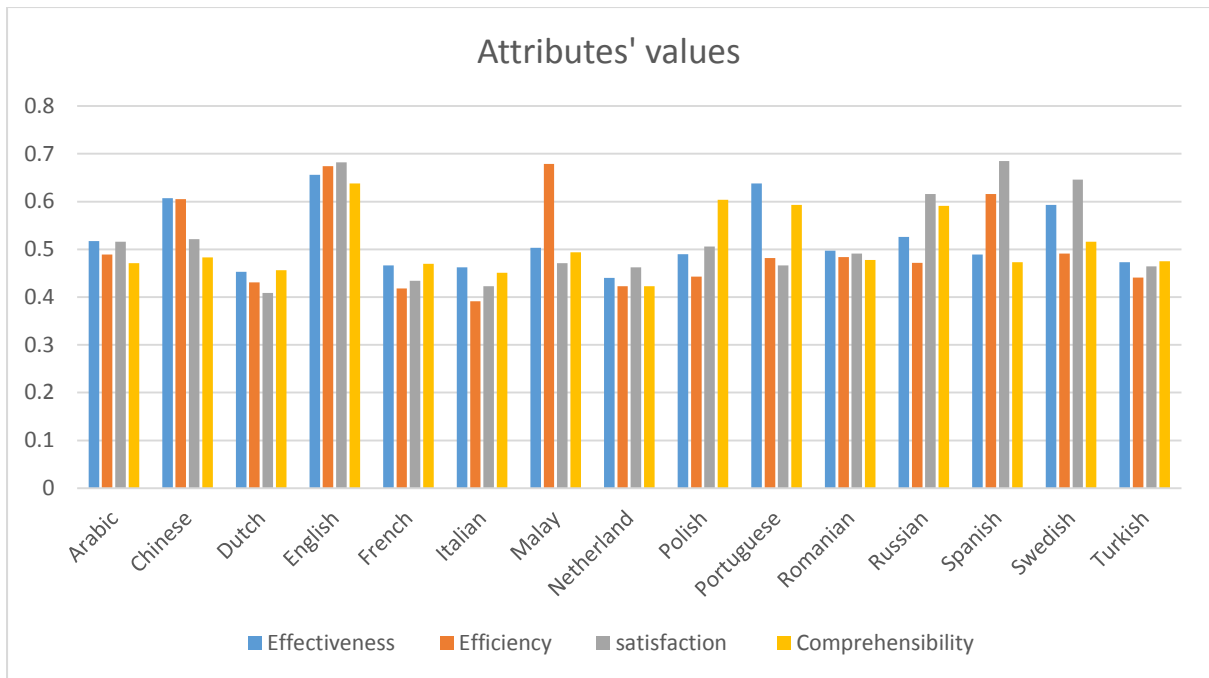
As shown in the data analysis chapter, towards answering the seventh research question, the researcher asked participants with different languages (i.e., native speaker of the fourteen languages) to use the WRS application after translating this application into all fourteen languages. Once they finished, they evaluated the usability of the application using a survey questionnaire. The results show that translating the application negatively affects some aspects of the WRS usability. The usability of the WRS was evaluated in terms of:

- 1- Direction of layout (L to R)
- 2- Screen size limitation
- 3- Format for digits
- 4- Date and time
- 5- The used abbreviations
- 6- Character space

This paragraph discusses how each aspect of the usability has been negatively influenced. When the participants used the WRS in the Arabic language, they were faced with difficulties surrounding the direction of layout (i.e., R to L). However, in all other languages, the participants evaluated the direction of layout positively. Moving to the screen size limitations, this aspect was negatively impacted when translating the WRS into Arabic, Chinese, German, Malay, Russian and Turkish. The format of the digits and date and time were negatively evaluated by only the Arab participants. In relation to the abbreviations used in the WRS, this aspect reflected a difficulty when the application was translated into Arabic, Chinese, French, German, Malay, Russian, Spanish, Swedish and Turkish. Finally, the character space was negatively assessed when the application was translated into Arabic, Chinese, German, Malay, Russian, Spanish and Turkish. Given the participants faced the above issues, hypothesis 7 was not fully supported.

### **6.2.8 Summary of results**

The figure below portrays the results of the thesis and illustrates the values for effectiveness, efficiency, satisfaction and comprehensibility for all languages.



**Figure 6.6 Values for the four attributes**

### 6.3 Contributions

The contributions of this thesis can be split into two categories. First, there is the theoretical relevance that emerged through using the Fuzzy theory. Second, there is also the practical implications that were achieved by selecting the WRS application as a case study, which opens up future possibilities for a more widespread use of this application. The following sections illustrate this in further detail.

#### 6.3.1 Theoretical contributions

This thesis contributes to existing knowledge by making the WRS application available in fourteen languages, and in a further step, this thesis also measures the usability of these fourteen languages through the application of (1) Fuzzy theory and (2) SPSS software.

This thesis contributes to the extant literature by applying the Fuzzy theory to evaluate the multilingual mobile learning application by measuring the level of four dimensions relevant to the usability of this system. To the best of our knowledge, this is the first time the Fuzzy theory has been utilised to evaluate a mobile learning system. This added an accurate scale and measurement to the literature, which leads us to obtain precise results facing the vagueness and ambiguities of the user's language surrounding the analysis process. In other words, this theory added clearer and more accurate understanding of the vagueness of the language's uncertainty, opinion and ambiguous expressions that are hidden in the different user's backgrounds.

In addition, aside from the application of the Fuzzy theory, this thesis evaluated the usability of the multilingual mobile application through the use of the SPSS software. In particular, the SPSS allows the researcher to confirm how the four dimensions (i.e., effectiveness, efficiency, user's satisfaction and comprehensibility) lead to a greater usability level of the multilingual mobile application. Additionally, the SPSS software was used to compare the usability levels of the English language with all the other languages. Therefore, one further contribution was achieved by comparing the usability level of the English language (as the original language interface) with all the other languages' interfaces, to verify if there are any significant differences between them. This helps in determining problems with the multilingual mobile learning application in certain international languages.

### **6.3.2 Practical contributions**

This thesis enables the WRS application to become more accessible to many new users who will have access to the mobile learning applications in their native languages. This access will help teachers and students in educational contexts, thus making both teaching and testing accessible, efficient, and effective. The study found some challenges with the internationalisation approaches to mobile learning applications (i.e., WRS) and this study will help enhance any future utilisation of this application. The present approach contributed valuable information to the field in terms of internationalisation and globalisation. From a practical perspective, the relevance of this research was achieved by creating and designing a multilingual mobile learning application.

The utilisation of the Fuzzy test theory to evaluate the usability of the multilingual mobile learning application will help future researchers to replicate this approach in the evaluation of other mobile learning systems. This will help offer guidelines to develop/enhance the usability of other mobile learning applications, which in turn will enhance the M-learning environment on a global scale.

#### **6.4 Implications for future research**

As discussed earlier, this study aims to internationalise and implement the WRS application in fourteen languages, which are as follows: Arabic, Chinese, Dutch, French, German, Italian, Malay, Polish, Portuguese, Romania, Russian, Spanish, Swedish and Turkish. Different issues and technical problems have been investigated and subsequently solved. Further studies are encouraged to investigate the success of the WRS application in other languages, which may further suggest potential solutions for the aforementioned detected problems.

To confirm whether or not translating the WRS into other languages affects its usability, the results show that some of the WRS attributes have been negatively impacted, such as direction of layout (L to R), screen size limitation, format for digits, date and time, the abbreviations used, and character space (see section 6.2.7). Future studies, accordingly, are encouraged to incorporate an in-depth analysis to determine how such problems can be addressed. Furthermore, the evaluation of the WRS in the fourteen languages offers guidelines, taking into account the users' needs. This may help developers/designers to avoid any potential limitations in the future development and application of the WRS.

Moreover, given that the result indicate that there is no significant influence of efficiency on the usability of the WRS application (see section 6.2.5), future empirical studies are encouraged to re-examine the relationship between these variables using different samples.

In addition, following the extant literature and the results of this thesis, some further areas of future work are to be encouraged, which include, an evaluation of the current model in different languages, comparing the usability of the WRS with other mobile learning applications, and incorporating new functionality to improve the mobile learning framework.

## **6.5 Limitations**

A number of limitations have been identified, which highlight some potential recommendations for future work. These are described in detail below.

First, the present thesis focuses on mobile learning applications, whilst neglecting other E-learning applications, and concentrates on only fourteen languages, which may pose a limitation, because the WRS application is not available in many other languages. One further limitation is in evaluating the usability of the WRS application based on the data collected through a self-completed questionnaire. As pointed out in chapter two, besides the questionnaire method, there are different techniques that can be used to evaluate the usability of the WRS application. Hence, future studies are needed to apply different evaluation methods.

One further limitation is that the number of participants in the fourteen languages varies, because the data collection process was conducted in the UK. This indicates a difficulty in collecting data from equal samples. Therefore, if the data was collected from the fourteen different countries, rather than just within the UK, this may help in collecting an equal number of participants.

## **6.6 Summary**

This chapter illustrated the findings of the thesis in relation to the usability level of the WRS application, through utilising the Fuzzy theory and the SPSS software. It primarily focused on discussing the findings based on the research objectives. In addition, this chapter places

particular importance on the theoretical and practical contributions that were achieved, whilst touching on the limitations that should be addressed in any future research.

## References

- Abu-Al-Aish, A., & Love, S. (2014). *Toward mobile learning deployment in higher education*. Dissertation/Thesis.
- Adipat, B., & Zhang, D. (2005). Interface design for mobile applications. *AMCIS 2005 Proceedings*, 494.
- Adobe. (2013). Localization Retrieved 03-03-2014, 2014, from [http://help.adobe.com/en\\_US/flex/using/WS19f279b149e7481c-1c03f02c12bd00c4763-8000.html](http://help.adobe.com/en_US/flex/using/WS19f279b149e7481c-1c03f02c12bd00c4763-8000.html)
- Al-Amoudi, A., AlMazrua, H., Al-Moaiqel, H., AlOmar, N., & Al-Koblan, S. (2013). An Exploratory Study of Arabic Language Support in Software Project Management Tools. *International Journal of Computer Science Issues (IJCSI)*, 10(4).
- Albalooshi, N., Mohamed, N., & Al-Jaroodi, J. (2011). *The challenges of Arabic language use on the Internet*. Paper presented at the Internet Technology and Secured Transactions (ICITST), 2011 International Conference for.
- Albert, W., & Tullis, T. (2013). *Measuring the user experience: collecting, analyzing, and presenting usability metrics*: Newnes.
- Albert, W., Tullis, T., & Tedesco, D. (2009). *Beyond the usability lab: Conducting large-scale online user experience studies*: Morgan Kaufmann.
- Alcivar, A., Hu, S., Tang, J., & Yang, X. (2003). DEDD and DEDD2 associate with caspase-8/10 and signal cell death. *Oncogene*, 22(2), 291-297.
- Ali, A., & Lu, J. (2014). *Internationalisation and Localisation of a Wireless Response System for the Arabic Language*. Paper presented at the INFOCOMP 2014, The Fourth International Conference on Advanced Communications and Computation.
- Ally, M., & Tsinakos, A. (2014). Increasing access through mobile learning: Commonwealth of Learning, Vancouver.
- Amant, K. S. (2005). A prototype theory approach to international website analysis and design. *Technical Communication Quarterly*, 14(1), 73-91.
- Anand Raj, P., & Nagesh Kumar, D. (1999). Ranking alternatives with fuzzy weights using maximizing set and minimizing set. *Fuzzy Sets and Systems*, 105(3), 365-375.
- Andre, T. S., Hartson, H. R., Belz, S. M., & McCreary, F. A. (2001). The user action framework: a reliable foundation for usability engineering support tools. *International Journal of Human-Computer Studies*, 54(1), 107-136.
- Aresta, M., Pedro, L., & Santos, C. (2015). Mobile learning and higher education: A theoretical overview. *Journal of Mobile Multimedia*, 11(1-2), 147-156.
- Balbag, J. E. G., Balderrama, K. L., Acdan, M. R. L., Bacayo, J. C. F., Al John Kenneth, G. C., & Caday, K. K. C. Interactive Web-based System for Teaching Mathematics on High School Students in Philippines.
- Banks, M., & Zeitlyn, D. (2015). *Visual methods in social research*: Sage.
- Baran, E. (2014). A review of research on mobile learning in teacher education. *Educational Technology & Society*, 17(4), 17-32.
- Barber, W., & Badre, A. (1998). *Culturability: The merging of culture and usability*. Paper presented at the Proceedings of the 4th Conference on Human Factors and the Web.
- Barnum, C. M. (2010). *Usability testing essentials: ready, set... test!* : Elsevier.
- Bates, A. T. (2005). *Technology, e-learning and distance education*: Routledge.
- Becker, S. A., & Mottay, F. E. (2001). A global perspective on web site usability. *IEEE software*, 18(1), 54-61.
- Berge, Z. L., & Muilenburg, L. (2013). Handbook of Mobile Education Retrieved from <http://hud.ebilib.com/patron/FullRecord.aspx?p=1221455>
- Bhattacharjee, A. (2012). *Social science research: principles, methods, and practices*.



- Bhutia, P., & Phipon, R. (2012). Application of ahp and topsis method for supplier selection problem. *IOSR Journal of Engineering (IOSRJEN) Volume, 2*, 43-50.
- Bidgoli, H. (2004). *The Internet Encyclopedia, Volume 3 (P-Z)* (Vol. 3): John Wiley & Sons.
- Bidin, S., & Ziden, A. A. (2013). Adoption and application of mobile learning in the education industry. *Procedia-Social and Behavioral Sciences, 90*, 720-729.
- Bihis, C. (2010). Localization in Flex – Part 1. *Adobe Developer Connection* Retrieved 02-07-2013, 2013, from [http://www.adobe.com/devnet/flex/articles/flex\\_localization\\_pt1.html](http://www.adobe.com/devnet/flex/articles/flex_localization_pt1.html)
- Bihis, C. (2011). Localization in Flex – Part 2. *Adobe Developer Connection*, from <http://www.adobe.com/devnet/flex/articles/flex-localization-pt2.html>
- Bransford, J. D., Sherwood, R. D., Hasselbring, T. S., Kinzer, C. K., & Williams, S. M. (1990). Anchored instruction: Why we need it and how technology can help. *Cognition, education, and multimedia: Exploring ideas in high technology*, 115-141.
- Brantes Ferreira, J., Zanela Klein, A., Freitas, A., & Schlemmer, E. (2013). Mobile learning: Definition, uses and challenges *Increasing student engagement and retention using mobile applications: Smartphones, skype and texting technologies* (pp. 47-82): Emerald Group Publishing Limited.
- Brooke, J. (1996). SUS-A quick and dirty usability scale. *Usability evaluation in industry, 189*(194), 4-7.
- Brown, M. E., Treviño, L. K., & Harrison, D. A. (2005). Ethical leadership: A social learning perspective for construct development and testing. *Organizational behavior and human decision processes, 97*(2), 117-134.
- Bruff, D. (2011). Classroom response system (“clickers”) bibliography. *Center for Teaching, Vanderbilt University*.
- Bryman, A., Becker, S., & Sempik, J. (2008). Quality criteria for quantitative, qualitative and mixed methods research: A view from social policy. *International Journal of Social Research Methodology, 11*(4), 261-276.
- Buck, C., Horbel, C., Kessler, T., & Christian, C. (2014). Mobile Consumer Apps: Big Data Brother is Watching You. *Marketing Review St.Gallen, 31*(1), 26-35. doi: 10.1365/s11621-014-0318-2
- Buttenfield, B. (1999). Usability evaluation of digital libraries. *Science & Technology Libraries, 17*(3-4), 39-59.
- Casteleyn, S., Daniel, F., Dolog, P., & Matera, M. (2009). *Engineering Web Applications*: Springer.
- Caudill, J. G. (2007). The growth of m-learning and the growth of mobile computing: Parallel developments. *The International Review of Research in Open and Distributed Learning, 8*(2).
- Chavala, A. R. (2012). Localisation: An Introduction Retrieved 05\10\2013, 2013, from <http://www.linuxforu.com/2012/05/localisation-an-introduction/>
- Cheng, Y., Lin, Y., & Tseng, M. (2011). Analysis of Hotel Service Quality Perceptions Using Fuzzy TOPSIS. *Progress in Business Innovation & Technology Management, 1*(3).
- Collins, J., & Hussey, R. (2003). *Business research methods*: McGraw-Hill, New York, NY.
- Collins, R. W. (2001). Software localization: Issues and methods. *ECIS 2001 Proceedings, 4*.
- Collis, J., & Hussey, R. (2013). *Business research: A practical guide for undergraduate and postgraduate students*: Palgrave macmillan.
- Council, N. R. (2012). *A framework for K-12 science education: Practices, crosscutting concepts, and core ideas*: National Academies Press.
- Crescente, M. L., & Lee, D. (2011). Critical issues of m-learning: design models, adoption processes, and future trends. *Journal of the Chinese Institute of Industrial Engineers, 28*(2), 111-123.

- Creswell, J. W. (2012). *Qualitative inquiry and research design: Choosing among five approaches*: Sage publications.
- Creswell, J. W., & Clark, V. L. P. (2007). Designing and conducting mixed methods research.
- Creswell, J. W., Plano Clark, V. L., Gutmann, M. L., & Hanson, W. E. (2003). Advanced mixed methods research designs. *Handbook of mixed methods in social and behavioral research*, 209-240.
- Dalvit, L., Tsietsi, M., Terzoli, A., Sam, P. M. M., & Mapi, T. (2008). The localisation into isiXhosa of the iLanga telephone system. *Strengthening the Role of ICT in Development*, 236.
- De Liso, N., & Leoncini, R. (2010). Internationalization, Technological Change and the Theory of the Firm Retrieved from <http://hud.ebilib.com/patron/FullRecord.aspx?p=557254>
- Del Galdo, E. M., & Nielsen, J. (1996). *International users interface*: John Wiley & Sons, Inc.
- Deng, Y., & Chan, F. T. (2011). A new fuzzy dempster MCDM method and its application in supplier selection. *Expert Systems with Applications*, 38(8), 9854-9861.
- DiBiase, D. (2000). Is distance teaching more work or less work? *American Journal of Distance Education*, 14(3), 6-20.
- Dirin, A. (2016). From Usability to User Experience in Mobile Learning Applications.
- Dul, J., & Hak, T. (2007). *Case study methodology in business research*: Routledge.
- Dumas, J. S., & Redish, J. (1999). *A practical guide to usability testing*: Intellect books.
- Easterby-Smith, M., Thorpe, R., & Jackson, P. R. (2012). *Management research*: Sage.
- Edens, J. F., Campbell, J. S., & Weir, J. M. (2007). Youth psychopathy and criminal recidivism: A meta-analysis of the psychopathy checklist measures. *Law and human behavior*, 31(1), 53-75.
- Eisenmann, T., Parker, G., & Van Alstyne, M. W. (2006). Strategies for two-sided markets. *Harvard business review*, 84(10), 92.
- Embi, M. A., & Nordin, N. M. (2013). Mobile learning: Malaysian initiatives and research findings. *Malaysia: Centre for Academic Advancement, Universiti Kebangsaan Malaysia*, 1-131.
- Esselink, B. (2000a). *A practical guide to localization* (Vol. 4): John Benjamins Publishing.
- Esselink, B. (2000b). *A practical guide to localization*.
- Evans, C. (2008). The effectiveness of m-learning in the form of podcast revision lectures in higher education. *Computers & education*, 50(2), 491-498.
- Evers, V., & Day, D. (1997). *The role of culture in interface acceptance*. Paper presented at the Human-Computer Interaction INTERACT'97.
- Faulkner, L. (2003). Beyond the five-user assumption: Benefits of increased sample sizes in usability testing. *Behavior Research Methods*, 35(3), 379-383.
- Ferran-Ferrer, N., Domingo, M. G., Prieto-Blazquez, J., Corcoles, C., Sancho-Vinuesa, T., & Santanach, M. F. (2014). Mobile learning in higher education. *Increasing Access*, 175.
- Fetaji, M., Dika, Z., & Fetaji, B. (2008). *Usability testing and evaluation of a mobile software solution: a case study*. Paper presented at the Information Technology Interfaces, 2008. ITI 2008. 30th International Conference on.
- Filipowicz, W. (2008). Mathematical theory of evidence in maritime traffic engineering. *Journal of KONES*, 15, 129-137.
- Fons, S., Achari, G., & Ross, T. (2004). A fuzzy cognitive mapping analysis of the impacts of an eco-industrial park. *Journal of Intelligent & Fuzzy Systems*, 15(2), 75-88.
- Ford, G., & Kotzé, P. (2005). *Designing usable interfaces with cultural dimensions*. Paper presented at the IFIP Conference on Human-Computer Interaction.

- Frankfort-Nachmias, C., & Nachmias, D. (2001). *Research methods in the social sciences: TPB*.
- Galliers, R. D., Merali, Y., & Spearing, L. (1994). Coping with information technology? How British executives perceive the key information systems management issues in the mid-1990s. *Journal of Information Technology*, 9(3), 223-238.
- Gambier, Y., & Van Doorslaer, L. (2009). *The metalanguage of localisation* (Vol. 20): John Benjamins Publishing.
- Gao, J., Bai, X., Tsai, W.-T., & Uehara, T. (2014). Mobile Application Testing: A Tutorial. *Computer*, 47(2), 46-55. doi: 10.1109/mc.2013.445
- Gray, W. D., & Salzman, M. C. (1998). Damaged merchandise? A review of experiments that compare usability evaluation methods. *Human-Computer Interaction*, 13(3), 203-261.
- Green, D., & Pearson, J. M. (2006). Development of a web site usability instrument based on ISO 9241-11. *Journal of Computer Information Systems*, 47(1), 66-72.
- Gress, F. G., Hawes, R. H., Savides, T. J., Ikenberry, S. O., Cummings, O., Kopecky, K., . . . Lehman, G. A. (1999). Role of EUS in the preoperative staging of pancreatic cancer: a large single-center experience. *Gastrointestinal endoscopy*, 50(6), 786-791.
- Guerra, M. A., Francisco, C. M., & Madeira, R. N. (2011). *PortableLab: implementation of a mobile remote laboratory for the android platform*. Paper presented at the Global Engineering Education Conference (EDUCON), 2011 IEEE.
- Han, M. (2011). *New technology of distance education in China*. Paper presented at the Computer Science and Service System (CSSS), 2011 International Conference on.
- Hanson, B. (2008). Wither qualitative/quantitative?: Grounds for methodological convergence. *Quality & Quantity*, 42(1), 97-111.
- Hanson, W. E., Creswell, J. W., Clark, V. L. P., Petska, K. S., & Creswell, J. D. (2005). Mixed methods research designs in counseling psychology. *Journal of counseling psychology*, 52(2), 224.
- Harwood, T. G., & Garry, T. (2003). An overview of content analysis. *The Marketing Review*, 3(4), 479-498.
- Hashim, A. S., Ahmad, W. F. W., & Ahmad, R. (2011). *Mobile learning course content application as a revision tool: The effectiveness and usability*. Paper presented at the Pattern Analysis and Intelligent Robotics (ICPAIR), 2011 International Conference on.
- Henderson, S., & Yeow, J. (2012). *iPad in education: A case study of iPad adoption and use in a primary school*. Paper presented at the System science (hicss), 2012 45th hawaii international conference on.
- Herrera, F., & Herrera-Viedma, E. (2000). Linguistic decision analysis: steps for solving decision problems under linguistic information. *Fuzzy Sets and systems*, 115(1), 67-82.
- Hofstede, G., Hofstede, G. J., & Minkov, M. (2010). Cultures and organizations: Software of the mind. Revised and expanded. *McGraw-Hill, New York*.
- Holden, M. T., & Lynch, P. (2004). Choosing the appropriate methodology: Understanding research philosophy. *The marketing review*, 4(4), 397-409.
- Hollingsed, T., & Novick, D. G. (2007). *Usability inspection methods after 15 years of research and practice*. Paper presented at the Proceedings of the 25th annual ACM international conference on Design of communication.
- Holzinger, A. (2005). Usability engineering methods for software developers. *Communications of the ACM*, 48(1), 71-74.
- Holzinger, A., Searle, G., & Nischelwitz, A. (2007). *On some aspects of improving mobile applications for the elderly*. Paper presented at the International Conference on Universal Access in Human-Computer Interaction.

- Hošková-Mayerová, Š. (2014). The Effect of Language Preparation on Communication Skills and Growth of Students' Self-confidence. *Procedia - Social and Behavioral Sciences*, 114(0), 644-648. doi: <http://dx.doi.org/10.1016/j.sbspro.2013.12.761>
- Huang, Y.-M., Jeng, Y.-L., & Huang, T.-C. (2009). An educational mobile blogging system for supporting collaborative learning. *Educational Technology & Society*, 12(2), 163-175.
- Hub, M., & Zatloukal, M. (2008). Methodology of fuzzy usability evaluation of Information systems in Public administration. *WSEAS Transactions on Information Science & Applications*, 5(11), 1573-1583.
- Hub, M., & Zatloukal, M. (2010). Model of usability evaluation of web portals based on the fuzzy logic. *WSEAS Transactions on Information Science and Applications*, 7(4), 522-531.
- Hussain, A., & Ferneley, E. (2008). *Usability metric for mobile application: a goal question metric (GQM) approach*. Paper presented at the Proceedings of the 10th International Conference on Information Integration and Web-based Applications & Services.
- Hwang, C.-L., & Yoon, K. (2012). *Multiple attribute decision making: methods and applications a state-of-the-art survey* (Vol. 186): Springer Science & Business Media.
- Hwang, G. J., & Tsai, C. C. (2011). Research trends in mobile and ubiquitous learning: A review of publications in selected journals from 2001 to 2010. *British Journal of Educational Technology*, 42(4), E65-E70.
- Jackson, D. L., Gillaspay Jr, J. A., & Purc-Stephenson, R. (2009). Reporting practices in confirmatory factor analysis: an overview and some recommendations. *Psychological methods*, 14(1), 6.
- Jaeger, S. R. (2006). Non-sensory factors in sensory science research. *Food Quality and Preference*, 17(1), 132-144.
- Järvelä, S., Näykki, P., Laru, J., & Luokkanen, T. (2007). Structuring and regulating collaborative learning in higher education with wireless networks and mobile tools. *Educational Technology & Society*, 10(4), 71-79.
- Jeffrey, R., & Chisnell, D. (1994). *Handbook of usability testing: how to plan, design, and conduct effective tests*: New York John Wiley Sons.
- Jeng, Y.-L., Wu, T.-T., Huang, Y.-M., Tan, Q., & Yang, S. J. (2010). The add-on impact of mobile applications in learning strategies: A review study. *Educational Technology & Society*, 13(3), 3-11.
- Jimenez-Crespo, M. A. (2013). Translation and Web Localization Retrieved from <http://hud.ebilib.com/patron/FullRecord.aspx?p=1546759>
- Kabir, G., & Hasin, A. A. (2012). Comparative analysis of TOPSIS and Fuzzy TOPSIS for the evaluation of travel website service quality. *International Journal for Quality Research*, 6(3), 169-185.
- Kaye, T., Mason, R., & Harasim, L. M. (1989). *Computer conferencing in the academic environment*: Open University.
- Kearney, M., Schuck, S., Burden, K., & Aubusson, P. (2012). Viewing mobile learning from a pedagogical perspective. *Research in learning technology*, 20.
- Khaddage, F., Lanham, E., & Zhou, W. (2009). A Mobile Learning Model for Universities. *International Journal of Interactive Mobile Technologies*, 3.
- Khan, R., Mustafa, K., & Ahson, S. (2007). An empirical validation of object oriented design quality metrics. *Journal of King Saud University-Computer and Information Sciences*, 19, 1-16.
- Klein, J. T., Grossenbacher-Mansuy, W., Häberli, R., Bill, A., Scholz, R. W., & Welti, M. (2012). *Transdisciplinarity: joint problem solving among science, technology, and society: an effective way for managing complexity*: Birkhäuser.

- Kukulska-Hulme, A. (2005). *Mobile learning: A handbook for educators and trainers*: Psychology Press.
- Kukulska-Hulme, A. (2007). Mobile usability in educational contexts: what have we learnt? *The International Review of Research in Open and Distributed Learning*, 8(2).
- Lam, P., Wong, K., Cheng, R., Ho, E., & Yuen, S. (2011). *Changes in Student Mobile Learning Readiness—Comparison of Survey Data Collected Over a Nine-month Period*. Paper presented at the Global Learn.
- Lamberton, C., & Stephen, A. T. (2016). A Thematic Exploration of Digital, Social Media, and Mobile Marketing: Research Evolution from 2000 to 2015 and an Agenda for Future Inquiry. *Journal of Marketing*, 80(6), 146-172.
- Laouris, Y., & Eteokleous, N. (2005). *We need an educationally relevant definition of mobile learning*. Paper presented at the Proceedings of the 4th World Conference on Mobile Learning.
- Larkin, M. A., Blackshields, G., Brown, N., Chenna, R., McGettigan, P. A., McWilliam, H., . . . Lopez, R. (2007). Clustal W and Clustal X version 2.0. *bioinformatics*, 23(21), 2947-2948.
- Law, L.-C., & Hvannberg, E. T. (2002). *Complementarity and convergence of heuristic evaluation and usability test: a case study of universal brokerage platform*. Paper presented at the Proceedings of the second Nordic conference on Human-computer interaction.
- Lazar, E. J., Fleischut, P., & Regan, B. K. (2013). Quality measurement in healthcare. *Annual review of medicine*, 64, 485-496.
- Lee, S. H. (1999). Usability testing for developing effective interactive multimedia software: Concepts, dimensions, and procedures. *Educational Technology & Society*, 2(2), 1-13.
- Lewis, J. R. (1995). IBM computer usability satisfaction questionnaires: psychometric evaluation and instructions for use. *International Journal of Human-Computer Interaction*, 7(1), 57-78.
- LISA. (2006). Best practice Guide: Managing Global Content. *Global Content Management and Global Translation Management system, 2nd ed* . Genave: Localisation industry Standards Association.
- Little, B. (2013). Issues in mobile learning technology. *Human Resource Management International Digest*, 21(3), 26-29.
- Liu, M., Traphagan, T., Huh, J., Koh, Y. I., Choi, G., & McGregor, A. (2008). Designing websites for ESL learners: A usability testing study. *CALICO Journal*, 25(2), 207-240.
- Lopes, N. G., & Costa, C. J. (2008). *ERP localization: exploratory study in translation: European and Brazilian Portuguese*. Paper presented at the Proceedings of the 26th annual ACM international conference on Design of communication.
- Lu, J. (2011). Student Response System (SRS)/Wireless Response System (WRS)—a Next-Generation Student Response System for Academia and Industry.
- Lu, Z., & Global, I. (2012). *Learning with mobile technologies, handheld devices, and smart phones: Innovative methods*: Information Science Reference.
- Mahat, J., Ayub, A. F. M., & Luan, S. (2012). An assessment of students' mobile self-efficacy, readiness and personal innovativeness towards mobile learning in higher education in Malaysia. *Procedia-Social and Behavioral Sciences*, 64, 284-290.
- Marinov, M., Dr, & Marinova, S., Dr. (2011). Internationalization of Emerging Economies and Firms Retrieved from <http://hud.ebib.com/patron/FullRecord.aspx?p=851049>
- Marshall, G., & Jonker, L. (2011). An introduction to inferential statistics: A review and practical guide. *Radiography*, 17(1), e1-e6.

- Mazur, I. (2007). The metalanguage of localization: Theory and practice. *Target: International Journal on Translation Studies*, 19(2).
- Meeker, M. (2013). Internet Trends Retrieved 28.11, 2013, from <http://www.kpcb.com/blog/2013-internet-trends>
- Meng, Z., & Lu, J. (2011). *Implementing the Emerging Mobile Technologies in Facilitating Mobile Exam System*. Paper presented at the 2011 2nd International Conference on Networking and Information Technology, IPCSIT.
- Mostakhdemin-Hosseini, A. (2003). *Framework for mobile learning system based on education component*. Paper presented at the Proceedings of the International Conference on Theory and Applications of Mathematics and Informatics–ICTAMI.
- Mostakhdemin-Hosseini, A., & Tuimala, J. (2005). *Mobile learning framework*. Paper presented at the Proceedings IADIS International Conference Mobile Learning.
- Mundy, D., Stephens, D., & Dykes, K. (2010). *Facilitating Low Cost Interaction in the Classroom Through Standard Mobile Devices*. Paper presented at the World Conference on Educational Multimedia, Hypermedia and Telecommunications.
- Mustafa, K., & Khan, R. A. (2007). *Software testing : concepts and practices*. Oxford: Alpha Science.
- Nielsen, J. (1990). *Paper versus computer implementations as mockup scenarios for heuristic evaluation*. Paper presented at the Proceedings of the IFIP Tc13 Third interational Conference on Human-Computer interaction.
- Nielsen, J. (1992). The usability engineering life cycle. *Computer*, 25(3), 12-22.
- Nielsen, J. (1994a). How to conduct a heuristic evaluation. *On the World Wide Web*.
- Nielsen, J. (1994b). Usability engineering.
- Nielsen, J. (1994c). *Usability engineering*: Elsevier.
- Nielsen, J. (1999a). Designing web usability: The practice of simplicity.
- Nielsen, J. (1999b). User interface directions for the web. *Communications of the ACM*, 42(1), 65-72.
- Nielsen, J. (2002). Nielsen Norman Group. *Internet*: <http://www.useit.com/papers/heuristic>.
- Nielsen, J. (2003). Usability 101: Introduction to usability.
- NIELSEN, J. (2012). How Many Test Users in a Usability Study? Retrieved 20-11, 2014, from <http://www.nngroup.com/articles/how-many-test-users/>
- Nielsen, J., & Landauer, T. K. (1993). *A mathematical model of the finding of usability problems*. Paper presented at the Proceedings of the INTERACT'93 and CHI'93 conference on Human factors in computing systems.
- Nielsen, J., Tahir, M., & Tahir, M. (2002). *Homepage usability: 50 websites deconstructed* (Vol. 50): New Riders Indianapolis, IN.
- Noble, J., & Anderson, T. (2008). *Flex 3 Cookbook: Code-Recipes, Tips, and Tricks for RIA Developers*: " O'Reilly Media, Inc."
- O'Hagan, M., & Ashworth, D. (2002). *Translation-mediated communication in a digital world: Facing the challenges of globalization and localization* (Vol. 23): Multilingual Matters.
- Pachler, N., Bachmair, B., Cook, J., & Kress, G. (2010). *Mobile learning*: Springer.
- Papanikolaou, K., & Mavromoustakos, S. (2006). *Critical Success Factors for the Development of Mobile Learning Applications*. Paper presented at the EuroIMSA.
- Pattie, Y. Y., Luk-Fong. (2012). Teachers' Identities and Life Choices : Issues of Globalisation and Localisation Retrieved from <http://hud.ebllib.com/patron/FullRecord.aspx?p=1030294>
- Patzer, G. L. (1996). *Experiment-research methodology in marketing: types and applications*: Greenwood Publishing Group.

- Pinkwart, N., Hoppe, H. U., Milrad, M., & Perez, J. (2003). Educational scenarios for cooperative use of Personal Digital Assistants. *Journal of computer assisted learning*, 19(3), 383-391.
- Postgate, A., Haycock, A., Thomas-Gibson, S., Fitzpatrick, A., Bassett, P., Preston, S., . . . Fraser, C. (2009). Computer-aided learning in capsule endoscopy leads to improvement in lesion recognition ability. *Gastrointestinal endoscopy*, 70(2), 310-316.
- Pretorius, M. C., Calitz, A. P., & van Greunen, D. (2005). *The added value of eye tracking in the usability evaluation of a network management tool*. Paper presented at the Proceedings of the 2005 annual research conference of the South African institute of computer scientists and information technologists on IT research in developing countries.
- Pym, A. (2004). The moving text: localization, translation, and distribution.
- Pym, A. (2011a). *Democratizing translation technologies—the role of humanistic research*. Paper presented at the Luspio Translation Automation Conference, April.
- Pym, A. (2011b). Website localization. *Online* [http://usuaris.tinet.cat/apym/online/translation/2009\\_website\\_localization\\_feb.pdf](http://usuaris.tinet.cat/apym/online/translation/2009_website_localization_feb.pdf), 10.
- Quinn, C. (2000). mLearning: Mobile, Wireless, in your Pocket Learning. LineZine, Fall 2000. Found at: <http://www.linezine.com/2.1/features/cqmmwiyp.htm>.
- Quinn, C. N. (2011). *Bloomberg : Mobile Academy : mLearning for Higher Education (2nd Edition)*. Hoboken, NJ, USA: Jossey-Bass.
- Reiser, R. A., & Dempsey, J. V. (2012). *Trends and issues in instructional design and technology*: Pearson Boston, MA.
- Richards, L., & Morse, J. M. (2012). *Readme first for a user's guide to qualitative methods*: Sage.
- Rosenbaum, S., Bloomer, S., Rinehart, D., Rohn, J., Dye, K., Humburg, J., . . . Wixon, D. (1999). *What makes strategic usability fail?: lessons learned from the field*. Paper presented at the CHI'99 extended abstracts on Human factors in computing systems.
- Rossing, J. P., Miller, W. M., Cecil, A. K., & Stamper, S. E. (2012). iLearning: The future of higher education? Student perceptions on learning with mobile tablets. *Journal of the Scholarship of Teaching and Learning*, 12(2), 1-26.
- Rubin, J., & Chisnell, D. (2008). *Handbook of Usability TestingXXX: Howto Plan, Design, and Conduct Effective Tests*.
- Salkind, N. J. (2010). *Encyclopedia of research design* (Vol. 1): Sage.
- Saunders, J., Fernandes, M., & Kosnes, L. (2009). Retrieval-induced forgetting and mental imagery. *Memory & Cognition*, 37(6), 819-828.
- Saunders, M. L., & Lewis, P. (2009). P. & Thornhill, A. (2009). *Research methods for business students*, 4.
- Sawsaa, A., Lu, J., & Meng, Z. (2012). Using an Application of Mobile and Wireless Technology in Arabic Learning System. *Learning with Mobile Technologies, Handheld Devices and Smart Phones: Innovative Methods*, 172.
- Schinsky, H. (2011). Flex 4 Localization Quick Start. *Mobile Application Development* Retrieved 09-08-2013, 2013, from <http://devgirl.org/2011/03/15/flex-4-localization/>
- Seara-Cardoso, A., Neumann, C., Roiser, J., McCrory, E., & Viding, E. (2012). Investigating associations between empathy, morality and psychopathic personality traits in the general population. *Personality and Individual Differences*, 52(1), 67-71.
- Sekaran, U., & Bougie, R. (2003). *Business Research Methods*: John Wiley & Sons, Inc: USA.
- Seppälä, P., & Alamäki, H. (2003). Mobile learning in teacher training. *Journal of computer assisted learning*, 19(3), 330-335.

- Shackel, B. (2009). Usability–Context, framework, definition, design and evaluation. *Interacting with Computers*, 21(5-6), 339-346.
- Sharp, H., Rogers, Y., & Preece, J. (2007). Interaction design: beyond human-computer interaction.
- Shen, R., Wang, M., & Pan, X. (2008). Increasing interactivity in blended classrooms through a cutting-edge mobile learning system. *British Journal of Educational Technology*, 39(6), 1073-1086.
- Sheng, H., Nah, F. F.-H., & Siau, K. (2005). Strategic implications of mobile technology: A case study using value-focused thinking. *The Journal of Strategic Information Systems*, 14(3), 269-290.
- Silverman, D. (2016). *Qualitative research*: Sage.
- Smith-Ferrier, G. (2006). . *NET Internationalization: The Developer's Guide to Building Global Windows and Web Applications*: Pearson Education.
- Sonderegger, A., & Sauer, J. (2010). The influence of design aesthetics in usability testing: Effects on user performance and perceived usability. *Applied ergonomics*, 41(3), 403-410.
- Sreenath , K. (2011). Adaptive Sampling with Mobile WSN : Simultaneous robot localisation and mapping of paramagnetic spatio-temporal fields Retrieved from <http://hud.ebilib.com/patron/FullRecord.aspx?p=774056>
- Srivastava, A., & Thomson, S. B. (2009). Framework analysis: a qualitative methodology for applied policy research.
- Sun, C.-C., & Lin, G. T. (2009). Using fuzzy TOPSIS method for evaluating the competitive advantages of shopping websites. *Expert Systems with Applications*, 36(9), 11764-11771.
- Tavakol, M., & Dennick, R. (2011). Post-examination analysis of objective tests. *Medical Teacher*, 33(6), 447-458.
- Terrenghi, L., Kronen, M., & Valle, C. (2005). Usability requirements for mobile service scenarios. *Human Computer Interaction*, 1-10.
- Tomlinson, J. (1999). Globalization and culture.
- Tractinsky, N. (1997). *Aesthetics and apparent usability: empirically assessing cultural and methodological issues*. Paper presented at the Proceedings of the ACM SIGCHI Conference on Human factors in computing systems.
- Traxler, J. (2005). *Defining mobile learning*. Paper presented at the IADIS International Conference Mobile Learning.
- Traxler, J. (2009). Learning in a mobile age. *International Journal of Mobile and Blended Learning (IJMBL)*, 1(1), 1-12.
- Tripoliti, E. E., & Fotiadis, D. I. (2009). *Recent developments in computer methods for fMRI data processing*: INTECH Open Access Publisher.
- Tullis, T., Albert, W., Dumas, J. S., & Loring, B. A. (2008). Measuring the User Experience: Collecting Analyzing, and Presenting Usability.
- Vaidya, O. S., & Kumar, S. (2006). Analytic hierarchy process: An overview of applications. *European Journal of operational research*, 169(1), 1-29.
- Valente, T. W. (2002). *Evaluating health promotion programs*: Oxford University Press.
- Wahab, N. A., Osman, A., & Ismail, M. H. (2010). *Engaging children to science subject: a heuristic evaluation of mobile learning prototype*. Paper presented at the Computer Engineering and Applications (ICCEA), 2010 Second International Conference on.
- Wallace, S., Reid, A., Clinciu, D., & Kang, J.-S. (2013). Culture and the importance of usability attributes. *Information Technology & People*, 26(1), 77-93.
- Walliman, N. (2006). *Social research methods*: Sage.



- Wang, S., & Dey, S. (2013). Adaptive mobile cloud computing to enable rich mobile multimedia applications. *IEEE Transactions on Multimedia*, 15(4), 870-883.
- Wiid, J., & Diggins, C. (2010). *Marketing research*: Juta and Company Ltd.
- Wu, W.-H., Wu, Y.-C. J., Chen, C.-Y., Kao, H.-Y., Lin, C.-H., & Huang, S.-H. (2012). Review of trends from mobile learning studies: A meta-analysis. *Computers & Education*, 59(2), 817-827.
- Yin, R. K. (2013). *Case study research: Design and methods*: Sage publications.
- Yu, A. (2001). Method and system for generalized localization of electronic documents: Google Patents.
- Yu, Y., Jones, J. A., & Harrold, M. J. (2008). *An empirical study of the effects of test-suite reduction on fault localization*. Paper presented at the Proceedings of the 30th international conference on Software engineering.
- Zatloukal, M. (2009). Usability evaluation of Information Systems in Public administration based on the fuzzy approach.
- Zhao, C., He, Z., & Zeng, W. (2010). *Study on International Software Localization Testing*. Paper presented at the Software Engineering (WCSE), 2010 Second World Congress on.
- Zhao, S., Xu, W., Jiang, W., Yu, W., Lin, Y., Zhang, T., . . . Li, H. (2010). Regulation of cellular metabolism by protein lysine acetylation. *Science*, 327(5968), 1000-1004.
- Ziefle, M., & Bay, S. (2005). How older adults meet complexity: aging effects on the usability of different mobile phones. *Behaviour & Information Technology*, 24(5), 375-389.
- Ziefle, M., & Bay, S. (2006). How to overcome disorientation in mobile phone menus: A comparison of two different types of navigation aids. *Human-Computer Interaction*, 21(4), 393-433.

**APPENDICES**

**Appendix A.....151**

**Appendix B.....154**

**Appendix C.....157**

**Appendix D.....164**

**Appendix E.....174**

## APPENDICES

### Appendix A

# Questionnaire

## The Usability evaluation for the multilingual WRS application

Questionnaire No: (.....)

(Teacher) \ (Student)

Date: .....

Place: .....

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### General Questions:

1. Specify your age?  
A- Less than 20 years, B- 21-30, c- 31- 40, D- 41- 50, E- More than 50 years.
- 2- Specify your gender?  
A- Male, B- Female.
- 3- Specify your Education Level?  
A- Under Bachelor's, B- Bachelor's degree, C- Master's, D- PhD.
- 4- What is your mother tongue that you used to test the application?  
.....
- 5- How many hours you spend on the computer in one day?  
.....
- 6- What is the system type that you used to test the application?  
A- PC, B- I bad, C- Mobile, D- others .....

### Main Questions:

Please rate the usability of the "WRS" Application by selecting one option from 1 to 5 for each question below, where:

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Part 1:									
Effectiveness.					1	2	3	4	5
1	The translation was accurate according to your language specification.								
2	The alignment of the text was compatible and properly consistent according to the								

	nature of your language.					
3	The scrollbar worked properly according to your language specification.					
4	You could effectively complete your work using this Application.					
5	It was easy to find the information you needed.					
6	It was easy to navigate through this Application.					
7	The organization of information on the Application's screen was clear.					

<b>Part 2:</b>						
<b>Efficiency.</b>		1	2	3	4	5
8	You were able to complete your work quickly using this Application.					
9	You were able to complete your work efficiently using this Application.					
10	The application was able to remember the contents of the page when you returned to it.					
11	This application is uncomplicated.					
12*	There are no problems when uploading data and images.					
13*	There are no problems when saving results.					
14	The application produced error messages that clearly told you how to fix problems.					

- The questions No (12 & 13) concerns the teachers only.

<b>Part 3:</b>						
<b>Satisfaction.</b>		1	2	3	4	5
15	You felt comfortable using this Application.					
16	The popup message boxes appeared.					
17	It was convenient to use this Application.					
18	The Application contains no mistakes.					
19	You felt confident using this Application.					
20	The Application design was aesthetic and pleasant.					
21	This Application is secure.					

<b>Part 4:</b>						
----------------	--	--	--	--	--	--

<b>Comprehensibility.</b>		1	2	3	4	5
22	The Application's Name and Title were clearly presented on the screen.					
23	The Application's display adapted to the screen size.					
24	The screen content was easily readable.					
25	You could login easily to the application.					
26	You needed to use the support when you used the application.					
27	It was easy to learn to use this Application.					
28	The information provided within this Application is clear.					

<b>Part 5:</b>						
<b>The Usability.</b>		1	2	3	4	5
Overall:						
29	The Application was effective.					
30	The Application was efficient.					
31	The Application was comprehensive.					
32	I was satisfied with the Application.					

Thank you very much for your time.

## Appendix B

**UNIVERSITY OF HUDDERSFIELD  
SCHOOL OF COMPUTING AND ENGINEERING**

**PROJECT ETHICAL REVIEW FORM**

*Applicable for all research, masters and undergraduate projects*

<b>Project Title:</b>	Investigation the usability of multilingual mobile learning system using WRS as case study
<b>Student:</b>	Abduladim Ali
<b>Course/Programme :</b>	PHD
<b>Department:</b>	Computing and Engineering
<b>Supervisor:</b>	Prof. Joan Lu
<b>Project Start Date:</b>	11/11/2016

**ETHICAL REVIEW CHECKLIST**

	<b>Yes</b>	<b>No</b>
1. Are there problems with any participant's right to remain anonymous?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Could a conflict of interest arise between a collaborating partner or funding source and the potential outcomes of the research, e.g. due to the need for confidentiality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Will financial inducements be offered?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Will deception of participants be necessary during the research?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Does the research involve experimentation on any of the following?		
(i) animals?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(ii) animal tissues?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(iii) human tissues (including blood, fluid, skin, cell lines)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Does the research involve participants who may be particularly vulnerable, e.g. children or adults with severe learning disabilities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Could the research induce psychological stress or anxiety for the participants beyond that encountered in normal life?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is it likely that the research will put any of the following at risk:		
(i) living creatures?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(ii) stakeholders (disregarding health and safety, which is covered by Q9)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(iii) the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(iv) the economy?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9. Having completed a health and safety risk assessment form and taken all reasonable practicable steps to minimise risk from the hazards identified, are the residual risks acceptable (Please attach a risk assessment form – available at the end of this document)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**STATEMENT OF ETHICAL ISSUES AND ACTIONS**

If the answer to any of the questions above is yes, or there are any other ethical issues that arise that are not covered by the checklist, then please give a summary of the ethical issues and the action that will be taken to address these in the box below. If you believe there to be no ethical issues, please enter "NONE".

**STATEMENT BY THE STUDENT**

**I believe that the information I have given in this form on ethical issues is correct.**

Signature: Abduladim.Ali Date: 11/11/2016

**AFFIRMATION BY THE SUPERVISOR**

**I have read this Ethical Review Checklist and I can confirm that, to the best of my understanding, the information presented by the student is correct and appropriate to allow an informed judgement on whether further ethical approval is required.**

Signature:  Date: 15/11/2016

**SUPERVISOR RECOMMENDATION ON THE PROJECT'S ETHICAL STATUS**

**Having satisfied myself of the accuracy of the project ethical statement, I believe that the appropriate action is:**

The project proceeds in its present form	✓
The project proposal needs further assessment by an Ethical Review Panel. The Supervisor will pass the form to the Ethical Review Panel Leader for consideration.	

**RETENTION OF THIS FORM**


- The Supervisor must retain a copy of this form until the project report/dissertation is produced.
- The student must include a copy of the form as an appendix in the report/dissertation.

**OUTCOME OF THE ETHICAL REVIEW PANEL PROCESS, WHERE REQUIRED**

Tick  
O  
n  
e

- 1. Approved. The ethical issues have been adequately addressed and the project may commence.
- 2. Approved subject to minor amendments. The required amendments are stated in the box below. The project may proceed once the form has been amended in line with the requirements and signed by the Supervisor in the box immediately below to confirm this.

**I confirm, as Supervisor, that the amendments required have been made:**

Signature:  Date: 15/11/16

- 3. Resubmit. The areas requiring further action are stated in the box below. The project may not proceed until the form has been resubmitted and approved.
- 4. Reject. The reasons why it will not be possible to address the ethical issues adequately are stated in the box below.

For any of the outcomes 2, 3 or 4 above, please provide a statement in the box below.

**AFFIRMATION BY THE REVIEW PANEL LEADER**

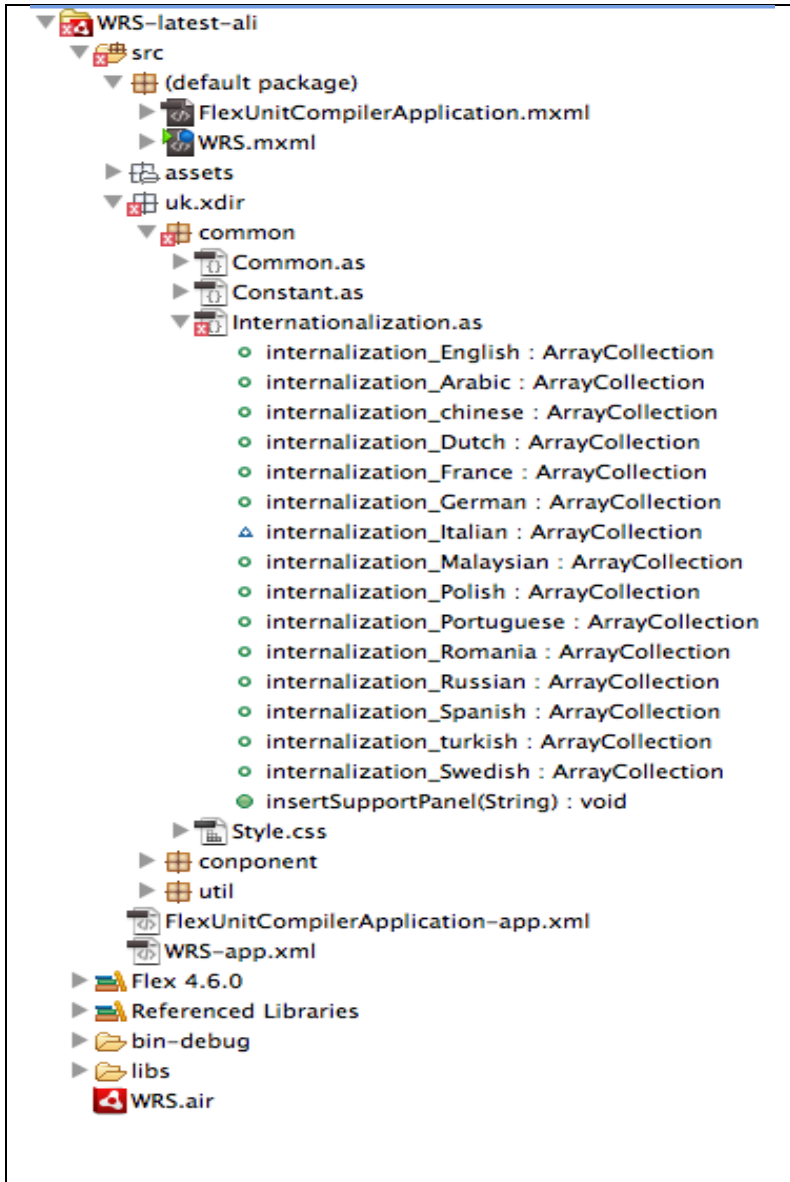
**I approve the decision reached above by the review panel members:**

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



## Appendix C

### Appendix C (1)



## Appendix C (2)

```
<body>
<select class="internationalization_class">
  <option value="Arabic" <?php if($_SESSION['language'] ==
'Arabic'):?>selected="selected"<?php endif; ?>>
<?php if($_SESSION['language'] == 'English'):?><?php echo
get_language("0_0", "Arabic"); ?>
<?php elseif ($_SESSION['language'] == 'Chinese'):?><?php echo
get_language("0_1", "Arabic"); ?>
<?php elseif ($_SESSION['language'] == 'Arabic'):?><?php echo
get_language("0_2", "Arabic"); ?>
<?php elseif ($_SESSION['language'] == 'Polish'):?><?php echo
get_language("0_3", "Arabic"); ?>
<?php elseif ($_SESSION['language'] == 'Turkish'):?><?php echo
get_language("0_4", "Arabic"); ?>
<?php elseif ($_SESSION['language'] == 'Malaysian'):?><?php echo
get_language("0_5", "Arabic"); ?>
<?php elseif ($_SESSION['language'] == 'French'):?><?php echo
get_language("0_6", "Arabic"); ?>
<?php elseif ($_SESSION['language'] == 'Italian'):?><?php echo
get_language("0_7", "Arabic"); ?>
<?php elseif ($_SESSION['language'] == 'Romania'):?><?php echo
get_language("0_8", "Arabic"); ?>
<?php elseif ($_SESSION['language'] == 'Swedish'):?><?php echo
get_language("0_9", "Arabic"); ?>
<?php elseif ($_SESSION['language'] == 'Dutch'):?><?php echo
get_language("0_10", "Arabic"); ?>
<?php elseif ($_SESSION['language'] == 'German'):?><?php echo
get_language("0_11", "Arabic "); ?>
<?php elseif ($_SESSION['language'] == 'Portuguese'):?><?php echo
get_language("0_12", "Arabic "); ?>
<?php elseif ($_SESSION['language'] == 'Russian'):?><?php echo
get_language("0_13", "Arabic"); ?>
<?php elseif ($_SESSION['language'] == 'Spanish'):?><?php echo
get_language("0_14", "Arabic"); ?>
<?php endif; ?>
</option>

<option value="English" <?php if($_SESSION['language'] ==
'English'):?>selected="selected"<?php endif; ?>>
<?php if($_SESSION['language'] == 'English'):?><?php echo
get_language("0_0", "English"); ?>
<?php elseif ($_SESSION['language'] == 'Chinese'):?><?php echo
get_language("0_1", "English"); ?>
<?php elseif ($_SESSION['language'] == 'Arabic'):?><?php echo
get_language("0_2", "English"); ?>
<?php elseif ($_SESSION['language'] == 'Polish'):?><?php echo
get_language("0_3", "English"); ?>
<?php elseif ($_SESSION['language'] == 'Turkish'):?><?php echo
get_language("0_4", "English"); ?>
<?php elseif ($_SESSION['language'] == 'Malaysian'):?><?php echo
get_language("0_5", "English"); ?>
<?php elseif ($_SESSION['language'] == 'French'):?><?php echo
get_language("0_6", "English"); ?>
```

```

<?php elseif ($_SESSION['language'] == 'Italian'):?><?php echo
get_language("0_7", "English"); ?>
<?php elseif ($_SESSION['language'] == 'Romania'):?><?php echo
get_language("0_8", "English"); ?>
<?php elseif ($_SESSION['language'] == 'Swedish'):?><?php echo
get_language("0_9", "English"); ?>
<?php elseif ($_SESSION['language'] == 'Dutch'):?><?php echo
get_language("0_10", "English"); ?>
<?php elseif ($_SESSION['language'] == 'German'):?><?php echo
get_language("0_11", "English "); ?>
<?php elseif ($_SESSION['language'] == 'Portuguese'):?><?php echo
get_language("0_12", "English "); ?>
<?php elseif ($_SESSION['language'] == 'Russian'):?><?php echo
get_language("0_13", "English"); ?>

```

```

<?php elseif ($_SESSION['language'] == 'Spanish'):?><?php echo
get_language("0_14", "English"); ?>
<?php endif; ?>
</option>
<option
  value="Russian" <?php if($_SESSION['language'] ==
  'Russian'):?>selected="selected"<?php endif; ?>>
<?php if($_SESSION['language'] == 'English'):?><?php echo
get_language("0_0", "Russian"); ?>
<?php elseif ($_SESSION['language'] == 'Chinese'):?><?php echo
get_language("0_1", "Russian"); ?>
<?php elseif ($_SESSION['language'] == 'Arabic'):?><?php echo
get_language("0_2", "Russian"); ?>
<?php elseif ($_SESSION['language'] == 'Polish'):?><?php echo
get_language("0_3", "Russian"); ?>
<?php elseif ($_SESSION['language'] == 'Turkish'):?><?php echo
get_language("0_4", "Russian"); ?>
<?php elseif ($_SESSION['language'] == 'Malaysian'):?><?php echo
get_language("0_5", "Russian"); ?>
<?php elseif ($_SESSION['language'] == 'French'):?><?php echo
get_language("0_6", "Russian"); ?>
<?php elseif ($_SESSION['language'] == 'Italian'):?><?php echo
get_language("0_7", "Russian"); ?>
<?php elseif ($_SESSION['language'] == 'Romania'):?><?php echo
get_language("0_8", "Russian"); ?>
<?php elseif ($_SESSION['language'] == 'Swedish'):?><?php echo
get_language("0_9", "Russian"); ?>
<?php elseif ($_SESSION['language'] == 'Dutch'):?><?php echo
get_language("0_10", "Russian"); ?>
<?php elseif ($_SESSION['language'] == 'German'):?><?php echo
get_language("0_11", "Russian "); ?>
<?php elseif ($_SESSION['language'] == 'Portuguese'):?><?php echo
get_language("0_12", "Russian"); ?>
<?php elseif ($_SESSION['language'] == 'Russian'):?><?php echo
get_language("0_13", "Russian"); ?>
<?php elseif ($_SESSION['language'] == 'Spanish'):?><?php echo
get_language("0_14", "Russian"); ?>
<?php endif; ?>

```

## Appendix C (3)

```
public var internalization_English:ArrayCollection = new ArrayCollection([[
    i1: " Wireless Response System",
    i1_1: "Sign in",
    i1_2: "Support",
    i1_2_1: "-Click the button 'Sign in' to login the system with your username
and password.",
    i1_2_2: "-Click the button 'Sign in' if a new user wants to create a new
account.",
    i1_2_2_1:" After you create the new account,you can change your
password.",
    i1_2_3: "-Click the button 'change password',if the user wants to change the
password.",
    i1_2_4: "-Click the button 'Exit' to leave the system.",
    i1_3: "language",
    i1_4: "Exit",
    i1_1_A_1: "assets/existing_user.png",
    i1_1_A_2: "Existing users ",
```

```
public var internalization_Arabic:ArrayCollection = new ArrayCollection([[
    i1: "اللاسلكي الإجابة نظام",
    i1_1: "الدخول تسجيل",
    i1_2: "دعم",
    i1_2_1: "وكلمة المستخدم إسم باستخدام النظام. علي الدخول من لتتمكن 'الدخول تسجيل' زر فوق انقر" * السر ",
    i1_2_2: " * جديد حساب إنشاء وتريد جديدا مستخدما كنت إذا 'الدخول تسجيل' زر فوق انقر ",
    i1_2_2_1: " السر كلمة تغير يمكنك الجديد للحساب إنشائك وبعد",
    i1_2_3: " * السر كلمة تغيير تريد كنت إذا ،'السر كلمة تغيير' الزر فوق انقر ",
    i1_2_4: "النظام لمغادرة 'إنهاء' زر فوق انقر",
    i1_3: "اللغة",
    i1_4: "خروج",
    i1_1_A_1: "assets/existing_user_2.png",
```

```
public var internalization_Swedish:ArrayCollection = new ArrayCollection([[
    i1: "Trådlöst Svarssystem",
    i1_1: "Logga in",
    i1_2: "Support",
    i1_2_1: "-Klicka på knappen 'Logga in' för att logga in på systemet med ditt
användarnamn och lösenord.",
    i1_2_2: "-Klicka på knappen 'Logga in' om en ny användare vill skapa ett
nytt konto, Efter du skapat det nya kontot kan du ändra lösenord",
    i1_2_2_1:"Efter du skapat det nya kontot kan du ändra ditt lösenord",
    i1_2_3: "-Klicka på knappen 'ändra lösenord'om användaren vill ändra
lösenordet",
    i1_2_4: "-Klicka på knappen 'Utgång' för att lämna systemet.",
    i1_3: "Språk",
    i1_4: "Avsluta",
    i1_1_A_1: "assets/existing_user.png",
```

## Appendix C (4)

```

private function changeLTR():void {
this.id_position.setStyle('layoutDirection', 'ltr');
//
this.parentApplication.id_sign_in_create_account_component.id_position_login.setStyle('layoutDirection', 'ltr');
this.parentApplication.id_sign_in_create_account_component.register_component_id.ntusr.setStyle('direction', 'ltr');
this.parentApplication.id_sign_in_create_account_component.register_component_id.ntpwd.setStyle('direction', 'ltr');
this.parentApplication.id_sign_in_create_account_component.register_component_id.nemail.setStyle('direction', 'ltr');
this.parentApplication.id_sign_in_create_account_component.register_component_id.id_ti_work.setStyle('direction', 'ltr');
this.parentApplication.id_sign_in_create_account_component.register_component_id.area_id.setStyle('direction', 'ltr');
this.parentApplication.id_sign_in_create_account_component.register_component_id.affiliation_id.setStyle('direction', 'ltr');
this.parentApplication.id_sign_in_create_account_component.login_component_id.id_textinput_username.setStyle('direction', 'ltr');
this.parentApplication.id_sign_in_create_account_component.login_component_id.id_textinput_password.setStyle('direction', 'ltr');
//
this.parentApplication.entry_component_id.id_entrycomponent.setStyle('layoutDirection', 'ltr');
this.parentApplication.preparequestion_component_id.questiontype_1.setStyle('layoutDirection', 'ltr');
//
this.parentApplication.history_component_id.id_history_for_result.setStyle('layoutDirection', 'ltr');
this.parentApplication.history_component_id.id_search1.setStyle('layoutDirection', 'ltr');
this.parentApplication.history_component_id.id_search2.setStyle('layoutDirection', 'ltr');
this.parentApplication.history_component_id.id_search3.setStyle('layoutDirection', 'ltr');
//
this.parentApplication.layout_direction = "ltr";
}

```

```

//
private function changeRTL():void {
this.id_position.setStyle('layoutDirection', 'rtl');
//
this.parentApplication.id_sign_in_create_account_component.id_position_login.setStyle('layoutDirection', 'rtl');
this.parentApplication.id_sign_in_create_account_component.register_component_id.ntusr.setStyle('direction', 'rtl');
this.parentApplication.id_sign_in_create_account_component.register_component_id.ntpwd.setStyle('direction', 'rtl');
this.parentApplication.id_sign_in_create_account_component.register_component_id.nemail.setStyle('direction', 'rtl');
this.parentApplication.id_sign_in_create_account_component.register_component_id.id_ti_work.setStyle('direction', 'rtl');
this.parentApplication.id_sign_in_create_account_component.register_component_id.area_id.setStyle('direction', 'rtl');

```

```
this.parentApplication.id_sign_in_create_account_component.register_component_id.af
filiation_id.setStyle('direction', 'rtl');
this.parentApplication.id_sign_in_create_account_component.login_component_id.id_te
xtinput_username.setStyle('direction', 'rtl');
this.parentApplication.id_sign_in_create_account_component.login_component_id.id_te
xtinput_password.setStyle('direction', 'rtl
//
this.parentApplication.entry_component_id.id_entrycomponent.setStyle('layoutDirecti
on', 'rtl');
this.parentApplication.preparequestion_component_id.qustiontype_1.setStyle('layoutD
irection', 'rtl');

//
this.parentApplication.history_component_id.id_history_for_result.setStyle('layoutD
irection', 'rtl');
this.parentApplication.history_component_id.id_search1.setStyle('layoutDirection',
'rtl');
this.parentApplication.history_component_id.id_search2.setStyle('layoutDirection',
'rtl');
this.parentApplication.history_component_id.id_search3.setStyle('layoutDirection',
'rtl');
//
this.parentApplication.layout_direction = "rtl";
```

## Appendix C (5)

```
public function combobox_change(event:Event):void {
this.parentApplication.preparequestion_component_id.addedname.text = "";
var selected_index:int = this.id_combobox_show_languages.selectedIndex;
switch(selected_index) {
case 1: //Arabic
this.parentApplication.internalization_show = internalization_Arabic;
this.id_combobox_show_languages.selectedIndex = 1;
this.parentApplication.dateTimeFormatter = new DateFormatter("ar-SA");

// change the result button wide in the entry component
this.parentApplication.entry_component_id.id_linkButton_results.width = 130;

this.parentApplication.id_sign_in_create_account_component.register_component_id.nt
usr.setStyle('direction', 'rtl');
```

```
public function combobox_change(event:Event):void {
this.parentApplication.preparequestion_component_id.addedname.text = "";
var selected_index:int = this.id_combobox_show_languages.selectedIndex;
switch(selected_index) {
case 1: //Arabic
this.parentApplication.internalization_show = internalization_Arabic;
this.id_combobox_show_languages.selectedIndex = 1;
this.parentApplication.dateTimeFormatter = new DateFormatter("ar-SA");

// change the result button wide in the entry component
this.parentApplication.entry_component_id.id_linkButton_results.width = 130;

this.parentApplication.id_sign_in_create_account_component.register_component_id.nt
usr.setStyle('direction', 'rtl');
changeRTL();
break;
case 6: //English

this.parentApplication.internalization_show = internalization_English;
this.id_combobox_show_languages.selectedIndex = 6;
this.parentApplication.dateTimeFormatter = new DateFormatter("en-GB");

// change the result button wide in the entry component
this.parentApplication.entry_component_id.id_linkButton_results.width = 130;

changeLTR();
break;
case 26: //Swedish language
this.parentApplication.internalization_show = internalization_Swedish;

this.id_combobox_show_languages.selectedIndex = 26;
this.parentApplication.dateTimeFormatter = new DateFormatter("sv-SE");
change the result button wide in the entry component
this.parentApplication.entry_component_id.id_linkButton_results.width = 130;

changeLTR();
break;
```

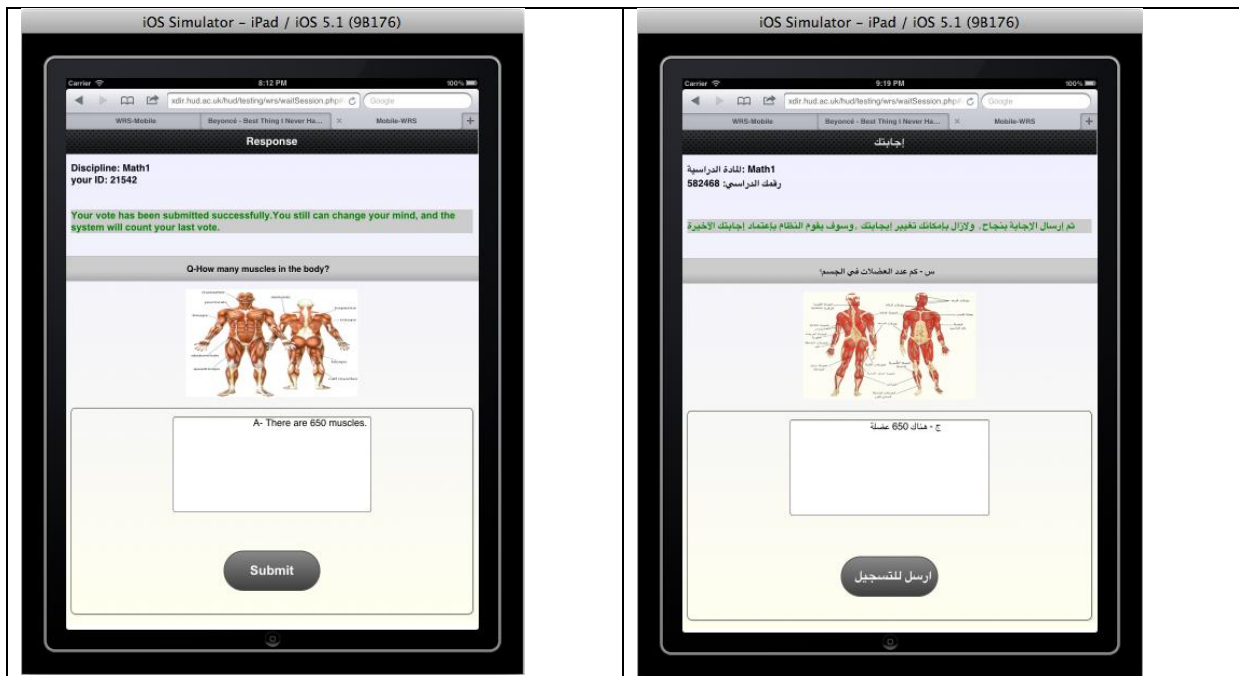
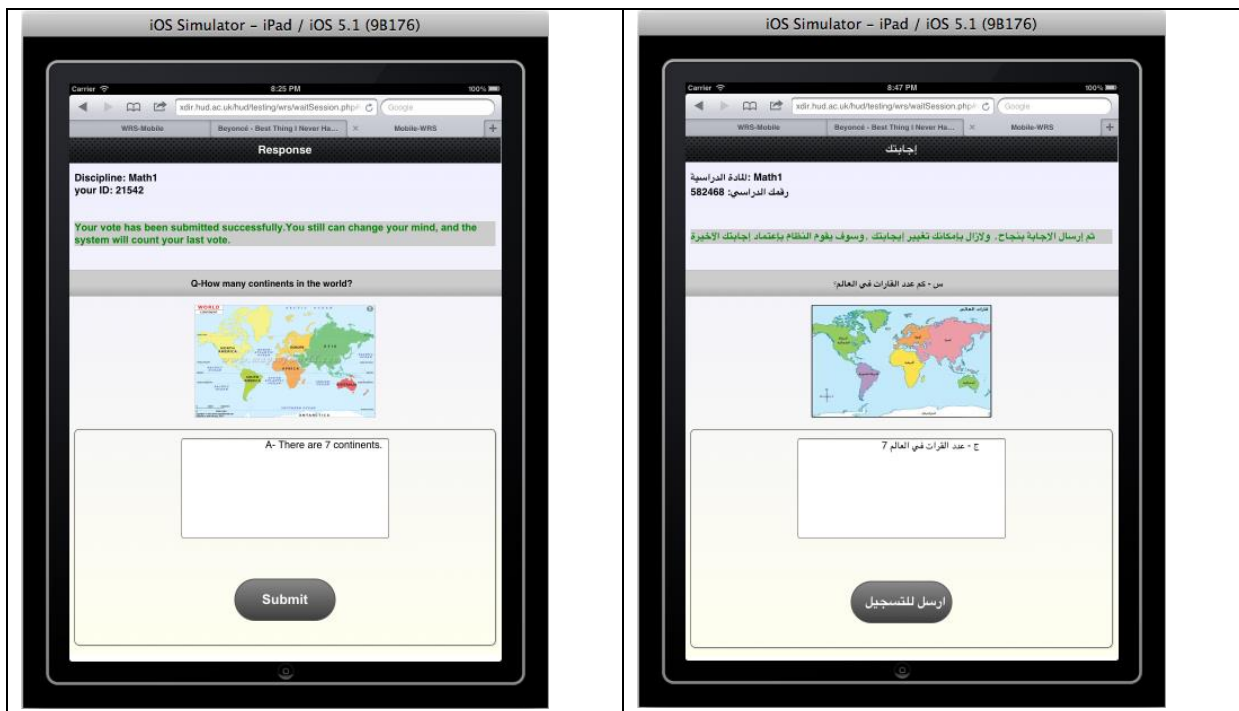
## Appendix D

### Appendix D (1)

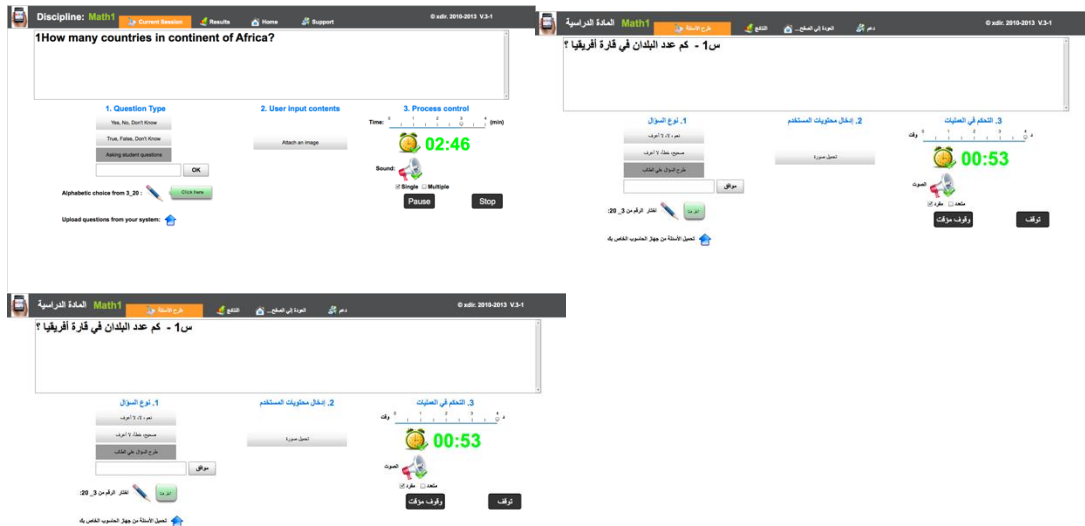




## Appendix D (2)



## Appendix D (3)



Disciplina **Math1** Sesi3n actual Result... casa Ayuda © xdir. 2010-2013 V.5-5

Encontrar Guardar resultados en el documento Buscar por Año Mes Semana D3a Sesi3n actual

Personas que han respondido

Mañana :  
Tarde :  
Pregunta:

Disciplina **Math1** Sesi3n actual Result... casa Ayuda © xdir. 2010-2013 V.5-5

Encontrar Guardar resultados en el documento Buscar por Año Mes Semana D3a Sesi3n actual

Disciplina	Pregunta	Identificaci3n del Est	Responder	Pregunta	Nota final
Math1	Si, No, No lo s3	Bill	Si	Yes	100
Math1	Si, No, No lo s3	Grace	Si	Yes	100
Math1	Si, No, No lo s3	Mike	No	Yes	0

Mañana 22 :  
Tarde 28 : VBX 27-01-14 15:13:22  
Pregunta: S3, No, No lo s3

Bidang: **Math1** Sesi Semasa Keputu... Laman Uta... Sokongan © xdir. 2010-2013 V.5-5

Cari Simpan keputusan ke fail: .pd Cari3n melalui: tahun bulan minggu hari Sesi semasa

bidang	soalan	Nombor pengenalan	Maklumbalas	Jawapan	Markah akhir
Math1	Betul, salah, tidak ta	s1	Betul,Salah,Tidak ta	Turu,False	0
Math1	Betul, salah, tidak ta	s2	Betul,Tidak tahu	Turu,False	0

sesi:  
pagi 22 :  
tengahari 28 : EDQ 02-03-16 14:44:01  
soalan: Betul, salah, tidak tahu

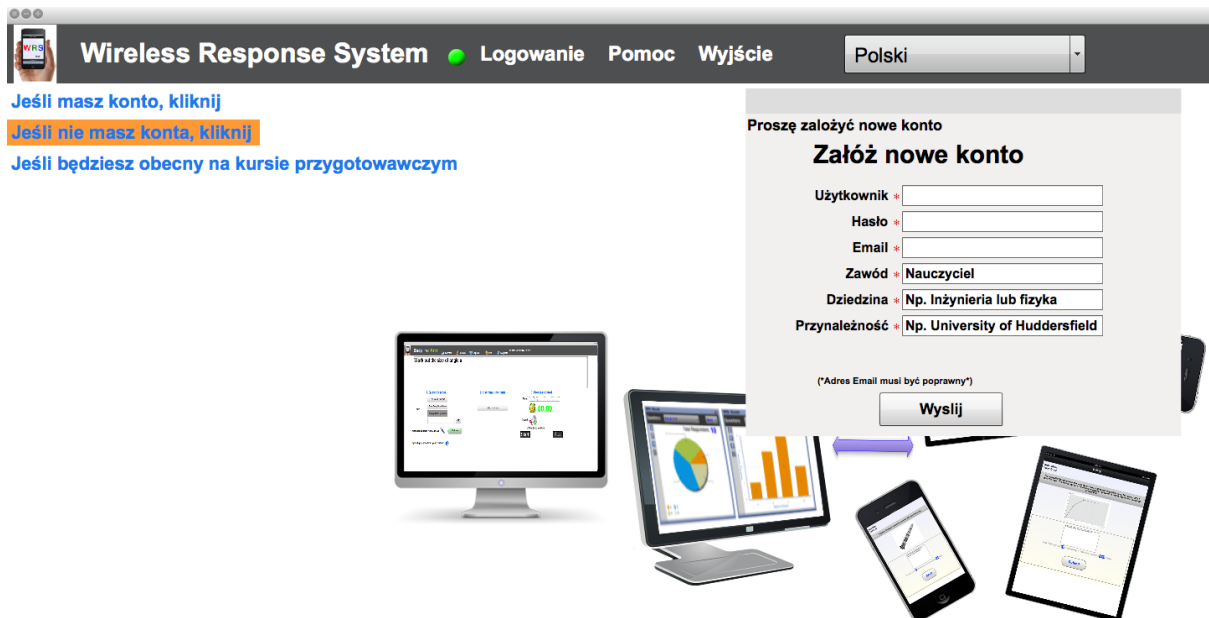
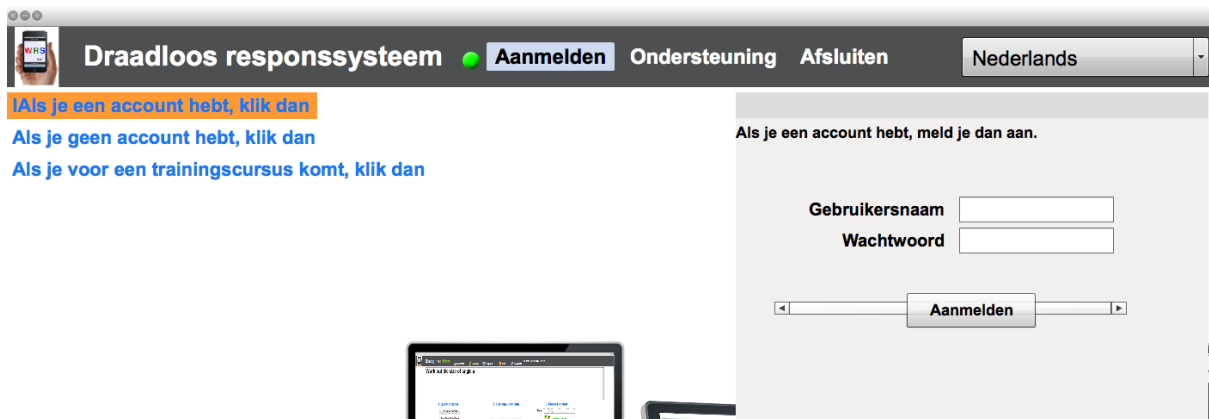
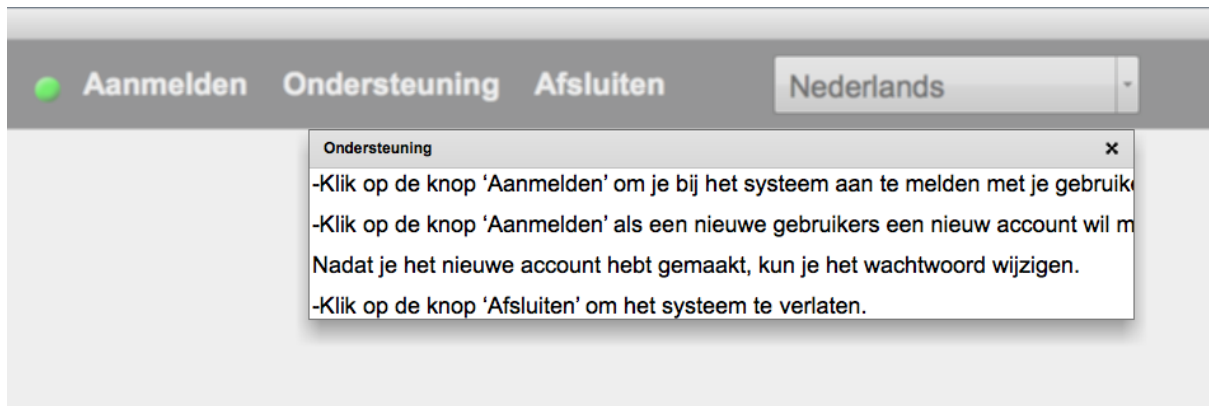
Bidang: **Math1** Sesi Semasa Keputu... Laman Uta... Sokongan © xdir. 2010-2013 V.5-5

Cari Simpan keputusan ke fail: .pd Cari3n melalui: tahun bulan minggu hari Sesi semasa

Jumlah responden: 2

A B C D E F G H I J K L M N O P Q R S T

sesi:  
pagi 22 :  
tengahari 28 : EDQ 02-03-16 14:44:01  
soalan: A-T



Dziedzina: **Math1** © xdir. 2010-2013 V.5-5

Obecne Wyniki Wyloguj się Wsparcie

Pomoc

Kliknij przycisk "Rodzaj Pytania" aby wybrać pytanie.

Kliknij Przycisk "Treści dodane przez użytkownika" aby wybrać tekst, zdjęcie, lub klipy wideo, które zostaną wysłane na

Kliknij przycisk "Kontrola procesu" aby ustawić zegar, dźwięk, dystrybucję wyników i start lub stop dla kontroli procesu.

Kliknij 1. Wybierz rodzaj pytania

Kliknij 2. Wybór danych wprowadzanych przez użytkownika

Kliknij 3. Użyj kontroli procesu

procesu 3 4 (min)

0:00

Dźwięk:

Pojedynczy  Wielokrotny

Dodaj pytania ze swojego systemu:

Start
Stop

Disciplina: **Math1** © xdir. 2010-2013 V.5-5

Sessão Atual Result... casa Ajuda

Encontrar  Guardar resultados em Ficheiro

Disciplina	Pergunta	Nome do Estudante	Resposta	Responder	Classificações finais
Math1	Verdadeiro, Falso, N	asder	'Falso'		
Math1	Verdadeiro, Falso, N	Gfdea	'Verdade'		
Math1	Verdadeiro, Falso, N	nlnlnh	'Verdade'		
Math1	Verdadeiro, Falso, N	hnbvghnbg	'Não sei'		
Math1	Verdadeiro, Falso, N	Gfgfgf	'Falso'		

Procurar por Ano Mês Semana Dia Sessão Atual

**Sessão:**

Manhã 25 :

Tarde 25 : ADP 16-09-16 19:02:08

**Pergunta:** Verdadeiro, Falso, Não sei

Disciplina: **Math1** © xdir. 2010-2013 V.5-5

Sessão Atual Result... casa Ajuda

Encontrar  Guardar resultados em Ficheiro

**Total de respostas** 5

Resposta	Número de Alunos
'Verdade'	2
'Falso'	2
'Não sei'	1

Procurar por Ano Mês Semana Dia Sessão Atual

**Sessão:**

Manhã 25 :

Tarde 25 : ADP 16-09-16 19:02:08

**Pergunta:** Verdadeiro, Falso, Não sei

[Dacă aveți un cont, click](#)

[Dacă nu ați avut un cont, click](#)

[Dacă vîi pentru a participa la un curs de formare, faceți clic pe](#)

Dacă aveți un cont, va rugam sa va logati.

Nume utilizator

Parola

autentificare

Cauta  SSalvați rezultatele la fișier

Disciplina	Intrebare	Id-ul Studentului	Raspuns	Raspuns	Nota finala
Math1	Da, Nu, Nu stiu	066	Da		
Math1	Da, Nu, Nu stiu	061	Nu		
Math1	Da, Nu, Nu stiu	062	Da		
Math1	Da, Nu, Nu stiu	064	Da		
Math1	Da, Nu, Nu stiu	063	Da		
Math1	Da, Nu, Nu stiu	065	Nu		

Cauta dupa An Luna Septimana Zi Sesiunea curenta

Sesiune:

Dimineata :

Dupa-amiaza :

Intrebare:

Текущая сессия Резул... домой Поддерж...

Поддержка

Нажмите на поле с датой, чтобы выбрать дату обучающих сессий  
Выберите код обучающих сессий, чтобы высветился результат

«в сетке с датой справа»  
Нажмите на кнопку «Удалить выбранную сессию», чтобы удалить выбранную сессию  
Нажмите «Сохранить», чтобы сохранить дату в другом формате: pdf, xls и txt

**1. Тип вопроса**

- Да, нет, не знаю
- Правильно, неправильно, н...
- Выбор в алфавитном поряд...
- Задать вопросы студентам

**2. Содержание, вводимое пользователем**

Ввести вопрос с вариантами ответов

Прикрепить изображение

Звук

Время: 0

Звук

Начать

Загрузить вопросы с вашей системы:

3	4	5	6
7	8	9	10
11	12	13	14
15	16	17	18
19	20	Спрятать	

### 1. Frågetyp

- Ja, Nej, Vet ej
- Sant, Falskt, Vet ej
- Alfabetiskt val från 3\_20:
- Fråga studentfrågor

### 2. Användarinnehåll med input

- Infoga en fråga med flera val
- Bifoga en bild

### 3. Processkontroll

Tid: 0 1 2 3 4 (min)

 **00:00**




Ljud:

Single  Flera

**Start**

**Stop**

Ladda upp frågor från ditt system: 

#### Support

Klicka på datumrutan för att välja datum i inlärningsessioner.

Välj 'kod' av inlärningsessionen så kommer resultatet visas

i datumets rutnät till höger.

Klicka på knappen 'Radera Vald Session' för att ta bort den valda sessionen.

Klicka på 'Spara' för att spara datumet i olika filformat: pdf, xsl, och txt.

Discipline: **Math1** [Session en cours](#) [Result...](#) [maison](#) [Support](#) © xdir. 2010-2013 V.5-5

**1. type de question**

Oui, non, ne sais pas

Vrai, faux, ne sais pas

Choix alphanetique de 3\_20 :

Poser des questions aux etu...

Q3- Etes-vous né dans les années quatre-vingt-dix?

Telecharger les questions du system:

**2. Contenu de l'utilisateur a l'entree**

**3. Controle du processus**

Temps: 0 1 2 3 4 min

**00:00**

Son:

Unique  Multiple

Discipline: **Math1** [Session en cours](#) [Result...](#) [maison](#) [Support](#) © xdir. 2010-2013 V.5-5

Trouver 27-09-2016

Discipline	Question	Identification etu...	Reponse	Reponse	Note final

Support

Chiquer sur le carreau date pour selectionner la datede l'apprentissage.  
 Selectionner ' code'de lasession d 'apprentissage, et leresultat va s 'afficher

Dans la grille de date a la droite.

Cliquez sur 'supprimer la session selectionnee' pour supprimer la session selectio

Cliquez 'enregistrer' pour enregistrer la date: pdf , xsl, csv and txt.

**Drahtloses Antwortsystem (WRS)**  [Hilfe](#) [Beenden](#) Deutsch

**Wenn Sie bereits ein Benutzerkonto haben, klicken Sie**

**Wenn Sie noch kein Benutzerkonto haben, klicken Sie**

**Wenn Sie hier einen Kurs besuchen, klicken Sie**

Wenn Sie bereits ein Benutzerkonto haben, melden Sie sich bitte

Benutzername

Passwort



Hilfe

Klicken Sie auf das Datumsfenster, um das Datum der Lernsitzungen auszuwählen.  
Wählen Sie den „Code“ der Lernsitzung aus und das Ergebnis wird angezeigt.

„in der Datumsspalte auf der rechten Seite“

Klicken Sie auf „Ausgewählte Sitzung löschen“ um die ausgewählte Sitzung zu löschen.  
Klicken Sie auf „Speichern“, um das Datum in einem anderen Dateiformat zu speichern.

KablosuzTakip Sistemi ● Oturum Açma ● Destek ● Çıkış ● Türkçe ● © xdir. 2010-2014 V.5-5

Eğer bir hesabınız varsa, tıklayın

Eğer bir hesap olmadı, tıklayın

Eğer bir eğitim kursu için geldiyse, tıklayın

Eğer bir hesabınız varsa, lütfen giriş yapın.

Kullanıcı adı

Şifre

Giriş

Disiplin: **Math1** ● Mevcut ● Sonuçlar ● Ana sayfa ● Destek ● © xdir. 2010-2013 V.5-5

Bul  ● Sonuçları dosyaya kaydet ● ile ara: Yıl Ay Hafta Gün Mevcut seans

Toplam yanıt verenler: **6**

4

2

A B C D

Seans:

Sabah :

Öğleden sonra :

Soru:

# 1- Arabic Language

## 1.2.2.2- Arabic Language Average ratings according to the statements (N=35).

### Question 1,8,15,22 (Characteristic) for all Sub-attributes

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
1	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
2	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
3	1,8,15,22	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
4	1,8,15,22	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
5	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
6	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
7	1,8,15,22	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
8	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
9	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
10	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
11	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
12	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
13	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
14	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
15	1,8,15,22	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
16	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
17	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
18	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
19	1,8,15,22	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
20	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
21	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
22	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
23	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
24	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
25	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
26	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
27	1,8,15,22	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
28	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
29	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
30	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
31	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
32	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
33	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
34	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
35	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.69	0.87	0.96	0.83	0.97	1.00	0.83	0.96	1.00	0.84	0.97	1.00

**Question 2,9,16,23**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
Ratings													
1	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0
2	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
3	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5	0.7	0.9	1.0
4	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.5	0.7	0.9
5	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
6	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0
7	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5	0.1	0.3	0.5
8	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.5	0.7	0.9
9	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9
10	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.1	0.3	0.5
11	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.1	0.3	0.5	0.1	0.3	0.5
12	2,9,16,23	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9
13	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
14	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
15	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
16	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0
17	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
18	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
19	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
20	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
21	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
22	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0
23	2,9,16,23	0.5	0.7	0.9	0.9	1.0	1.0	0.5	0.7	0.9	0.5	0.7	0.9
24	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
25	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
26	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
27	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
28	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
29	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
30	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
31	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
32	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9
33	2,9,16,23	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9
34	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9
35	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0
<b>The Average</b>		<b>0.75</b>	<b>0.91</b>	<b>0.99</b>	<b>0.81</b>	<b>0.95</b>	<b>1.00</b>	<b>0.64</b>	<b>0.82</b>	<b>0.93</b>	<b>0.63</b>	<b>0.81</b>	<b>0.92</b>

**Question 3,10,17,24**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
1	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
2	3,10,17,24	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0
3	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
4	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
5	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
6	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
7	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
8	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
9	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
10	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
11	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
12	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
13	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
14	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
15	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
16	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
17	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
18	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
19	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
20	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
21	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
22	3,10,17,24	0.5	0.7	0.9	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0
23	3,10,17,24	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0
24	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
25	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
26	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
27	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
28	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
29	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
30	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
31	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
32	3,10,17,24	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
33	3,10,17,24	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
34	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
35	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.80	0.94	0.99	0.81	0.95	0.99	0.85	0.97	1.00	0.84	0.97	1.00

**Question 4,11,18,25**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
1	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0
2	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0
3	4,11,18,25	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0
4	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
5	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0
6	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
7	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
8	4,11,18,25	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0
9	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
10	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
11	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
12	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
13	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
14	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
15	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
16	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
17	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
18	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
19	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
20	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
21	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
22	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
23	4,11,18,25	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0
24	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
25	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
26	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9
27	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
28	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
29	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0
30	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
31	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
32	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
33	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
34	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
35	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
The Average		0.85	0.97	1.00	0.80	0.94	0.99	0.77	0.92	0.99	0.78	0.94	1.00

**Question 5,12,19,26**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
1	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.5	0.7	0.9
2	5,12,19,26	0.5	0.7	0.9				0.9	1.0	1.0	0.9	1.0	1.0
3	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0

4	5,12,19,26	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
5	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0
6	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.1	0.3	0.5
7	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9
8	5,12,19,26	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0
9	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
10	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
11	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
12	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
13	5,12,19,26	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0
14	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
15	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
16	5,12,19,26	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9
17	5,12,19,26	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0
18	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
19	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
20	5,12,19,26	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
21	5,12,19,26	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
22	5,12,19,26	0.5	0.7	0.9				0.7	0.9	1.0	0.5	0.7	0.9
23	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.9	1.0	1.0
24	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.5	0.7	0.9
25	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.5	0.7	0.9
26	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.1	0.3	0.5
27	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.5	0.7	0.9
28	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0
29	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9
30	5,12,19,26	0.5	0.7	0.9				0.9	1.0	1.0	0.5	0.7	0.9
31	5,12,19,26	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9
32	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.5	0.7	0.9
33	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.9	1.0	1.0
34	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
35	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9
The Average		0.80	0.94	0.99	0.90	1.00	1.00	0.81	0.95	1.00	0.66	0.83	0.94

### Question 6,13,20,27

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
1	6,13,20,27	0.7	0.9	1.0				0.5	0.7	0.9	0.7	0.9	1.0
2	6,13,20,27	0.5	0.7	0.9				0.7	0.9	1.0	0.9	1.0	1.0
3	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0
4	6,13,20,27	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
5	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
6	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
7	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
8	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.7	0.9	1.0
9	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.7	0.9	1.0
10	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.7	0.9	1.0
11	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0

12	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
13	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.7	0.9	1.0
14	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0
15	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
16	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
17	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
18	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.5	0.7	0.9
19	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.9	1.0	1.0
20	6,13,20,27	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
21	6,13,20,27	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
22	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
23	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
24	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.9	1.0	1.0
25	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0
26	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0
27	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0
28	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
29	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
30	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.9	1.0	1.0
31	6,13,20,27	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
32	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.7	0.9	1.0
33	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
34	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0
35	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
The Average		0.79	0.93	0.99	0.87	0.98	1.00	0.80	0.94	0.99	0.81	0.95	1.00

### Question 7,14,21,28

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
1	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0
2	7,14,21,28	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
3	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
4	7,14,21,28	0.9	1.0	1.0	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0
5	7,14,21,28	0.9	1.0	1.0	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0
6	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
7	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0
8	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0
9	7,14,21,28	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
10	7,14,21,28	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
11	7,14,21,28	0.9	1.0	1.0	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0
12	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0
13	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
14	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0
15	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0
16	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
17	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
18	7,14,21,28	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
19	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0

20	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
21	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
22	7,14,21,28	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
23	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
24	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
25	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
26	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
27	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
28	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
29	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
30	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
31	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
32	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
33	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
34	7,14,21,28	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
35	7,14,21,28	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.80	0.95	1.00	0.67	0.84	0.94	0.85	0.97	1.00	0.85	0.97	1.00

### 1.2.3-Fuzzy Weight

#### 1.2.3.1- Triangular Fuzzy sets for fuzzy weights

Fuzzy Value			Fuzzy weights
1	Strongly Disagree	SD	(0.0, 0.0, 0.25)
2	Disagree	D	(0.0, 0.25, 0.5)
3	Neutral	N	(0.25, 0.5, 0.75)
4	Agree	A	(0.5, 0.75, 1.0)
5	Strongly Agree	SA	(0.75, 1.0, 1.0)

#### 1.2.3.2 Arabic Language Average weights according to the statements (N=35).

##### Question 1,8,15,22 (Characteristic) for all sub-Attribute

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )												
		weights			Effectiveness			Efficiency			Satisfaction			Comprehensibility
1	1,8,15,22	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	
2	1,8,15,22	0.3	0.5	0.8	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	
3	1,8,15,22	0.0	0.3	0.5	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	
4	1,8,15,22	0.3	0.5	0.8	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	
5	1,8,15,22	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	
6	1,8,15,22	0.3	0.5	0.8	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	
7	1,8,15,22	0.3	0.5	0.8	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	
8	1,8,15,22	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	
9	1,8,15,22	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	
10	1,8,15,22	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	
11	1,8,15,22	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	
12	1,8,15,22	0.3	0.5	0.8	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0	



13	1,8,15,22	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0
14	1,8,15,22	0.3	0.5	0.8	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
15	1,8,15,22	0.3	0.5	0.8	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0
16	1,8,15,22	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
17	1,8,15,22	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
18	1,8,15,22	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0
19	1,8,15,22	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0
20	1,8,15,22	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0
21	1,8,15,22	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0
22	1,8,15,22	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
23	1,8,15,22	0.3	0.5	0.8	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0
24	1,8,15,22	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0
25	1,8,15,22	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
26	1,8,15,22	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0
27	1,8,15,22	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0
28	1,8,15,22	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
29	1,8,15,22	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
30	1,8,15,22	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0
31	1,8,15,22	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
32	1,8,15,22	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
33	1,8,15,22	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
34	1,8,15,22	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0
35	1,8,15,22	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
The Average		0.50	0.75	0.93	0.66	0.91	1.00	0.66	0.91	1.00	0.67	0.92	1.00

**Question 2,9,16,23**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
1	2,9,16,23	0.5	0.8	1.0	0.8	1.0	1.0	0.3	0.5	0.8	0.5	0.8	1.0
2	2,9,16,23	0.3	0.5	0.8	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0
3	2,9,16,23	0.5	0.8	1.0	0.5	0.8	1.0	0.0	0.3	0.5	0.5	0.8	1.0
4	2,9,16,23	0.5	0.8	1.0	0.8	1.0	1.0	0.3	0.5	0.8	0.3	0.5	0.8
5	2,9,16,23	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0
6	2,9,16,23	0.8	1.0	1.0	0.8	1.0	1.0	0.3	0.5	0.8	0.5	0.8	1.0
7	2,9,16,23	0.5	0.8	1.0	0.8	1.0	1.0	0.0	0.3	0.5	0.0	0.3	0.5
8	2,9,16,23	0.8	1.0	1.0	0.8	1.0	1.0	0.3	0.5	0.8	0.3	0.5	0.8
9	2,9,16,23	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.3	0.5	0.8
10	2,9,16,23	0.8	1.0	1.0	0.5	0.8	1.0	0.3	0.5	0.8	0.0	0.3	0.5
11	2,9,16,23	0.8	1.0	1.0	0.8	1.0	1.0	0.0	0.3	0.5	0.0	0.3	0.5
12	2,9,16,23	0.3	0.5	0.8	0.8	1.0	1.0	0.5	0.8	1.0	0.3	0.5	0.8
13	2,9,16,23	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0
14	2,9,16,23	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0
15	2,9,16,23	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.0	0.3	0.5
16	2,9,16,23	0.8	1.0	1.0	0.8	1.0	1.0	0.3	0.5	0.8	0.5	0.8	1.0
17	2,9,16,23	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0
18	2,9,16,23	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
19	2,9,16,23	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0

20	2,9,16,23	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0
21	2,9,16,23	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
22	2,9,16,23	0.5	0.8	1.0	0.5	0.8	1.0	0.3	0.5	0.8	0.8	1.0	1.0
23	2,9,16,23	0.3	0.5	0.8	0.8	1.0	1.0	0.3	0.5	0.8	0.3	0.5	0.8
24	2,9,16,23	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
25	2,9,16,23	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0
26	2,9,16,23	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0
27	2,9,16,23	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
28	2,9,16,23	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
29	2,9,16,23	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0
30	2,9,16,23	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
31	2,9,16,23	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0
32	2,9,16,23	0.3	0.5	0.8	0.5	0.8	1.0	0.8	1.0	1.0	0.3	0.5	0.8
33	2,9,16,23	0.3	0.5	0.8	0.8	1.0	1.0	0.5	0.8	1.0	0.3	0.5	0.8
34	2,9,16,23	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.3	0.5	0.8
35	2,9,16,23	0.8	1.0	1.0	0.5	0.8	1.0	0.3	0.5	0.8	0.5	0.8	1.0
The Average		0.56	0.81	0.96	0.64	0.89	1.00	0.45	0.70	0.89	0.44	0.69	0.89

### Question 3,10,17,24

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
1	3,10,17,24	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0
2	3,10,17,24	0.8	1.0	1.0	0.3	0.5	0.8	0.5	0.8	1.0	0.8	1.0	1.0
3	3,10,17,24	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
4	3,10,17,24	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0
5	3,10,17,24	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
6	3,10,17,24	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
7	3,10,17,24	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0
8	3,10,17,24	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
9	3,10,17,24	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
10	3,10,17,24	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
11	3,10,17,24	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
12	3,10,17,24	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
13	3,10,17,24	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0
14	3,10,17,24	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
15	3,10,17,24	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
16	3,10,17,24	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
17	3,10,17,24	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
18	3,10,17,24	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
19	3,10,17,24	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0
20	3,10,17,24	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
21	3,10,17,24	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
22	3,10,17,24	0.3	0.5	0.8	0.8	1.0	1.0	0.3	0.5	0.8	0.8	1.0	1.0
23	3,10,17,24	0.5	0.8	1.0	0.3	0.5	0.8	0.8	1.0	1.0	0.5	0.8	1.0
24	3,10,17,24	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0
25	3,10,17,24	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
26	3,10,17,24	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0

27	3,10,17,24	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
28	3,10,17,24	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0
29	3,10,17,24	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
30	3,10,17,24	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
31	3,10,17,24	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
32	3,10,17,24	0.3	0.5	0.8	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0
33	3,10,17,24	0.3	0.5	0.8	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0
34	3,10,17,24	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
35	3,10,17,24	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
The Average		0.62	0.87	0.98	0.64	0.89	0.99	0.69	0.94	0.99	0.67	0.92	1.00

**Question 4,11,18,25**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
1	4,11,18,25	0.8	1.0	1.0	0.5	0.8	1.0	0.3	0.5	0.8	0.5	0.8	1.0
2	4,11,18,25	0.5	0.8	1.0	0.5	0.8	1.0	0.3	0.5	0.8	0.8	1.0	1.0
3	4,11,18,25	0.5	0.8	1.0	0.3	0.5	0.8	0.8	1.0	1.0	0.5	0.8	1.0
4	4,11,18,25	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
5	4,11,18,25	0.8	1.0	1.0	0.8	1.0	1.0	0.3	0.5	0.8	0.5	0.8	1.0
6	4,11,18,25	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
7	4,11,18,25	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0
8	4,11,18,25	0.8	1.0	1.0	0.3	0.5	0.8	0.8	1.0	1.0	0.5	0.8	1.0
9	4,11,18,25	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
10	4,11,18,25	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0
11	4,11,18,25	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0
12	4,11,18,25	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
13	4,11,18,25	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0
14	4,11,18,25	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0
15	4,11,18,25	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0
16	4,11,18,25	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0
17	4,11,18,25	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0
18	4,11,18,25	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0
19	4,11,18,25	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0
20	4,11,18,25	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0
21	4,11,18,25	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
22	4,11,18,25	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0
23	4,11,18,25	0.8	1.0	1.0	0.3	0.5	0.8	0.8	1.0	1.0	0.8	1.0	1.0
24	4,11,18,25	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0
25	4,11,18,25	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0
26	4,11,18,25	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.3	0.5	0.8
27	4,11,18,25	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0
28	4,11,18,25	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
29	4,11,18,25	0.8	1.0	1.0	0.8	1.0	1.0	0.3	0.5	0.8	0.5	0.8	1.0
30	4,11,18,25	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
31	4,11,18,25	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
32	4,11,18,25	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
33	4,11,18,25	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
34	4,11,18,25	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0

35	4,11,18,25	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0
The Average		0.69	0.94	1.00	0.63	0.88	0.98	0.59	0.84	0.97	0.60	0.85	0.99

**Question 5,12,19,26**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )												
		weights			Effectiveness			Efficiency			Satisfaction			Comprehensibility
1	5,12,19,26	0.8	1.0	1.0					0.5	0.8	1.0	0.3	0.5	0.8
2	5,12,19,26	0.3	0.5	0.8					0.8	1.0	1.0	0.8	1.0	1.0
3	5,12,19,26	0.8	1.0	1.0	0.8	1.0	1.0		0.5	0.8	1.0	0.8	1.0	1.0
4	5,12,19,26	0.5	0.8	1.0	0.8	1.0	1.0		0.5	0.8	1.0	0.5	0.8	1.0
5	5,12,19,26	0.8	1.0	1.0					0.5	0.8	1.0	0.5	0.8	1.0
6	5,12,19,26	0.5	0.8	1.0					0.5	0.8	1.0	0.0	0.3	0.5
7	5,12,19,26	0.8	1.0	1.0	0.8	1.0	1.0		0.8	1.0	1.0	0.3	0.5	0.8
8	5,12,19,26	0.5	0.8	1.0					0.8	1.0	1.0	0.8	1.0	1.0
9	5,12,19,26	0.8	1.0	1.0					0.8	1.0	1.0	0.8	1.0	1.0
10	5,12,19,26	0.8	1.0	1.0					0.8	1.0	1.0	0.8	1.0	1.0
11	5,12,19,26	0.8	1.0	1.0	0.8	1.0	1.0		0.5	0.8	1.0	0.5	0.8	1.0
12	5,12,19,26	0.8	1.0	1.0	0.8	1.0	1.0		0.5	0.8	1.0	0.8	1.0	1.0
13	5,12,19,26	0.5	0.8	1.0					0.8	1.0	1.0	0.8	1.0	1.0
14	5,12,19,26	0.5	0.8	1.0					0.5	0.8	1.0	0.5	0.8	1.0
15	5,12,19,26	0.8	1.0	1.0					0.8	1.0	1.0	0.5	0.8	1.0
16	5,12,19,26	0.5	0.8	1.0	0.8	1.0	1.0		0.8	1.0	1.0	0.3	0.5	0.8
17	5,12,19,26	0.5	0.8	1.0					0.8	1.0	1.0	0.8	1.0	1.0
18	5,12,19,26	0.8	1.0	1.0					0.8	1.0	1.0	0.5	0.8	1.0
19	5,12,19,26	0.8	1.0	1.0					0.8	1.0	1.0	0.5	0.8	1.0
20	5,12,19,26	0.5	0.8	1.0	0.8	1.0	1.0		0.8	1.0	1.0	0.8	1.0	1.0
21	5,12,19,26	0.5	0.8	1.0	0.8	1.0	1.0		0.8	1.0	1.0	0.5	0.8	1.0
22	5,12,19,26	0.3	0.5	0.8					0.5	0.8	1.0	0.3	0.5	0.8
23	5,12,19,26	0.8	1.0	1.0					0.5	0.8	1.0	0.8	1.0	1.0
24	5,12,19,26	0.5	0.8	1.0					0.5	0.8	1.0	0.3	0.5	0.8
25	5,12,19,26	0.8	1.0	1.0					0.8	1.0	1.0	0.3	0.5	0.8
26	5,12,19,26	0.8	1.0	1.0					0.8	1.0	1.0	0.0	0.3	0.5
27	5,12,19,26	0.8	1.0	1.0					0.8	1.0	1.0	0.3	0.5	0.8
28	5,12,19,26	0.8	1.0	1.0					0.5	0.8	1.0	0.5	0.8	1.0
29	5,12,19,26	0.8	1.0	1.0	0.8	1.0	1.0		0.5	0.8	1.0	0.3	0.5	0.8
30	5,12,19,26	0.3	0.5	0.8					0.8	1.0	1.0	0.3	0.5	0.8
31	5,12,19,26	0.5	0.8	1.0	0.8	1.0	1.0		0.8	1.0	1.0	0.3	0.5	0.8
32	5,12,19,26	0.8	1.0	1.0					0.5	0.8	1.0	0.3	0.5	0.8
33	5,12,19,26	0.5	0.8	1.0					0.5	0.8	1.0	0.8	1.0	1.0
34	5,12,19,26	0.8	1.0	1.0	0.8	1.0	1.0		0.5	0.8	1.0	0.5	0.8	1.0
35	5,12,19,26	0.8	1.0	1.0	0.8	1.0	1.0		0.8	1.0	1.0	0.3	0.5	0.8
The Average		0.62	0.87	0.98	0.75	1.00	1.00		0.64	0.89	1.00	0.46	0.71	0.89

**Question 6,13,20,27**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
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weights		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
1	6,13,20,27	0.5	0.8	1.0				0.3	0.5	0.8	0.5	0.8	1.0
2	6,13,20,27	0.3	0.5	0.8				0.5	0.8	1.0	0.8	1.0	1.0
3	6,13,20,27	0.8	1.0	1.0	0.8	1.0	1.0	0.3	0.5	0.8	0.8	1.0	1.0
4	6,13,20,27	0.3	0.5	0.8	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
5	6,13,20,27	0.8	1.0	1.0				0.8	1.0	1.0	0.8	1.0	1.0
6	6,13,20,27	0.8	1.0	1.0				0.8	1.0	1.0	0.8	1.0	1.0
7	6,13,20,27	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
8	6,13,20,27	0.5	0.8	1.0				0.8	1.0	1.0	0.5	0.8	1.0
9	6,13,20,27	0.5	0.8	1.0				0.8	1.0	1.0	0.5	0.8	1.0
10	6,13,20,27	0.5	0.8	1.0				0.8	1.0	1.0	0.5	0.8	1.0
11	6,13,20,27	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0
12	6,13,20,27	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
13	6,13,20,27	0.5	0.8	1.0				0.8	1.0	1.0	0.5	0.8	1.0
14	6,13,20,27	0.5	0.8	1.0				0.8	1.0	1.0	0.8	1.0	1.0
15	6,13,20,27	0.8	1.0	1.0				0.8	1.0	1.0	0.5	0.8	1.0
16	6,13,20,27	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
17	6,13,20,27	0.8	1.0	1.0				0.8	1.0	1.0	0.5	0.8	1.0
18	6,13,20,27	0.5	0.8	1.0				0.8	1.0	1.0	0.3	0.5	0.8
19	6,13,20,27	0.8	1.0	1.0				0.5	0.8	1.0	0.8	1.0	1.0
20	6,13,20,27	0.3	0.5	0.8	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
21	6,13,20,27	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0
22	6,13,20,27	0.8	1.0	1.0				0.8	1.0	1.0	0.5	0.8	1.0
23	6,13,20,27	0.8	1.0	1.0				0.8	1.0	1.0	0.8	1.0	1.0
24	6,13,20,27	0.8	1.0	1.0				0.5	0.8	1.0	0.8	1.0	1.0
25	6,13,20,27	0.5	0.8	1.0				0.8	1.0	1.0	0.8	1.0	1.0
26	6,13,20,27	0.5	0.8	1.0				0.8	1.0	1.0	0.8	1.0	1.0
27	6,13,20,27	0.8	1.0	1.0				0.5	0.8	1.0	0.5	0.8	1.0
28	6,13,20,27	0.8	1.0	1.0				0.8	1.0	1.0	0.8	1.0	1.0
29	6,13,20,27	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0
30	6,13,20,27	0.5	0.8	1.0				0.5	0.8	1.0	0.8	1.0	1.0
31	6,13,20,27	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0
32	6,13,20,27	0.5	0.8	1.0				0.8	1.0	1.0	0.5	0.8	1.0
33	6,13,20,27	0.8	1.0	1.0				0.8	1.0	1.0	0.8	1.0	1.0
34	6,13,20,27	0.8	1.0	1.0	0.8	1.0	1.0	0.3	0.5	0.8	0.8	1.0	1.0
35	6,13,20,27	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
The Average		0.61	0.86	0.98	0.71	0.96	1.00	0.63	0.88	0.98	0.64	0.89	0.99

**Question 7,14,21,28**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
1	7,14,21,28	0.5	0.8	1.0	0.3	0.5	0.8	0.5	0.8	1.0	0.5	0.8	1.0
2	7,14,21,28	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0
3	7,14,21,28	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
4	7,14,21,28	0.8	1.0	1.0	0.0	0.3	0.5	0.8	1.0	1.0	0.8	1.0	1.0
5	7,14,21,28	0.8	1.0	1.0	0.0	0.3	0.5	0.8	1.0	1.0	0.8	1.0	1.0
6	7,14,21,28	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
7	7,14,21,28	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0

8	7,14,21,28	0.5	0.8	1.0	0.3	0.5	0.8	0.8	1.0	1.0	0.5	0.8	1.0
9	7,14,21,28	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
10	7,14,21,28	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0
11	7,14,21,28	0.8	1.0	1.0	0.0	0.3	0.5	0.8	1.0	1.0	0.8	1.0	1.0
12	7,14,21,28	0.5	0.8	1.0	0.3	0.5	0.8	0.8	1.0	1.0	0.8	1.0	1.0
13	7,14,21,28	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0
14	7,14,21,28	0.5	0.8	1.0	0.3	0.5	0.8	0.8	1.0	1.0	0.8	1.0	1.0
15	7,14,21,28	0.8	1.0	1.0	0.3	0.5	0.8	0.8	1.0	1.0	0.8	1.0	1.0
16	7,14,21,28	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
17	7,14,21,28	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
18	7,14,21,28	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0
19	7,14,21,28	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
20	7,14,21,28	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
21	7,14,21,28	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
22	7,14,21,28	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0
23	7,14,21,28	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0
24	7,14,21,28	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
25	7,14,21,28	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
26	7,14,21,28	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0
27	7,14,21,28	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0
28	7,14,21,28	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
29	7,14,21,28	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0
30	7,14,21,28	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0
31	7,14,21,28	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
32	7,14,21,28	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
33	7,14,21,28	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
34	7,14,21,28	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
35	7,14,21,28	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
The Average		0.63	0.88	1.00	0.50	0.75	0.92	0.69	0.94	1.00	0.69	0.94	1.00

**1.2.2.2- Arabic Language Average ratings and weights according to the statements (N=35).**

**1.2.2.2-A Sup-attribute 1 (Effectiveness) Rating and weights for all the characteristics (7) for all users (N=35)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Effectiveness )					
		Ratings(R)			Weights(W)		
For all users 1 to 35	1	0.69	0.87	0.96	0.50	0.75	0.93
	2	0.75	0.91	0.99	0.56	0.81	0.96
	3	0.80	0.94	0.99	0.62	0.87	0.98
	4	0.85	0.97	1.00	0.69	0.94	1.00
	5	0.80	0.94	0.99	0.62	0.87	0.98
	6	0.79	0.93	0.99	0.61	0.86	0.98
	7	0.80	0.95	1.00	0.63	0.88	1.00

**1.2.2.2-B Sup-attribute 1 (Efficiency) Rating and weights for all the characteristics (7) for all users (N=35)**

Serial Numbers	Characteristic	Sup-attribute 1 ( Efficiency )					
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		Ratings(R)			Weights(W)		
<b>For all users 1 to 35</b>	8	0.83	0.97	1.00	0.66	0.91	1.00
	9	0.81	0.95	1.00	0.64	0.89	1.00
	10	0.81	0.95	0.99	0.64	0.89	0.99
	11	0.80	0.94	0.99	0.63	0.88	0.98
	12	0.90	1.00	1.00	0.75	1.00	1.00
	13	0.87	0.98	1.00	0.71	0.96	1.00
	14	0.67	0.84	0.94	0.50	0.75	0.92

**1.2.2.2-C Sup-attribute 1 (Satisfaction) Rating and weights for all the characteristics (7) for all users (N=35)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Satisfaction)					
		Ratings(R)			Weights(W)		
<b>For all users 1 to 35</b>	15	0.83	0.96	1.00	0.66	0.91	1.00
	16	0.64	0.82	0.93	0.45	0.70	0.89
	17	0.85	0.97	1.00	0.69	0.94	0.99
	18	0.77	0.92	0.99	0.59	0.84	0.97
	19	0.81	0.95	1.00	0.64	0.89	1.00
	20	0.80	0.94	0.99	0.63	0.88	0.98
	21	0.85	0.97	1.00	0.69	0.94	1.00

**1.2.2.2-D Sup-attribute 1 (Comprehensibility) Rating and weights for all the characteristics (7) for all users (N=35)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Comprehensibility)					
		Ratings(R)			Weights(W)		
<b>For all users 1 to 35</b>	22	0.84	0.97	1.00	0.67	0.92	1.00
	23	0.63	0.81	0.92	0.44	0.69	0.89
	24	0.84	0.97	1.00	0.67	0.92	1.00
	25	0.78	0.94	1.00	0.60	0.85	0.99
	26	0.66	0.83	0.94	0.46	0.71	0.89
	27	0.81	0.95	1.00	0.64	0.89	0.99
	28	0.85	0.97	1.00	0.69	0.94	1.00

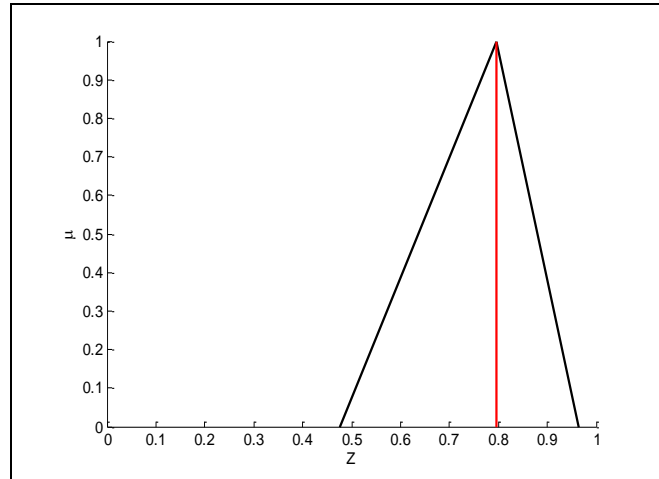
Serial Numbers for users	Sup- attribute	attribute A - Effectiveness								
		Ratings(R)			Weights(W)			R*W		
<b>For all users 1 to 35</b>	1	0.69	0.87	0.96	0.50	0.75	0.93	0.35	0.65	0.89
	2	0.75	0.91	0.99	0.56	0.81	0.96	0.42	0.74	0.95
	3	0.80	0.94	0.99	0.62	0.87	0.98	0.50	0.82	0.97
	4	0.85	0.97	1.00	0.69	0.94	1.00	0.59	0.91	1.00
	5	0.80	0.94	0.99	0.62	0.87	0.98	0.50	0.82	0.97
	6	0.79	0.93	0.99	0.61	0.86	0.98	0.48	0.80	0.97
	7	0.80	0.95	1.00	0.63	0.88	1.00	0.50	0.84	1.00

The Average				<b>0.604</b>	<b>0.854</b>	<b>0.976</b>	<b>0.476</b>	<b>0.796</b>	<b>0.965</b>
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Ratings (R), Effectiveness attribute A

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For Effectiveness: - R attribute A = (0.476, 0.796, 0.965) =



Weight (W), Effectiveness attribute A

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute /

For Effectiveness: - W sup-attribute 1 = (0.604, 0.854, 0.976) = 0.974

Attribute A ( Effectiveness )					
Ratings(R)			Weights(W)		
<b>0.476</b>	<b>0.796</b>	<b>0.965</b>	<b>0.604</b>	<b>0.854</b>	<b>0.976</b>

Serial Numbers for users	Sup-attribute	Attribute B - Efficiency								
		Ratings(R)			Weights(W)			R*W		
For all users 1 to 35	8	<b>0.83</b>	<b>0.97</b>	<b>1.00</b>	<b>0.66</b>	<b>0.91</b>	<b>1.00</b>	<b>0.55</b>	<b>0.88</b>	<b>1.00</b>
	9	<b>0.81</b>	<b>0.95</b>	<b>1.00</b>	<b>0.64</b>	<b>0.89</b>	<b>1.00</b>	<b>0.52</b>	<b>0.85</b>	<b>1.00</b>
	10	<b>0.81</b>	<b>0.95</b>	<b>0.99</b>	<b>0.64</b>	<b>0.89</b>	<b>0.99</b>	<b>0.52</b>	<b>0.85</b>	<b>0.98</b>
	11	<b>0.80</b>	<b>0.94</b>	<b>0.99</b>	<b>0.63</b>	<b>0.88</b>	<b>0.98</b>	<b>0.50</b>	<b>0.83</b>	<b>0.97</b>
	12	<b>0.90</b>	<b>1.00</b>	<b>1.00</b>	<b>0.75</b>	<b>1.00</b>	<b>1.00</b>	<b>0.68</b>	<b>1.00</b>	<b>1.00</b>
	13	<b>0.87</b>	<b>0.98</b>	<b>1.00</b>	<b>0.71</b>	<b>0.96</b>	<b>1.00</b>	<b>0.62</b>	<b>0.94</b>	<b>1.00</b>
	14	<b>0.67</b>	<b>0.84</b>	<b>0.94</b>	<b>0.50</b>	<b>0.75</b>	<b>0.92</b>	<b>0.34</b>	<b>0.63</b>	<b>0.86</b>

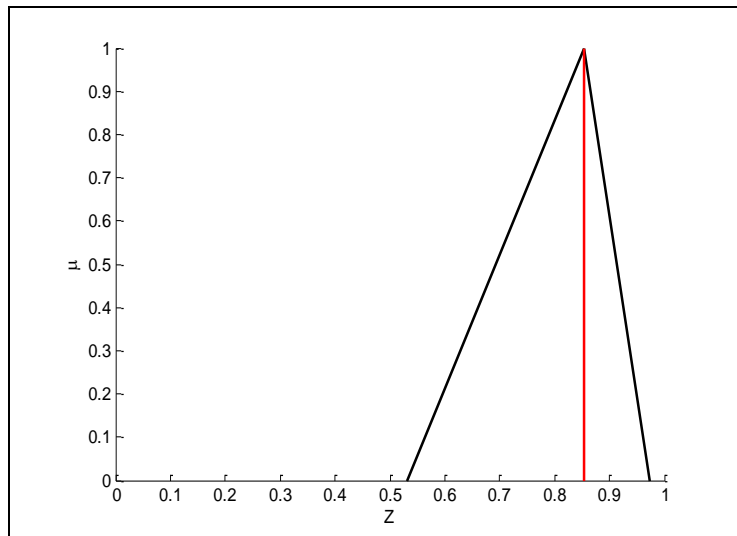


The Average				<b>0.647</b>	<b>0.897</b>	<b>0.984</b>	<b>0.531</b>	<b>0.853</b>	<b>0.974</b>
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Ratings (R), **Efficiency** attribute B

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Efficiency**: - R attribute B = (0.531, 0.853,0.974) = 0.99



Weight (W), **Efficiency** attribute B

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Efficiency**: - W attribute B = (0.647, 0.897,0.984)

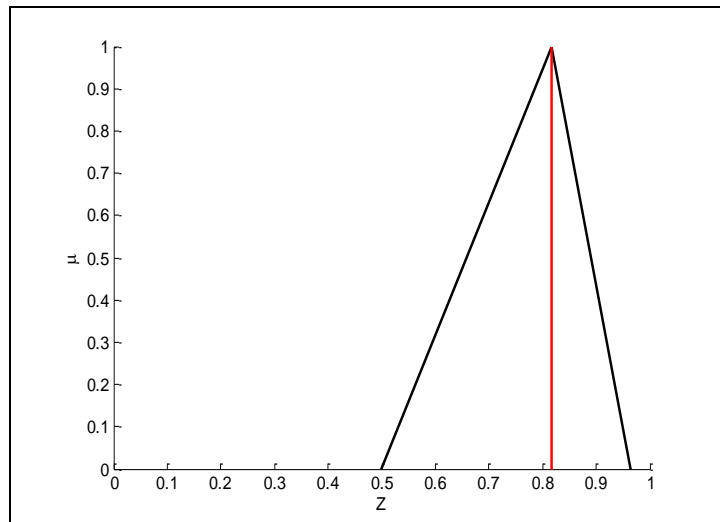
Attribute B ( Efficiency )					
Ratings(R)			Weights(W)		
<b>0.531</b>	<b>0.853</b>	<b>0.974</b>	<b>0.647</b>	<b>0.897</b>	<b>0.984</b>

Serial Numbers for users	Sup-attribute	Attribute C - Satisfaction								
		Ratings(R)			Weights(W)			R*W		
For all users 1 to 35	15	<b>0.83</b>	<b>0.96</b>	<b>1.00</b>	<b>0.66</b>	<b>0.91</b>	<b>1.00</b>	<b>0.55</b>	<b>0.87</b>	<b>1.00</b>
	16	<b>0.64</b>	<b>0.82</b>	<b>0.93</b>	<b>0.45</b>	<b>0.70</b>	<b>0.89</b>	<b>0.29</b>	<b>0.57</b>	<b>0.83</b>
	17	<b>0.85</b>	<b>0.97</b>	<b>1.00</b>	<b>0.69</b>	<b>0.94</b>	<b>0.99</b>	<b>0.59</b>	<b>0.91</b>	<b>0.99</b>
	18	<b>0.77</b>	<b>0.92</b>	<b>0.99</b>	<b>0.59</b>	<b>0.84</b>	<b>0.97</b>	<b>0.45</b>	<b>0.77</b>	<b>0.96</b>
	19	<b>0.81</b>	<b>0.95</b>	<b>1.00</b>	<b>0.64</b>	<b>0.89</b>	<b>1.00</b>	<b>0.52</b>	<b>0.85</b>	<b>1.00</b>
	20	<b>0.80</b>	<b>0.94</b>	<b>0.99</b>	<b>0.63</b>	<b>0.88</b>	<b>0.98</b>	<b>0.50</b>	<b>0.83</b>	<b>0.97</b>
	21	<b>0.85</b>	<b>0.97</b>	<b>1.00</b>	<b>0.69</b>	<b>0.94</b>	<b>1.00</b>	<b>0.59</b>	<b>0.91</b>	<b>1.00</b>

Ratings (R), **Satisfaction** attribute C

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Satisfaction**: - R attribute C = (0.498, 0.817,0.964) = 0.98



Weight (W), **Satisfaction** attribute C

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Satisfaction**: - W attribute C = (0.621, 0.871,0.976)

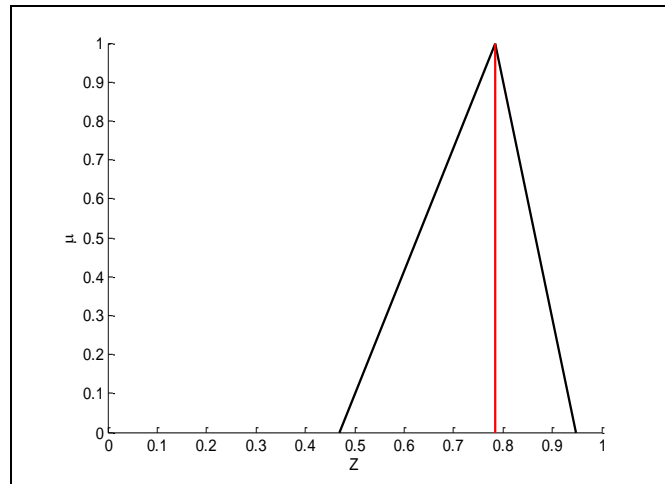
Attribute C ( Satisfaction )					
Ratings(R)			Weights(W)		
<b>0.498</b>	<b>0.817</b>	<b>0.964</b>	<b>0.621</b>	<b>0.871</b>	<b>0.976</b>

Serial Numbers for users	Sup-attribute	Attribute D - Comprehensibility								
		Ratings(R)			Weights(W)			R*W		
<b>For all users 1 to 35</b>	22	<b>0.84</b>	<b>0.97</b>	<b>1.00</b>	<b>0.67</b>	<b>0.92</b>	<b>1.00</b>	<b>0.56</b>	<b>0.89</b>	<b>1.00</b>
	23	<b>0.63</b>	<b>0.81</b>	<b>0.92</b>	<b>0.44</b>	<b>0.69</b>	<b>0.89</b>	<b>0.28</b>	<b>0.56</b>	<b>0.82</b>
	24	<b>0.84</b>	<b>0.97</b>	<b>1.00</b>	<b>0.67</b>	<b>0.92</b>	<b>1.00</b>	<b>0.56</b>	<b>0.89</b>	<b>1.00</b>
	25	<b>0.78</b>	<b>0.94</b>	<b>1.00</b>	<b>0.60</b>	<b>0.85</b>	<b>0.99</b>	<b>0.47</b>	<b>0.80</b>	<b>0.99</b>
	26	<b>0.66</b>	<b>0.83</b>	<b>0.94</b>	<b>0.46</b>	<b>0.71</b>	<b>0.89</b>	<b>0.30</b>	<b>0.59</b>	<b>0.84</b>
	27	<b>0.81</b>	<b>0.95</b>	<b>1.00</b>	<b>0.64</b>	<b>0.89</b>	<b>0.99</b>	<b>0.52</b>	<b>0.85</b>	<b>0.99</b>
	28	<b>0.85</b>	<b>0.97</b>	<b>1.00</b>	<b>0.69</b>	<b>0.94</b>	<b>1.00</b>	<b>0.59</b>	<b>0.91</b>	<b>1.00</b>

Ratings (R), **Comprehensibility** attribute D

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Comprehensibility**: - R attribute D = (0.468, 0.784,0.948) = 0.95



Weight (W), **Comprehensibility** attribute D

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Comprehensibility**: - W attribute D = (0.596, 0.846,0.966)

Attribute D ( Comprehensibility )					
Ratings(R)			Weights(W)		
0.468	0.784	0.948	0.596	0.846	0.966

### 1.2.3.5- Ratings and weights of the Usability

The Variables	Fuzzy Rating (R)			Fuzzy weight (W)			R * W		
	Effectiveness	0.476	0.796	0.965	0.604	0.854	0.976	0.288	0.680
Efficiency	0.531	0.853	0.974	0.647	0.897	0.984	0.344	0.765	0.958
Satisfaction	0.498	0.817	0.964	0.621	0.871	0.976	0.309	0.712	0.941
Comprehensibility	0.468	0.784	0.948	0.596	0.846	0.966	0.279	0.663	0.916
<b>Average</b>				0.617	0.867	0.976	0.305	0.705	0.939

Ratings (R), Usability of Arabic

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For Usability of Arabic: - R Usability = (0.305, 0.705,0.939)

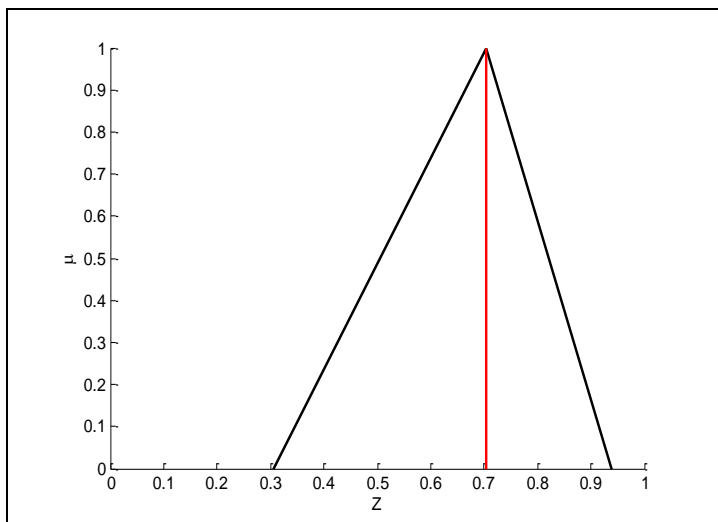
Weight (W), Usability of Arabic

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For Usability of Arabic: - W Usability = (0.617, 0.867,0.976)

Usability of Arabic					
Ratings(R)			Weights(W)		
0.305	0.705	0.939	0.617	0.867	0.976

**R usability Arabic =(0.305, 0.705, 0.939)**



**R = 0.785**

### 1.3- The Result: (Arabic Language)

**Arabic Language Application Usability  $Z^* = 0.785$**

## 2- Chinese Language

### 2.2.2.2- Chinese Language Average ratings according to the statements (N=20).

#### Question 1,8,15,22 (Characteristic) for all Sub-attributes

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
36	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
37	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
38	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
39	1,8,15,22	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0
40	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
41	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
42	1,8,15,22	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
43	1,8,15,22	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
44	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
45	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
46	1,8,15,22	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
47	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
48	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
49	1,8,15,22	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
50	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
51	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
52	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
53	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
54	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
55	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
The Average		0.83	0.96	0.99	0.84	0.97	1.00	0.81	0.96	1.00	0.82	0.96	1.00

#### Question 2,9,16,23

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
36	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0
37	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5	0.9	1.0	1.0
38	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0
39	2,9,16,23	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0
40	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0
41	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.5	0.7	0.9
42	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
43	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
44	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
45	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9
46	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0

47	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9
48	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
49	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
50	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
51	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
52	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
53	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
54	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
55	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.73	0.92	1.00	0.77	0.93	1.00	0.71	0.87	0.96	0.73	0.89	0.96

### Question 3,10,17,24

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
36	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
37	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9
38	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
39	3,10,17,24	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0
40	3,10,17,24	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.5	0.7	0.9
41	3,10,17,24	0.9	1.0	1.0	0.1	0.3	0.5	0.7	0.9	1.0	0.9	1.0	1.0
42	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9
43	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
44	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
45	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
46	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
47	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
48	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
49	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
50	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
51	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
52	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
53	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
54	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
55	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
The Average		0.84	0.97	1.00	0.79	0.92	0.97	0.83	0.97	1.00	0.78	0.93	0.99

### Question 4,11,18,25

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
36	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
37	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0
38	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0
39	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
40	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
41	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
42	4,11,18,25	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
43	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
44	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0

45	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
46	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
47	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
48	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
49	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
50	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
51	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
52	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
53	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
54	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
55	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
The Average		0.82	0.96	1.00	0.79	0.95	1.00	0.82	0.95	0.99	0.80	0.95	1.00

### Question 5,12,19,26

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
	<b>Ratings</b>												
36	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9
37	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.1	0.3	0.5
38	5,12,19,26	0.5	0.7	0.9				0.9	1.0	1.0	0.1	0.3	0.5
39	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
40	5,12,19,26	0.5	0.7	0.9				0.7	0.9	1.0	0.9	1.0	1.0
41	5,12,19,26	0.7	0.9	1.0				0.1	0.3	0.5	0.5	0.7	0.9
42	5,12,19,26	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0
43	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
44	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.5	0.7	0.9
45	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9
46	5,12,19,26	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0
47	5,12,19,26	0.7	0.9	1.0				0.9	1.0	1.0	0.1	0.3	0.5
48	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.1	0.3	0.5
49	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.5	0.7	0.9
50	5,12,19,26	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0
51	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.9	1.0	1.0
52	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.5	0.7	0.9
53	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9
54	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
55	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.5	0.7	0.9
The Average		0.80	0.94	0.99	0.90	1.00	1.00	0.79	0.93	0.98	0.58	0.74	0.86

### Question 6,13,20,27

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
36	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
37	6,13,20,27	0.9	1.0	1.0				0.5	0.7	0.9	0.9	1.0	1.0
38	6,13,20,27	0.5	0.7	0.9				0.1	0.3	0.5	0.5	0.7	0.9
39	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.9	1.0	1.0
40	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.9	1.0	1.0
41	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0
42	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0

43	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
44	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0
45	6,13,20,27	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
46	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0
47	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
48	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
49	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.9	1.0	1.0
50	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0
51	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0
52	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
53	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
54	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
55	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0
The Average		0.83	0.96	1.00	0.86	0.98	1.00	0.72	0.89	0.97	0.76	0.93	1.00

### Question 7,14,21,28

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
36	7,14,21,28	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
37	7,14,21,28	0.1	0.3	0.5	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0
38	7,14,21,28	0.5	0.7	0.9	0.1	0.3	0.5	0.9	1.0	1.0	0.5	0.7	0.9
39	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
40	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
41	7,14,21,28	0.9	1.0	1.0	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0
42	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
43	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
44	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
45	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
46	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
47	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
48	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
49	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
50	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
51	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
52	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
53	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
54	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
55	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.81	0.94	0.97	0.79	0.91	0.95	0.88	0.99	1.00	0.87	0.98	1.00

### 2.2.3-Fuzzy Weight

#### 2.2.3.1- Triangular Fuzzy sets for fuzzy weights

Fuzzy Value			Fuzzy weights
1	Strongly Disagree	SD	(0.0, 0.0, 0.25)
2	Disagree	D	(0.0, 0.25, 0.5)
3	Neutral	N	(0.25, 0.5, 0.75)
4	Agree	A	(0.5, 0.75, 1.0)
5	Strongly Agree	SA	(0.75, 1.0, 1.0)



2.2.3.2 Chinese Language Average weights according to the statements (N=20).

Question 1,8,15,22 (Characteristic) for all sub-Attribute

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
36	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
37	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
38	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
39	1,8,15,22	0.25	0.50	0.75	0.25	0.50	0.75	0.75	1.0	1.0	0.5	0.75	1.0
40	1,8,15,22	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
41	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
42	1,8,15,22	0.25	0.50	0.75	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
43	1,8,15,22	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
44	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
45	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
46	1,8,15,22	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
47	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
48	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
49	1,8,15,22	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
50	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
51	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
52	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
53	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
54	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
55	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
<b>The Average</b>		0.66	0.91	0.98	0.68	0.93	0.99	0.64	0.89	1.00	0.65	0.90	1.00

Question 2,9,16,23

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
36	2,9,16,23	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.50	0.75	0.5	0.75	1.0
37	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.50	0.75	1.0	1.0
38	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.50	0.75	0.5	0.75	1.0
39	2,9,16,23	0.5	0.75	1.0	0.25	0.50	0.75	0.5	0.75	1.0	0.75	1.0	1.0
40	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.50	0.75	0.5	0.75	1.0
41	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.50	0.75	0.25	0.50	0.75
42	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
43	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
44	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
45	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.50	0.75
46	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
47	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.50	0.75
48	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.50
49	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
50	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0

51	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
52	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
53	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
54	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
55	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
The Average		0.54	0.79	1.00	0.59	0.84	0.99	0.53	0.78	0.93	0.55	0.80	0.94

### Question 3,10,17,24

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
36	3,10,17,24	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
37	3,10,17,24	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.50	0.75
38	3,10,17,24	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
39	3,10,17,24	0.75	1.0	1.0	0.25	0.50	0.75	0.75	1.0	1.0	0.75	1.0	1.0
40	3,10,17,24	0.5	0.75	1.0	0.25	0.50	0.75	0.75	1.0	1.0	0.25	0.50	0.75
41	3,10,17,24	0.75	1.0	1.0	0.0	0.25	0.50	0.5	0.75	1.0	0.75	1.0	1.0
42	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.50	0.75
43	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
44	3,10,17,24	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
45	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
46	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
47	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
48	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
49	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
50	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
51	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
52	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
53	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
54	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
55	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
The Average		0.68	0.93	1.00	0.63	0.88	0.95	0.66	0.91	1.00	0.60	0.85	0.96

### Question 4,11,18,25

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
36	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
37	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.25	0.50	0.75	0.5	0.75	1.0
38	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.50	0.75	0.75	1.0	1.0
39	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
40	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
41	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
42	4,11,18,25	0.25	0.50	0.75	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
43	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
44	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
45	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0

46	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
47	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
48	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
49	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
50	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
51	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
52	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
53	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
54	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
55	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
The Average		0.65	0.90	0.99	0.61	0.86	1.00	0.65	0.90	0.98	0.63	0.88	1.00

### Question 5,12,19,26

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
weights													
36	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.50	0.75
37	5,12,19,26	0.75	1.0	1.0				0.5	0.75	1.0	0.0	0.25	0.50
38	5,12,19,26	0.25	0.50	0.75				0.75	1.0	1.0	0.0	0.25	0.50
39	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
40	5,12,19,26	0.25	0.50	0.75				0.5	0.75	1.0	0.75	1.0	1.0
41	5,12,19,26	0.5	0.75	1.0				0.0	0.25	0.50	0.25	0.50	0.75
42	5,12,19,26	0.5	0.75	1.0				0.75	1.0	1.0	0.75	1.0	1.0
43	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
44	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.25	0.50	0.75
45	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.50	0.75
46	5,12,19,26	0.5	0.75	1.0				0.75	1.0	1.0	0.75	1.0	1.0
47	5,12,19,26	0.5	0.75	1.0				0.75	1.0	1.0	0.0	0.25	0.50
48	5,12,19,26	0.75	1.0	1.0				0.5	0.75	1.0	0.0	0.25	0.50
49	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.25	0.50	0.75
50	5,12,19,26	0.5	0.75	1.0				0.75	1.0	1.0	0.75	1.0	1.0
51	5,12,19,26	0.75	1.0	1.0				0.5	0.75	1.0	0.75	1.0	1.0
52	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.25	0.50	0.75
53	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.50	0.75
54	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
55	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.25	0.50	0.75
The Average		0.63	0.88	0.98	0.75	1.00	1.00	0.63	0.88	0.98	0.40	0.65	0.80

### Question 6,13,20,27

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
weights													
36	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
37	6,13,20,27	0.75	1.0	1.0				0.25	0.50	0.75	0.75	1.0	1.0
38	6,13,20,27	0.25	0.50	0.75				0.0	0.25	0.50	0.25	0.50	0.75
39	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.75	1.0	1.0
40	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.75	1.0	1.0
41	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.5	0.75	1.0
42	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0

43	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
44	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.5	0.75	1.0
45	6,13,20,27	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
46	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.5	0.75	1.0
47	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
48	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.5	0.75	1.0
49	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.75	1.0	1.0
50	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.5	0.75	1.0
51	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.5	0.75	1.0
52	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.5	0.75	1.0
53	6,13,20,27	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
54	6,13,20,27	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
55	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.5	0.75	1.0
The Average		0.66	0.91	0.99	0.70	0.95	1.00	0.54	0.79	0.96	0.58	0.83	0.99

### Question 7,14,21,28

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
36	7,14,21,28	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
37	7,14,21,28	0.0	0.25	0.50	0.25	0.50	0.75	0.75	1.0	1.0	0.75	1.0	1.0
38	7,14,21,28	0.25	0.50	0.75	0.0	0.25	0.50	0.75	1.0	1.0	0.25	0.50	0.75
39	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
40	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
41	7,14,21,28	0.25	0.50	0.75	0.0	0.25	0.50	0.75	1.0	1.0	0.75	1.0	1.0
42	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
43	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
44	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
45	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
46	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
47	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
48	7,14,21,28	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
49	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
50	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
51	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
52	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
53	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
54	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
55	7,14,21,28	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
The Average		0.63	0.88	0.95	0.64	0.89	0.94	0.73	0.98	1.00	0.71	0.96	0.99

#### 2.2.2.2- Chinese Language Average ratings and weights according to the statements (N=20).

##### 2.2.2.2-A Sup-attribute 1 (Effectiveness) Rating and weights for all the characteristics (7) for all users (N=20)

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Effectiveness )	
		Ratings(R)	Weights(W)

<b>For all users 36 to 55</b>	<b>1</b>	<b>0.83</b>	<b>0.96</b>	<b>0.99</b>	<b>0.66</b>	<b>0.91</b>	<b>0.98</b>
	<b>2</b>	<b>0.73</b>	<b>0.92</b>	<b>1.00</b>	<b>0.54</b>	<b>0.79</b>	<b>1.00</b>
	<b>3</b>	<b>0.84</b>	<b>0.97</b>	<b>1.00</b>	<b>0.68</b>	<b>0.93</b>	<b>1.00</b>
	<b>4</b>	<b>0.82</b>	<b>0.96</b>	<b>1.00</b>	<b>0.65</b>	<b>0.90</b>	<b>0.99</b>
	<b>5</b>	<b>0.80</b>	<b>0.94</b>	<b>0.99</b>	<b>0.63</b>	<b>0.88</b>	<b>0.98</b>
	<b>6</b>	<b>0.83</b>	<b>0.96</b>	<b>1.00</b>	<b>0.66</b>	<b>0.91</b>	<b>0.99</b>
	<b>7</b>	<b>0.81</b>	<b>0.94</b>	<b>0.97</b>	<b>0.63</b>	<b>0.88</b>	<b>0.95</b>

**2.2.2.2-B Sup-attribute 1 (Efficiency) Rating and weights for all the characteristics (7) for all users (N=20)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Efficiency )					
		Ratings(R)			Weights(W)		
<b>For all users 36 to 55</b>	<b>8</b>	<b>0.84</b>	<b>0.97</b>	<b>1.00</b>	<b>0.68</b>	<b>0.93</b>	<b>0.99</b>
	<b>9</b>	<b>0.77</b>	<b>0.93</b>	<b>1.00</b>	<b>0.59</b>	<b>0.84</b>	<b>0.99</b>
	<b>10</b>	<b>0.79</b>	<b>0.92</b>	<b>0.97</b>	<b>0.63</b>	<b>0.88</b>	<b>0.95</b>
	<b>11</b>	<b>0.79</b>	<b>0.95</b>	<b>1.00</b>	<b>0.61</b>	<b>0.86</b>	<b>1.00</b>
	<b>12</b>	<b>0.90</b>	<b>1.00</b>	<b>1.00</b>	<b>0.75</b>	<b>1.00</b>	<b>1.00</b>
	<b>13</b>	<b>0.86</b>	<b>0.98</b>	<b>1.00</b>	<b>0.70</b>	<b>0.95</b>	<b>1.00</b>
	<b>14</b>	<b>0.79</b>	<b>0.91</b>	<b>0.95</b>	<b>0.64</b>	<b>0.89</b>	<b>0.94</b>

**2.2.2.2-C Sup-attribute 1 (Satisfaction) Rating and weights for all the characteristics (7) for all users (N=20)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Satisfaction )					
		Ratings(R)			Weights(W)		
<b>For all users 36 to 55</b>	<b>15</b>	<b>0.81</b>	<b>0.96</b>	<b>1.00</b>	<b>0.64</b>	<b>0.89</b>	<b>1.00</b>
	<b>16</b>	<b>0.71</b>	<b>0.87</b>	<b>0.96</b>	<b>0.53</b>	<b>0.78</b>	<b>0.93</b>
	<b>17</b>	<b>0.83</b>	<b>0.97</b>	<b>1.00</b>	<b>0.66</b>	<b>0.91</b>	<b>1.00</b>
	<b>18</b>	<b>0.82</b>	<b>0.95</b>	<b>0.99</b>	<b>0.65</b>	<b>0.90</b>	<b>0.98</b>
	<b>19</b>	<b>0.79</b>	<b>0.93</b>	<b>0.98</b>	<b>0.63</b>	<b>0.88</b>	<b>0.98</b>
	<b>20</b>	<b>0.72</b>	<b>0.89</b>	<b>0.97</b>	<b>0.54</b>	<b>0.79</b>	<b>0.96</b>
	<b>21</b>	<b>0.88</b>	<b>0.99</b>	<b>1.00</b>	<b>0.73</b>	<b>0.98</b>	<b>1.00</b>

**2.2.2.2-D Sup-attribute 1 (Comprehensibility) Rating and weights for all the characteristics (7) for all users (N=20)**

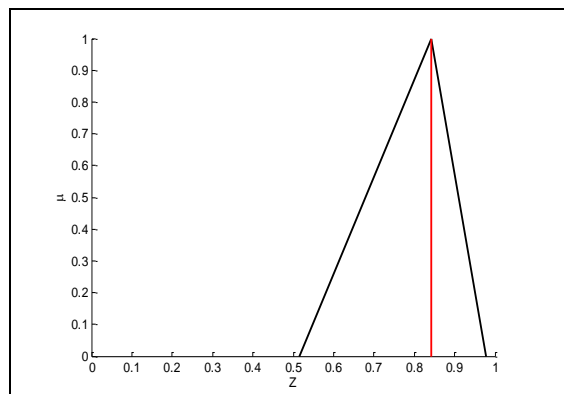
Serial Numbers for users	Characteristic	Sup-attribute 1 ( Comprehensibility )					
		Ratings(R)			Weights(W)		
<b>For all users 36 to 55</b>	<b>22</b>	<b>0.82</b>	<b>0.96</b>	<b>1.00</b>	<b>0.65</b>	<b>0.90</b>	<b>1.00</b>
	<b>23</b>	<b>0.73</b>	<b>0.89</b>	<b>0.96</b>	<b>0.55</b>	<b>0.80</b>	<b>0.94</b>
	<b>24</b>	<b>0.78</b>	<b>0.93</b>	<b>0.99</b>	<b>0.60</b>	<b>0.85</b>	<b>0.96</b>
	<b>25</b>	<b>0.80</b>	<b>0.95</b>	<b>1.00</b>	<b>0.63</b>	<b>0.88</b>	<b>1.00</b>
	<b>26</b>	<b>0.58</b>	<b>0.74</b>	<b>0.86</b>	<b>0.40</b>	<b>0.65</b>	<b>0.80</b>
	<b>27</b>	<b>0.76</b>	<b>0.93</b>	<b>1.00</b>	<b>0.58</b>	<b>0.83</b>	<b>0.99</b>
	<b>28</b>	<b>0.87</b>	<b>0.98</b>	<b>1.00</b>	<b>0.71</b>	<b>0.96</b>	<b>0.99</b>

Serial Numbers for users	Sup-attribute	attribute A - Effectiveness								
		Ratings(R)			Weights(W)			R*W		
For all users 36 to 55	1	0.83	0.96	0.99	0.66	0.91	0.98	0.55	0.87	0.97
	2	0.73	0.92	1.00	0.54	0.79	1.00	0.39	0.73	1.00
	3	0.84	0.97	1.00	0.68	0.93	1.00	0.57	0.90	1.00
	4	0.82	0.96	1.00	0.65	0.90	0.99	0.53	0.86	0.99
	5	0.80	0.94	0.99	0.63	0.88	0.98	0.50	0.83	0.97
	6	0.83	0.96	1.00	0.66	0.91	0.99	0.55	0.87	0.99
	7	0.81	0.94	0.97	0.63	0.88	0.95	0.51	0.83	0.92
The Average					0.636	0.886	0.984	0.515	0.842	0.977

Ratings (R), Effectiveness attribute A

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For Effectiveness: - R attribute A = (0.515, 0.842, 0.977)



Weight (W), Effectiveness attribute A

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute / n

For Effectiveness: - W sup-attribute 1 = (0.636, 0.886, 0.984)

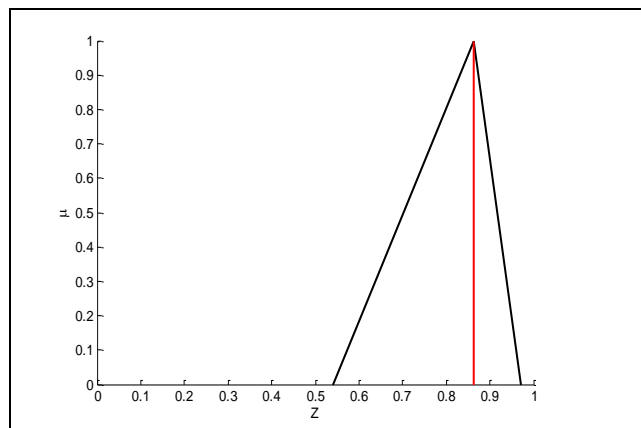
Attribute A ( Effectiveness )					
Ratings(R)			Weights(W)		
0.515	0.842	0.977	0.636	0.886	0.984

Serial Numbers for users	Sup-attribute	Attribute B - Efficiency								
		Ratings(R)			Weights(W)			R*W		
For all users 36 to 55	8	0.84	0.97	1.00	0.68	0.93	0.99	0.57	0.90	0.99
	9	0.77	0.93	1.00	0.59	0.84	0.99	0.45	0.78	0.99
	10	0.79	0.92	0.97	0.63	0.88	0.95	0.50	0.81	0.92
	11	0.79	0.95	1.00	0.61	0.86	1.00	0.48	0.82	1.00
	12	0.90	1.00	1.00	0.75	1.00	1.00	0.68	1.00	1.00
	13	0.86	0.98	1.00	0.70	0.95	1.00	0.60	0.93	1.00
	14	0.79	0.91	0.95	0.64	0.89	0.94	0.51	0.81	0.89
The Average					0.657	0.907	0.981	0.541	0.864	0.971

Ratings (R), **Efficiency** attribute B

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + ..... + R sup-attribute n \* W sup-attribute n )

For **Efficiency**: - R attribute B = (0.541, 0.864,0.971)



Weight (W), **Efficiency** attribute B

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Efficiency**: - W attribute B = (0.657, 0.907,0.981)

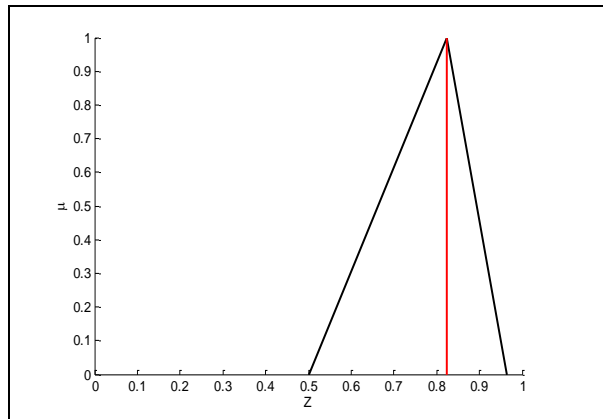
Attribute B ( Efficiency )					
Ratings(R)			Weights(W)		
<b>0.541</b>	<b>0.864</b>	<b>0.971</b>	<b>0.657</b>	<b>0.907</b>	<b>0.981</b>

Serial Numbers for users	Sup-attribute	Attribute C - Satisfaction								
		Ratings(R)			Weights(W)			R*W		
For all users 36 to 55	15	0.81	0.96	1.00	0.64	0.89	1.00	0.52	0.85	1.00
	16	0.71	0.87	0.96	0.53	0.78	0.93	0.38	0.68	0.89
	17	0.83	0.97	1.00	0.66	0.91	1.00	0.55	0.88	1.00
	18	0.82	0.95	0.99	0.65	0.90	0.98	0.53	0.86	0.97
	19	0.79	0.93	0.98	0.63	0.88	0.98	0.50	0.82	0.96
	20	0.72	0.89	0.97	0.54	0.79	0.96	0.39	0.70	0.93
	21	0.88	0.99	1.00	0.73	0.98	1.00	0.64	0.97	1.00
The Average					0.626	0.876	0.979	0.501	0.823	0.965

Ratings (R), Satisfaction attribute C

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + ..... + R sup-attribute n \* W sup-attribute n )/n

For Satisfaction: - R attribute C = (0.501, 0.823, 0.965)



Weight (W), Satisfaction attribute C

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For Satisfaction: - W attribute C = (0.626, 0.876, 0.979)

Attribute C ( Satisfaction )					
Ratings(R)			Weights(W)		
0.501	0.823	0.965	0.626	0.876	0.979

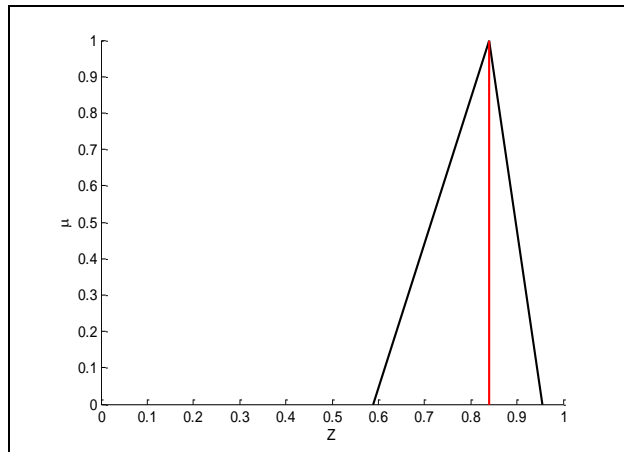


Serial Numbers for users	Sup-attribute	Attribute D - Comprehensibility								
		Ratings(R)			Weights(W)			R*W		
<b>For all users 36 to 55</b>	22	<b>0.82</b>	<b>0.96</b>	<b>1.00</b>	<b>0.65</b>	<b>0.90</b>	<b>1.00</b>	<b>0.53</b>	<b>0.86</b>	<b>1.00</b>
	23	<b>0.73</b>	<b>0.89</b>	<b>0.96</b>	<b>0.55</b>	<b>0.80</b>	<b>0.94</b>	<b>0.40</b>	<b>0.71</b>	<b>0.90</b>
	24	<b>0.78</b>	<b>0.93</b>	<b>0.99</b>	<b>0.60</b>	<b>0.85</b>	<b>0.96</b>	<b>0.47</b>	<b>0.79</b>	<b>0.95</b>
	25	<b>0.80</b>	<b>0.95</b>	<b>1.00</b>	<b>0.63</b>	<b>0.88</b>	<b>1.00</b>	<b>0.50</b>	<b>0.84</b>	<b>1.00</b>
	26	<b>0.58</b>	<b>0.74</b>	<b>0.86</b>	<b>0.40</b>	<b>0.65</b>	<b>0.80</b>	<b>0.23</b>	<b>0.48</b>	<b>0.69</b>
	27	<b>0.76</b>	<b>0.93</b>	<b>1.00</b>	<b>0.58</b>	<b>0.83</b>	<b>0.99</b>	<b>0.44</b>	<b>0.77</b>	<b>0.99</b>
	28	<b>0.87</b>	<b>0.98</b>	<b>1.00</b>	<b>0.71</b>	<b>0.96</b>	<b>0.99</b>	<b>0.62</b>	<b>0.94</b>	<b>0.99</b>
<b>The Average</b>					<b>0.589</b>	<b>0.839</b>	<b>0.954</b>	<b>0.457</b>	<b>0.771</b>	<b>0.932</b>

Ratings (R), **Comprehensibility** attribute D

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Comprehensibility**: - R attribute D = (0.457, 0.771,0.932)



Weight (W), **Comprehensibility** attribute D

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute /

For **Comprehensibility**: - W attribute D = (0.589, 0.839,0.954)

Attribute D ( Comprehensibility )					
Ratings(R)			Weights(W)		
<b>0.457</b>	<b>0.771</b>	<b>0.932</b>	<b>0.589</b>	<b>0.839</b>	<b>0.954</b>

### 2.2.3.5- Ratings and weights of the Usability

The Variables	Fuzzy Rating (R)			Fuzzy weight (W)			R * W		
Effectiveness	0.515	0.842	0.977	0.636	0.886	0.984	0.328	0.746	0.961
Efficiency	0.541	0.864	0.971	0.657	0.907	0.981	0.355	0.784	0.953
Satisfaction	0.501	0.823	0.965	0.626	0.876	0.979	0.314	0.721	0.945
Comprehensibility	0.457	0.771	0.932	0.589	0.839	0.954	0.269	0.647	0.889
Average				0.627	0.877	0.975	0.316	0.724	0.937

#### Ratings (R), Usability of Chinese

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For Usability of Chinese: - R Usability = (0.316, 0.724,0.937)

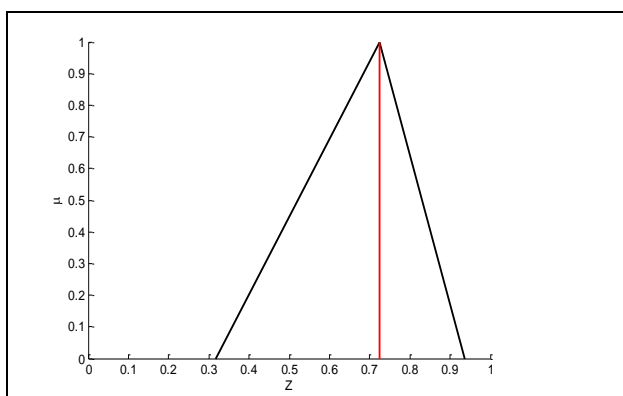
#### Weight (W), Usability of Chinese

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For Usability of Chinese: - W Usability = (0.627, 0.877,0.975)

Usability of Chinese					
Ratings(R)			Weights(W)		
<b>0.316</b>	<b>0.724</b>	<b>0.937</b>	<b>0.627</b>	<b>0.877</b>	<b>0.975</b>

**R usability Chinese =(0.316, 0.724, 0.937)**



**2.3- The Result: (Chinese Language) = 0.805**

**Chinese Language Application Usability  $Z^* = 0.805$**

### 3- Dutch Language

#### 3.2.2.2- Dutch Language Average ratings according to the statements (N=18).

##### Question 1,8,15,22 (Characteristic) for all Sub-attributes

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
56	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
57	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
58	1,8,15,22	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
59	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
60	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
61	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
62	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
63	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
64	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0
65	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
66	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
67	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
68	1,8,15,22	0.1	0.3	0.5	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
69	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
70	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
71	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
72	1,8,15,22	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
73	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.38	0.54	0.71	0.74	0.92	1.00	0.78	0.93	0.99	0.82	0.96	1.00

##### Question 2,9,16,23

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
56	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.5	0.7	0.9
57	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.5	0.7	0.9
58	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.1	0.3	0.5
59	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9
60	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9
61	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
62	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
63	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
64	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
65	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.0	0.1	0.3
66	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
67	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
68	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
69	2,9,16,23	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3

70	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.0	0.1	0.3
71	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9
72	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0
73	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
The Average		0.68	0.86	0.96	0.78	0.94	1.00	0.70	0.88	0.98	0.26	0.41	0.59

### Question 3,10,17,24

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
56	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
57	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
58	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	
59	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
60	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	
61	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
62	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
63	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
64	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
65	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
66	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
67	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
68	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
69	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
70	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
71	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0	
72	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9	
73	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
The Average		0.77	0.93	1.00	0.78	0.94	1.00	0.72	0.89	0.98	0.73	0.91	0.99	

### Question 4,11,18,25

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
56	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	
57	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	
58	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	
59	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
60	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
61	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	
62	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0	
63	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
64	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
65	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
66	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
67	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
68	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
69	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	

70	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
71	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
72	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0
73	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.80	0.95	1.00	0.79	0.94	1.00	0.68	0.86	0.97	0.79	0.94	1.00

### Question 5,12,19,26

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
56	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	
57	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.5	0.7	0.9	
58	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	
59	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.1	0.3	0.5	
60	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	
61	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.5	0.7	0.9	
62	5,12,19,26	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.1	0.3	0.5	
63	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
64	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
65	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
66	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.5	0.7	0.9	
67	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
68	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.9	1.0	1.0	
69	5,12,19,26	0.7	0.9	1.0				0.9	1.0	1.0	0.7	0.9	1.0	
70	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
71	5,12,19,26	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	
72	5,12,19,26	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
73	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
The Average		0.81	0.96	1.00	0.90	1.00	1.00	0.81	0.96	1.00	0.58	0.77	0.91	

### Question 6,13,20,27

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
56	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
57	6,13,20,27	0.9	1.0	1.0				0.5	0.7	0.9	0.9	1.0	1.0	
58	6,13,20,27	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
59	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
60	6,13,20,27	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0	
61	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.9	1.0	1.0	
62	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5	0.9	1.0	1.0	
63	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.9	1.0	1.0	
64	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0	
65	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
66	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
67	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
68	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.9	1.0	1.0	
69	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.9	1.0	1.0	

70	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
71	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
72	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.5	0.7	0.9
73	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9
The Average		0.80	0.95	1.00	0.85	0.98	1.00	0.67	0.85	0.96	0.79	0.93	0.99

### Question 7,14,21,28

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
56	7,14,21,28	0.9	1.0	1.0	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0	
57	7,14,21,28	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	
58	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0	
59	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0	
60	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	
61	7,14,21,28	0.9	1.0	1.0	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	
62	7,14,21,28	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
63	7,14,21,28	0.7	0.9	1.0	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	
64	7,14,21,28	0.9	1.0	1.0	0.0	0.1	0.3	0.7	0.9	1.0	0.9	1.0	1.0	
65	7,14,21,28	0.7	0.9	1.0	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	
66	7,14,21,28	0.9	1.0	1.0	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	
67	7,14,21,28	0.7	0.9	1.0	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	
68	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	
69	7,14,21,28	0.7	0.9	1.0	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	
70	7,14,21,28	0.7	0.9	1.0	0.1	0.3	0.5	0.7	0.9	1.0	0.9	1.0	1.0	
71	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
72	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	
73	7,14,21,28	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
The Average		0.73	0.91	0.99	0.31	0.48	0.66	0.79	0.94	1.00	0.80	0.95	1.00	

### 3.2.3-Fuzzy Weight

#### 3.2.3.1- Triangular Fuzzy sets for fuzzy weights

Fuzzy Value			Fuzzy weights
1	Strongly Disagree	SD	(0.0, 0.0, 0.25)
2	Disagree	D	(0.0, 0.25, 0.5)
3	Neutral	N	(0.25, 0.5, 0.75)
4	Agree	A	(0.5, 0.75, 1.0)
5	Strongly Agree	SA	(0.75, 1.0, 1.0)

#### 3.2.3.2 Dutch Language Average weights according to the statements (N=18).

#### Question 1,8,15,22 (Characteristic) for all sub-Attribute

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)
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weights		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
56	1,8,15,22	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
57	1,8,15,22	0.25	0.5	0.75	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
58	1,8,15,22	0.25	0.5	0.75	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
59	1,8,15,22	0.25	0.5	0.75	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
60	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
61	1,8,15,22	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
62	1,8,15,22	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
63	1,8,15,22	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
64	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.25	0.5	0.75	0.5	0.75	1.0
65	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
66	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
67	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
68	1,8,15,22	0.0	0.25	0.5	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
69	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
70	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
71	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
72	1,8,15,22	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
73	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
The Average		0.24	0.40	0.64	0.56	0.81	1.00	0.60	0.85	0.99	0.65	0.90	1.00

**Question 2,9,16,23**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
56	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.25	0.5	0.75	0.25	0.5	0.75
57	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.25	0.5	0.75	0.25	0.5	0.75
58	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.0	0.25	0.5
59	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.5	0.75
60	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.5	0.75
61	2,9,16,23	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
62	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
63	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
64	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
65	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1.0	0.75	1.0	1.0	0.0	0.0	0.25
66	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
67	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
68	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
69	2,9,16,23	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
70	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.0	0.0	0.25
71	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.5	0.75
72	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.25	0.5	0.75	0.75	1.0	1.0
73	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
The Average		0.49	0.74	0.94	0.60	0.85	1.00	0.50	0.75	0.96	0.15	0.31	0.53

**Question 3,10,17,24**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
56	3,10,17,24	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
57	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
58	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.5	0.75	0.75	1.0	1.0
59	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
60	3,10,17,24	0.5	0.75	1.0	0.75	1.0	1.0	0.25	0.5	0.75	0.75	1.0	1.0
61	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
62	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
63	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
64	3,10,17,24	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
65	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
66	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
67	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
68	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
69	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
70	3,10,17,24	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
71	3,10,17,24	0.5	0.75	1.0	0.75	1.0	1.0	0.25	0.5	0.75	0.5	0.75	1.0
72	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.5	0.75
73	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
<b>The Average</b>		<b>0.58</b>	<b>0.83</b>	<b>1.00</b>	<b>0.60</b>	<b>0.85</b>	<b>1.00</b>	<b>0.53</b>	<b>0.78</b>	<b>0.96</b>	<b>0.54</b>	<b>0.79</b>	<b>0.99</b>

**Question 4,11,18,25**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
56	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.5	0.75	0.75	1.0	1.0
57	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.5	0.75	0.75	1.0	1.0
58	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.5	0.75	0.75	1.0	1.0
59	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
60	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
61	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.5	0.75	0.75	1.0	1.0
62	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.5	0.75	0.5	0.75	1.0
63	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
64	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
65	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
66	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
67	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
68	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
69	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
70	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
71	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
72	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.5	0.75	0.5	0.75	1.0



73	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
The Average		0.63	0.88	1.00	0.61	0.86	1.00	0.47	0.72	0.92	0.61	0.86	1.00

### Question 5,12,19,26

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
56	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.5	0.75
57	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.25	0.5	0.75
58	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.5	0.75
59	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.0	0.25	0.5
60	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.5	0.75
61	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.25	0.5	0.75
62	5,12,19,26	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.0	0.25	0.5
63	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
64	5,12,19,26	0.75	1.0	1.0				0.5	0.75	1.0	0.5	0.75	1.0
65	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
66	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.25	0.5	0.75
67	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
68	5,12,19,26	0.75	1.0	1.0				0.5	0.75	1.0	0.75	1.0	1.0
69	5,12,19,26	0.5	0.75	1.0				0.75	1.0	1.0	0.5	0.75	1.0
70	5,12,19,26	0.75	1.0	1.0				0.5	0.75	1.0	0.5	0.75	1.0
71	5,12,19,26	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.5	0.75
72	5,12,19,26	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
73	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
The Average		0.64	0.89	1.00	0.75	1.00	1.00	0.64	0.89	1.00	0.38	0.63	0.85

### Question 6,13,20,27

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
56	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
57	6,13,20,27	0.75	1.0	1.0				0.25	0.5	0.75	0.75	1.0	1.0
58	6,13,20,27	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
59	6,13,20,27	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
60	6,13,20,27	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.5	0.75	0.5	0.75	1.0
61	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.75	1.0	1.0
62	6,13,20,27	0.5	0.75	1.0	0.75	1.0	1.0	0.0	0.25	0.5	0.75	1.0	1.0
63	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.75	1.0	1.0
64	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.5	0.75	1.0
65	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
66	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
67	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
68	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.75	1.0	1.0
69	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.75	1.0	1.0
70	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
71	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0

72	6,13,20,27	0.5	0.75	1.0	0.75	1.0	1.0	0.25	0.5	0.75	0.25	0.5	0.75
73	6,13,20,27	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.5	0.75
The Average		0.63	0.88	1.00	0.69	0.94	1.00	0.47	0.72	0.93	0.61	0.86	0.97

### Question 7,14,21,28

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
56	7,14,21,28	0.25	0.5	0.75	0.0	0.25	0.5	0.75	1.0	1.0	0.75	1.0	1.0
57	7,14,21,28	0.25	0.5	0.75	0.25	0.5	0.75	0.75	1.0	1.0	0.75	1.0	1.0
58	7,14,21,28	0.5	0.75	1.0	0.25	0.5	0.75	0.75	1.0	1.0	0.5	0.75	1.0
59	7,14,21,28	0.5	0.75	1.0	0.25	0.5	0.75	0.75	1.0	1.0	0.5	0.75	1.0
60	7,14,21,28	0.75	1.0	1.0	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0
61	7,14,21,28	0.5	0.75	1.0	0.25	0.5	0.75	0.75	1.0	1.0	0.75	1.0	1.0
62	7,14,21,28	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
63	7,14,21,28	0.5	0.75	1.0	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0
64	7,14,21,28	0.75	1.0	1.0	0.0	0.0	0.25	0.5	0.75	1.0	0.75	1.0	1.0
65	7,14,21,28	0.5	0.75	1.0	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0
66	7,14,21,28	0.75	1.0	1.0	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0
67	7,14,21,28	0.5	0.75	1.0	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0
68	7,14,21,28	0.5	0.75	1.0	0.25	0.5	0.75	0.5	0.75	1.0	0.75	1.0	1.0
69	7,14,21,28	0.5	0.75	1.0	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0
70	7,14,21,28	0.5	0.75	1.0	0.0	0.25	0.5	0.5	0.75	1.0	0.75	1.0	1.0
71	7,14,21,28	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
72	7,14,21,28	0.5	0.75	1.0	0.25	0.5	0.75	0.75	1.0	1.0	0.75	1.0	1.0
73	7,14,21,28	0.25	0.5	0.75	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
The Average		0.51	0.76	0.96	0.17	0.35	0.60	0.61	0.86	1.00	0.63	0.88	1.00

### 3.2.2.2- Dutch Language Average ratings and weights according to the statements (N=18).

#### 3.2.2.2-A Sup-attribute 1 (Effectiveness) Rating and weights for all the characteristics (7) for all users (N=18)

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Effectiveness )					
		Ratings(R)			Weights(W)		
For all users 56 to 73	1	0.16	0.33	0.54	0.24	0.40	0.64
	2	0.36	0.66	0.92	0.49	0.74	0.94
	3	0.46	0.78	1.00	0.58	0.83	1.00
	4	0.51	0.84	1.00	0.63	0.88	1.00
	5	0.53	0.86	1.00	0.64	0.89	1.00
	6	0.51	0.84	1.00	0.63	0.88	1.00
	7	0.39	0.70	0.95	0.51	0.76	0.96

#### 3.2.2.2-B Sup-attribute 1 (Efficiency) Rating and weights for all the characteristics (7) for all users (N=18)

Serial Numbers	Characteristic	Sup-attribute 1 ( Efficiency )					
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		Ratings(R)			Weights(W)		
For all users 56 to 73	8	0.42	0.75	1.00	0.56	0.81	1.00
	9	0.48	0.80	1.00	0.60	0.85	1.00
	10	0.48	0.80	1.00	0.60	0.85	1.00
	11	0.49	0.82	1.00	0.61	0.86	1.00
	12	0.68	1.00	1.00	0.75	1.00	1.00
	13	0.59	0.92	1.00	0.69	0.94	1.00
	14	0.09	0.24	0.46	0.17	0.35	0.60

**3.2.2.2-C Sup-attribute 1 (Satisfaction) Rating and weights for all the characteristics (7) for all users (N=18)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Satisfaction)					
		Ratings(R)			Weights(W)		
For all users 56 to 73	15	0.48	0.80	0.98	0.60	0.85	0.99
	16	0.37	0.68	0.95	0.50	0.75	0.96
	17	0.40	0.71	0.95	0.53	0.78	0.96
	18	0.35	0.64	0.89	0.47	0.72	0.92
	19	0.53	0.86	1.00	0.64	0.89	1.00
	20	0.35	0.64	0.90	0.47	0.72	0.93
	21	0.49	0.82	1.00	0.61	0.86	1.00

**3.2.2.2-D Sup-attribute 1 (Comprehensibility) Rating and weights for all the characteristics (7) for all users (N=18)**

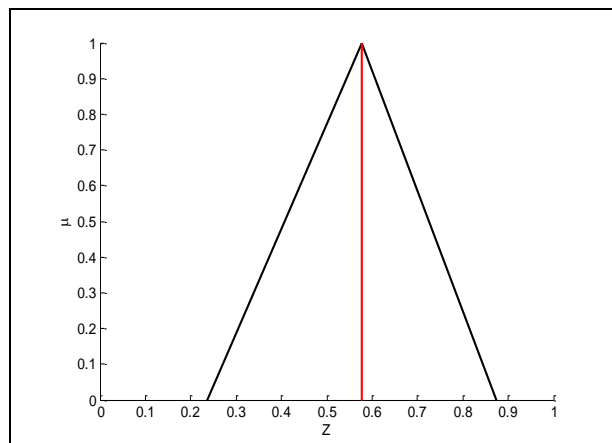
Serial Numbers for users	Characteristic	Sup-attribute 1 ( Comprehensibility)					
		Ratings(R)			Weights(W)		
For all users 56 to 73	22	0.55	0.87	1.00	0.65	0.90	1.00
	23	0.11	0.23	0.38	0.15	0.31	0.53
	24	0.41	0.73	0.98	0.54	0.79	0.99
	25	0.49	0.82	1.00	0.61	0.86	1.00
	26	0.26	0.52	0.79	0.38	0.63	0.85
	27	0.51	0.82	0.96	0.61	0.86	0.97
	28	0.51	0.84	1.00	0.63	0.88	1.00

Serial Numbers for users	Sup-attribute	attribute A - Effectiveness								
		Ratings(R)			Weights(W)			R*W		
For all users 56 to 73	1	0.16	0.33	0.54	0.24	0.40	0.64	0.04	0.13	0.35
	2	0.36	0.66	0.92	0.49	0.74	0.94	0.18	0.49	0.86
	3	0.46	0.78	1.00	0.58	0.83	1.00	0.27	0.65	1.00
	4	0.51	0.84	1.00	0.63	0.88	1.00	0.32	0.74	1.00
	5	0.53	0.86	1.00	0.64	0.89	1.00	0.34	0.77	1.00
	6	0.51	0.84	1.00	0.63	0.88	1.00	0.32	0.74	1.00
	7	0.39	0.70	0.95	0.51	0.76	0.96	0.20	0.53	0.91
The Average					0.531	0.769	0.934	0.237	0.578	0.875

Ratings (R), Effectiveness attribute A

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For Effectiveness: - R attribute A = (0.237, 0.578, 0.875)



Weight (W), Effectiveness attribute A

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute / n

For Effectiveness: - W sup-attribute 1 = (0.531, 0.769, 0.934)

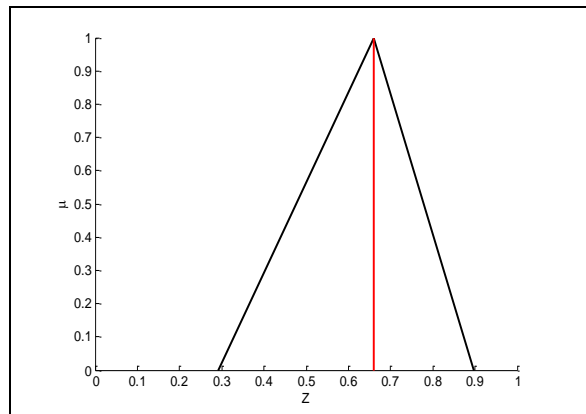
Attribute A ( Effectiveness )					
Ratings(R)			Weights(W)		
0.237	0.578	0.875	0.531	0.769	0.934

Serial Numbers for users	Sup-attribute	Attribute B - Efficiency								
		Ratings(R)			Weights(W)			R*W		
For all users 56 to 73	8	0.42	0.75	1.00	0.56	0.81	1.00	0.24	0.61	1.00
	9	0.48	0.80	1.00	0.60	0.85	1.00	0.29	0.68	1.00
	10	0.48	0.80	1.00	0.60	0.85	1.00	0.29	0.68	1.00
	11	0.49	0.82	1.00	0.61	0.86	1.00	0.30	0.71	1.00
	12	0.68	1.00	1.00	0.75	1.00	1.00	0.51	1.00	1.00
	13	0.59	0.92	1.00	0.69	0.94	1.00	0.41	0.86	1.00
	14	0.09	0.24	0.46	0.17	0.35	0.60	0.02	0.08	0.28
The Average					0.569	0.809	0.943	0.292	0.660	0.897

Ratings (R), **Efficiency** attribute B

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + ..... + R sup-attribute n \* W sup-attribute n )

For **Efficiency**: - R attribute B = (0.292, 0.660,0.897)



Weight (W), **Efficiency** attribute B

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Efficiency**: - W attribute B = (0.569, 0.809,0.943)

Attribute B ( Efficiency )					
Ratings(R)			Weights(W)		
0.292	0.660	0.897	0.569	0.809	0.943

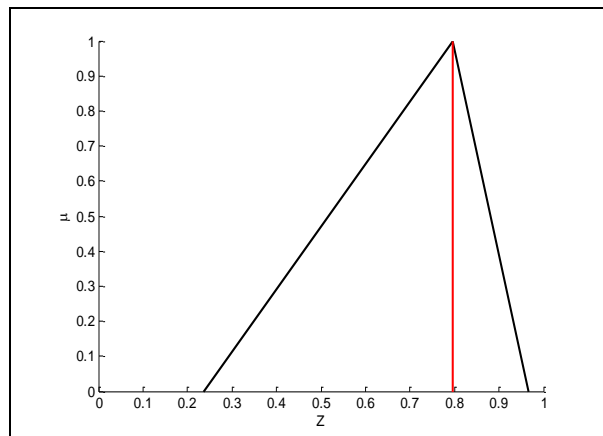
Serial	Sup-	Attribute C - Satisfaction
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Numbers for users	attribute	Ratings(R)			Weights(W)			R*W		
For all users 56 to 73	15	0.48	0.80	0.98	0.60	0.85	0.99	0.29	0.68	0.97
	16	0.37	0.68	0.95	0.50	0.75	0.96	0.19	0.51	0.91
	17	0.40	0.71	0.95	0.53	0.78	0.96	0.21	0.55	0.91
	18	0.35	0.64	0.89	0.47	0.72	0.92	0.16	0.46	0.82
	19	0.53	0.86	1.00	0.64	0.89	1.00	0.34	0.77	1.00
	20	0.35	0.64	0.90	0.47	0.72	0.93	0.16	0.46	0.84
	21	0.49	0.82	1.00	0.61	0.86	1.00	0.30	0.71	1.00
The Average					0.546	0.796	0.966	0.236	0.591	0.921

Ratings (R), Satisfaction attribute C

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )/n

For Satisfaction: - R attribute C = (0.236, 0.591, 0.921)



Weight (W), Satisfaction attribute C

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute / n

For Satisfaction: - W attribute C = (0.546, 0.796, 0.966)

Attribute C ( Satisfaction )					
Ratings(R)			Weights(W)		
0.236	0.591	0.921	0.546	0.796	0.966

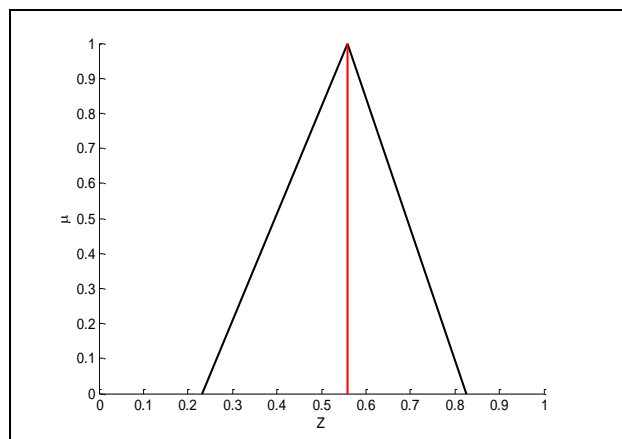
Serial Numbers	Sup-attribute	Attribute D - Comprehensibility		
		Ratings(R)	Weights(W)	R*W

for users										
For all users 56 to 73	22	0.55	0.87	1.00	0.65	0.90	1.00	0.36	0.78	1.00
	23	0.11	0.23	0.38	0.15	0.31	0.53	0.02	0.07	0.20
	24	0.41	0.73	0.98	0.54	0.79	0.99	0.22	0.58	0.97
	25	0.49	0.82	1.00	0.61	0.86	1.00	0.30	0.71	1.00
	26	0.26	0.52	0.79	0.38	0.63	0.85	0.10	0.33	0.67
	27	0.51	0.82	0.96	0.61	0.86	0.97	0.31	0.71	0.93
	28	0.51	0.84	1.00	0.63	0.88	1.00	0.32	0.74	1.00
The Average					0.510	0.747	0.906	0.232	0.558	0.825

Ratings (R), **Comprehensibility** attribute D

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )/n

For **Comprehensibility**: - R attribute D = (0.232, 0.558,0.825)



Weight (W), **Comprehensibility** attribute D

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute / n

For **Comprehensibility**: - W attribute D = (0.510, 0.747,0.906)

Attribute D ( Comprehensibility )					
Ratings(R)			Weights(W)		
0.232	0.558	0.825	0.510	0.747	0.906

### 3.2.3.5- Ratings and weights of the Usability

The Variables	Fuzzy Rating (R)			Fuzzy weight (W)			R * W		
	Effectiveness	0.237	0.578	0.875	0.531	0.769	0.934	0.126	0.444
Efficiency	0.292	0.660	0.897	0.569	0.809	0.943	0.166	0.534	0.846
Satisfaction	0.236	0.591	0.921	0.546	0.796	0.966	0.129	0.470	0.890
Comprehensibility	0.232	0.558	0.825	0.510	0.747	0.906	0.118	0.417	0.747
<b>Average</b>				<b>0.539</b>	<b>0.780</b>	<b>0.937</b>	<b>0.135</b>	<b>0.466</b>	<b>0.825</b>

Ratings (R), Usability of Dutch

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )/n

For Usability of Dutch: - R Usability = (0.135, 0.466,0.825)

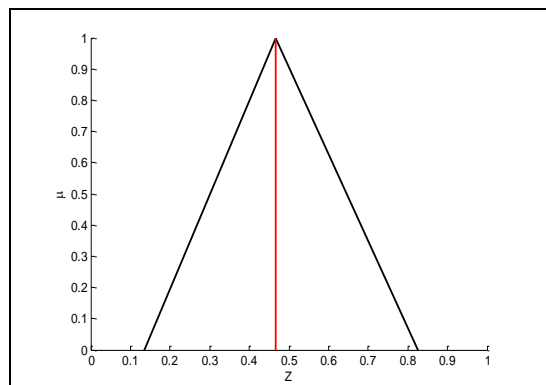
Weight (W), Usability of Dutch

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute / n

For Usability of Dutch: - W Usability = (0.539, 0.780,0.937)

Usability of Dutch					
Ratings(R)			Weights(W)		
0.135	0.466	0.825	0.539	0.780	0.937

**R usability Dutch =(0.135, 0.466, 0.825) = 0.4791**



### 3.3- The Result: (Dutch Language) = 0.4791

**Dutch Language Application Usability  $Z^*$  = 0.4791**



# 4- English Language

## 4.2.2.2- English Language Average ratings according to the statements (N=40).

### Question 1,8,15,22 (Characteristic) for all Sub-attributes

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
74	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
75	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
76	1,8,15,22	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
77	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
78	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
79	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
80	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
81	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
82	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
83	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
84	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
85	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
86	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
87	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
88	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
89	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
90	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
91	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
92	1,8,15,22	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
93	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
94	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
95	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
96	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
97	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
98	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
99	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
100	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
101	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
102	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
103	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
104	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
105	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
106	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
107	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
108	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
109	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
110	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
111	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
112	1,8,15,22	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
113	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
The Average		0.85	0.98	1	0.87	0.99	1	0.84	0.97	1	0.86	0.98	1

### Question 2,9,16,23

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
74	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
75	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
76	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
77	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
78	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
79	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
80	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
81	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9
82	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
83	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
84	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
85	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
86	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
87	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.0	0.1	0.3
88	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
89	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
90	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
91	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
92	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
93	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
94	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
95	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
96	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5	0.1	0.3	0.5
97	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
98	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.0	0.1	0.3
99	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
100	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
101	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
102	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
103	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
104	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.1	0.3	0.5
105	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
106	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
107	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9
108	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
109	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
110	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.1	0.3	0.5
111	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
112	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.1	0.3	0.5
113	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
The Average		0.79	0.94	1	0.86	0.98	1	0.82	0.95	0.99	0.7	0.84	0.91

**Question 3,10,17,24**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
74	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
75	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
76	3,10,17,24	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0
77	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
78	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
79	3,10,17,24	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0
80	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
81	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
82	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
83	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
84	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
85	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
86	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
87	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
88	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
89	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
90	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
91	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
92	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
93	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
94	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
95	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
96	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
97	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
98	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
99	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
100	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
101	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
102	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
103	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
104	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
105	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
106	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
107	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
108	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
109	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
110	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
111	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
112	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
113	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.83	0.97	1	0.82	0.96	1	0.85	0.98	1	0.84	0.97	1

**Question 4,11,18,25**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
74	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
75	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0

76	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
77	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
78	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
79	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
80	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
81	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
82	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
83	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
84	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
85	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
86	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
87	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
88	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
89	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
90	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
91	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
92	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
93	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
94	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
95	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
96	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
97	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
98	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
99	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
100	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
101	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
102	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
103	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
104	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
105	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
106	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
107	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
108	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
109	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
110	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
111	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
112	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
113	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.84	0.97	1	0.84	0.97	1	0.83	0.96	1	0.85	0.98	1

### Question 5,12,19,26

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
74	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.5	0.7	0.9
75	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
76	5,12,19,26	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
77	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
78	5,12,19,26	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0
79	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
80	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0
81	5,12,19,26	0.5	0.7	0.9				0.9	1.0	1.0	0.5	0.7	0.9
82	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
83	5,12,19,26	0.7	0.9	1.0				0.9	1.0	1.0	0.7	0.9	1.0
84	5,12,19,26	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0
85	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.5	0.7	0.9
86	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
87	5,12,19,26	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.1	0.3	0.5

88	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
89	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
90	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
91	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
92	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.9	1.0	1.0
93	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
94	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
95	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
96	5,12,19,26	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
97	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
98	5,12,19,26	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5
99	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
100	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
101	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
102	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
103	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
104	5,12,19,26	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5
105	5,12,19,26	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0
106	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0
107	5,12,19,26	0.7	0.9	1.0				0.9	1.0	1.0	0.5	0.7	0.9
108	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
109	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
110	5,12,19,26	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.0	0.1	0.3
111	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
112	5,12,19,26	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
113	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.85	0.97	1.00	0.78	0.94	1.00	0.86	0.98	1.00	0.68	0.82	0.90

### Question 6,13,20,27

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
74	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.9	1.0	1.0
75	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
76	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
77	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
78	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0
79	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
80	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
81	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.9	1.0	1.0
82	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
83	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
84	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0
85	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
86	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
87	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
88	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
89	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
90	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0
91	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0
92	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.9	1.0	1.0
93	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
94	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
95	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
96	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
97	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
98	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
99	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0

100	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
101	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
102	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
103	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
104	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
105	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.9	1.0	1.0
106	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
107	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.7	0.9	1.0
108	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
109	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
110	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
111	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
112	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
113	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.83	0.97	1.00	0.90	1.00	1.00	0.83	0.97	1.00	0.83	0.97	1.00

### Question 7,14,21,28

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
74	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
75	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
76	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0
77	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0
78	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
79	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0
80	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
81	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0
82	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
83	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
84	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
85	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0
86	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
87	7,14,21,28	0.9	1.0	1.0	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0
88	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
89	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
90	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
91	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
92	7,14,21,28	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
93	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
94	7,14,21,28	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
95	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
96	7,14,21,28	0.9	1.0	1.0	0.0	0.1	0.3	0.7	0.9	1.0	0.9	1.0	1.0
97	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
98	7,14,21,28	0.9	1.0	1.0	0.1	0.3	0.5	0.9	1.0	1.0	0.7	0.9	1.0
99	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
100	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
101	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
102	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
103	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
104	7,14,21,28	0.7	0.9	1.0	0.1	0.3	0.5	0.9	1.0	1.0	0.7	0.9	1.0
105	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
106	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
107	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0
108	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
109	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
110	7,14,21,28	0.7	0.9	1.0	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0
111	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0

112	7,14,21,28	0.9	1.0	1.0	0.0	0.1	0.3	0.9	1.0	1.0	0.9	1.0	1.0
113	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.84	0.97	1	0.67	0.82	0.9	0.87	0.98	1	0.85	0.98	1

#### 4.2.3-Fuzzy Weight

##### 4.2.3.1- Triangular Fuzzy sets for fuzzy weights

Fuzzy Value			Fuzzy weights
1	Strongly Disagree	SD	(0.0, 0.0, 0.25)
2	Disagree	D	(0.0, 0.25, 0.5)
3	Neutral	N	(0.25, 0.5, 0.75)
4	Agree	A	(0.5, 0.75, 1.0)
5	Strongly Agree	SA	(0.75, 1.0, 1.0)

##### 4.2.3.2 English Language Average weights according to the statements (N=40).

##### Question 1,8,15,22 (Characteristic) for all sub-Attribute

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
74	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
75	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
76	1,8,15,22	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.75	1.0	1.0
77	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0
78	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
79	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
80	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
81	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
82	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
83	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
84	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
85	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
86	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
87	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0
88	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
89	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0
90	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
91	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0
92	1,8,15,22	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.75	1.0	1.0
93	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
94	1,8,15,22	0.50	0.75	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.50	0.75	1.0
95	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
96	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
97	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
98	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
99	1,8,15,22	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
100	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
101	1,8,15,22	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
102	1,8,15,22	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
103	1,8,15,22	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0
104	1,8,15,22	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0
105	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0

106	1,8,15,22	0.50	0.75	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.75	1.0	1.0
107	1,8,15,22	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0
108	1,8,15,22	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0
109	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
110	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
111	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
112	1,8,15,22	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.50	0.75	1.0
113	1,8,15,22	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0
The Average		0.69	0.94	1	0.72	0.97	1	0.68	0.93	1	0.71	0.96	1

### Question 2,9,16,23

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
74	2,9,16,23	0.50	0.75	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0
75	2,9,16,23	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
76	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
77	2,9,16,23	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0
78	2,9,16,23	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
79	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0
80	2,9,16,23	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0
81	2,9,16,23	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.50	0.75
82	2,9,16,23	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0
83	2,9,16,23	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
84	2,9,16,23	0.50	0.75	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.75	1.0	1.0
85	2,9,16,23	0.50	0.75	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.50	0.75	1.0
86	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
87	2,9,16,23	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.0	0.0	0.25
88	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
89	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0
90	2,9,16,23	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0
91	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
92	2,9,16,23	0.50	0.75	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.75	1.0	1.0
93	2,9,16,23	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
94	2,9,16,23	0.50	0.75	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.50	0.75	1.0
95	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0
96	2,9,16,23	0.50	0.75	1.0	0.50	0.75	1.0	0.0	0.25	0.50	0.0	0.25	0.50
97	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
98	2,9,16,23	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.0	0.0	0.25
99	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
100	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
101	2,9,16,23	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
102	2,9,16,23	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
103	2,9,16,23	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0
104	2,9,16,23	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.0	0.25	0.50
105	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
106	2,9,16,23	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0
107	2,9,16,23	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.50	0.75
108	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0
109	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
110	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.0	0.25	0.50
111	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0
112	2,9,16,23	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.0	0.25	0.50
113	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0
The Average		0.61	0.86	1	0.7	0.95	1	0.66	0.91	0.99	0.55	0.79	0.9



**Question 3,10,17,24**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
74	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0
75	3,10,17,24	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
76	3,10,17,24	0.75	1.0	1.0	0.25	0.50	0.75	0.75	1.0	1.0	0.75	1.0	1.0
77	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
78	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
79	3,10,17,24	0.75	1.0	1.0	0.25	0.50	0.75	0.75	1.0	1.0	0.50	0.75	1.0
80	3,10,17,24	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.50	0.75	1.0
81	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
82	3,10,17,24	0.50	0.75	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
83	3,10,17,24	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0
84	3,10,17,24	0.50	0.75	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0
85	3,10,17,24	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
86	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
87	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0
88	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
89	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0
90	3,10,17,24	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
91	3,10,17,24	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0
92	3,10,17,24	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0
93	3,10,17,24	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
94	3,10,17,24	0.50	0.75	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.50	0.75	1.0
95	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
96	3,10,17,24	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0
97	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
98	3,10,17,24	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.75	1.0	1.0
99	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
100	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
101	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
102	3,10,17,24	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
103	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
104	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
105	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
106	3,10,17,24	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0
107	3,10,17,24	0.50	0.75	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0
108	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0
109	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
110	3,10,17,24	0.50	0.75	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
111	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
112	3,10,17,24	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.50	0.75	1.0
113	3,10,17,24	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
<b>The Average</b>		<b>0.67</b>	<b>0.92</b>	<b>1</b>	<b>0.66</b>	<b>0.91</b>	<b>0.99</b>	<b>0.69</b>	<b>0.94</b>	<b>1</b>	<b>0.68</b>	<b>0.93</b>	<b>1</b>

**Question 4,11,18,25**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
74	4,11,18,25	0.50	0.75	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.75	1.0	1.0

75	4,11,18,25	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.75	1.0	1.0
76	4,11,18,25	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.75	1.0	1.0
77	4,11,18,25	0.50	0.75	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0
78	4,11,18,25	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.75	1.0	1.0
79	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0
80	4,11,18,25	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.75	1.0	1.0
81	4,11,18,25	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.75	1.0	1.0
82	4,11,18,25	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
83	4,11,18,25	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0
84	4,11,18,25	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
85	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
86	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
87	4,11,18,25	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0
88	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
89	4,11,18,25	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
90	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
91	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0
92	4,11,18,25	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0
93	4,11,18,25	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.50	0.75	1.0
94	4,11,18,25	0.50	0.75	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.50	0.75	1.0
95	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
96	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
97	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
98	4,11,18,25	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0
99	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
100	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
101	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
102	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
103	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
104	4,11,18,25	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.50	0.75	1.0
105	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
106	4,11,18,25	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0
107	4,11,18,25	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0
108	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
109	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
110	4,11,18,25	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
111	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
112	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
113	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
The Average		0.68	0.93	1	0.68	0.93	1	0.66	0.91	1	0.69	0.94	1

### Question 5,12,19,26

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
74	5,12,19,26	0.75	1.0	1.0				0.50	0.75	1.0	0.25	0.50	0.75
75	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0
76	5,12,19,26	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0
77	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.50	0.75	1.0
78	5,12,19,26	0.50	0.75	1.0				0.75	1.0	1.0	0.75	1.0	1.0
79	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.50	0.75	1.0
80	5,12,19,26	0.75	1.0	1.0				0.50	0.75	1.0	0.50	0.75	1.0
81	5,12,19,26	0.25	0.50	0.75				0.75	1.0	1.0	0.25	0.50	0.75
82	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
83	5,12,19,26	0.50	0.75	1.0				0.75	1.0	1.0	0.50	0.75	1.0
84	5,12,19,26	0.50	0.75	1.0				0.75	1.0	1.0	0.75	1.0	1.0
85	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.25	0.50	0.75
86	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0

87	5,12,19,26	0.75	1.0	1.0	0.50	0.75	1.0	0.25	0.50	0.75	0.0	0.25	0.50
88	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
89	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.50	0.75	1.0
90	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
91	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
92	5,12,19,26	0.25	0.50	0.75				0.50	0.75	1.0	0.75	1.0	1.0
93	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
94	5,12,19,26	0.50	0.75	1.0				0.50	0.75	1.0	0.50	0.75	1.0
95	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.50	0.75	1.0
96	5,12,19,26	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.0	0.0	0.25
97	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
98	5,12,19,26	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.0	0.25	0.50
99	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
100	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
101	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
102	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
103	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
104	5,12,19,26	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.0	0.25	0.50
105	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
106	5,12,19,26	0.75	1.0	1.0				0.50	0.75	1.0	0.50	0.75	1.0
107	5,12,19,26	0.50	0.75	1.0				0.75	1.0	1.0	0.25	0.50	0.75
108	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
109	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
110	5,12,19,26	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.0	0.0	0.25
111	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.50	0.75	1.0
112	5,12,19,26	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.0	0.0	0.25
113	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
The Average		0.69	0.94	0.99	0.63	0.88	1.00	0.69	0.94	0.99	0.52	0.75	0.88

### Question 6,13,20,27

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
74	6,13,20,27	0.75	1.0	1.0				0.50	0.75	1.0	0.75	1.0	1.0
75	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
76	6,13,20,27	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
77	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.50	0.75	1.0
78	6,13,20,27	0.50	0.75	1.0				0.75	1.0	1.0	0.75	1.0	1.0
79	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.50	0.75	1.0
80	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.50	0.75	1.0
81	6,13,20,27	0.75	1.0	1.0				0.50	0.75	1.0	0.75	1.0	1.0
82	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
83	6,13,20,27	0.50	0.75	1.0				0.50	0.75	1.0	0.50	0.75	1.0
84	6,13,20,27	0.50	0.75	1.0				0.75	1.0	1.0	0.75	1.0	1.0
85	6,13,20,27	0.50	0.75	1.0				0.50	0.75	1.0	0.50	0.75	1.0
86	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
87	6,13,20,27	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0
88	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
89	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
90	6,13,20,27	0.75	1.0	1.0				0.50	0.75	1.0	0.50	0.75	1.0
91	6,13,20,27	0.50	0.75	1.0				0.75	1.0	1.0	0.75	1.0	1.0
92	6,13,20,27	0.25	0.50	0.75				0.50	0.75	1.0	0.75	1.0	1.0
93	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
94	6,13,20,27	0.50	0.75	1.0				0.50	0.75	1.0	0.50	0.75	1.0
95	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
96	6,13,20,27	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
97	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
98	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0

99	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
100	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
101	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
102	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
103	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
104	6,13,20,27	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0
105	6,13,20,27	0.50	0.75	1.0				0.50	0.75	1.0	0.75	1.0	1.0
106	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.50	0.75	1.0
107	6,13,20,27	0.50	0.75	1.0				0.75	1.0	1.0	0.50	0.75	1.0
108	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
109	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
110	6,13,20,27	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0
111	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
112	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0
113	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
The Average		0.66	0.91	0.99	0.75	1.00	1.00	0.67	0.92	1.00	0.67	0.92	1.00

### Question 7,14,21,28

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
weights													
74	7,14,21,28	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
75	7,14,21,28	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.75	1.0	1.0
76	7,14,21,28	0.50	0.75	1.0	0.25	0.50	0.75	0.75	1.0	1.0	0.50	0.75	1.0
77	7,14,21,28	0.75	1.0	1.0	0.25	0.50	0.75	0.75	1.0	1.0	0.75	1.0	1.0
78	7,14,21,28	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0
79	7,14,21,28	0.75	1.0	1.0	0.25	0.50	0.75	0.75	1.0	1.0	0.75	1.0	1.0
80	7,14,21,28	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.50	0.75	1.0
81	7,14,21,28	0.75	1.0	1.0	0.25	0.50	0.75	0.75	1.0	1.0	0.50	0.75	1.0
82	7,14,21,28	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
83	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.50	0.75	1.0
84	7,14,21,28	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
85	7,14,21,28	0.50	0.75	1.0	0.25	0.50	0.75	0.75	1.0	1.0	0.75	1.0	1.0
86	7,14,21,28	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
87	7,14,21,28	0.75	1.0	1.0	0.0	0.25	0.50	0.75	1.0	1.0	0.75	1.0	1.0
88	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
89	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
90	7,14,21,28	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0
91	7,14,21,28	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
92	7,14,21,28	0.50	0.75	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
93	7,14,21,28	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
94	7,14,21,28	0.50	0.75	1.0	0.50	0.75	1.0	0.50	0.75	1.0	0.50	0.75	1.0
95	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
96	7,14,21,28	0.75	1.0	1.0	0.0	0.0	0.25	0.50	0.75	1.0	0.75	1.0	1.0
97	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
98	7,14,21,28	0.75	1.0	1.0	0.0	0.25	0.50	0.75	1.0	1.0	0.50	0.75	1.0
99	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
100	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
101	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
102	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
103	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
104	7,14,21,28	0.50	0.75	1.0	0.0	0.25	0.50	0.75	1.0	1.0	0.50	0.75	1.0
105	7,14,21,28	0.50	0.75	1.0	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0
106	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
107	7,14,21,28	0.50	0.75	1.0	0.25	0.50	0.75	0.50	0.75	1.0	0.50	0.75	1.0
108	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
109	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
110	7,14,21,28	0.50	0.75	1.0	0.0	0.25	0.50	0.75	1.0	1.0	0.75	1.0	1.0

111	7,14,21,28	0.75	1.0	1.0	0.50	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
112	7,14,21,28	0.75	1.0	1.0	0.0	0.0	0.25	0.75	1.0	1.0	0.75	1.0	1.0
113	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
The Average		0.68	0.93	1.00	0.51	0.74	0.87	0.71	0.96	1.00	0.69	0.94	1.00

**4.2.2.2- English Language Average ratings and weights according to the statements (N=40).**

**4.2.2.2-A Sup-attribute 1 (Effectiveness) Rating and weights for all the characteristics (7) for all users (N=40)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Effectiveness )					
		Ratings(R)			Weights(W)		
For all users 74 to 113	1	0.85	0.98	1.00	0.69	0.94	1.00
	2	0.79	0.94	1.00	0.61	0.86	1.00
	3	0.83	0.97	1.00	0.67	0.92	1.00
	4	0.84	0.97	1.00	0.68	0.93	1.00
	5	0.85	0.97	1.00	0.69	0.94	0.99
	6	0.83	0.97	1.00	0.66	0.91	0.99
	7	0.84	0.97	1.00	0.68	0.93	1.00

**4.2.2.2-B Sup-attribute 1 (Efficiency) Rating and weights for all the characteristics (7) for all users (N=40)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Efficiency )					
		Ratings(R)			Weights(W)		
For all users 74 to 113	8	0.87	0.99	1.00	0.72	0.97	1.00
	9	0.86	0.98	1.00	0.7	0.95	1.00
	10	0.82	0.96	1.00	0.66	0.91	0.99
	11	0.84	0.97	1.00	0.68	0.93	1.00
	12	0.78	0.94	1.00	0.63	0.88	1.00
	13	0.90	1.00	1.00	0.75	1.00	1.00
	14	0.67	0.82	0.9	0.51	0.74	0.87

**4.2.2.2-C Sup-attribute 1 (Satisfaction) Rating and weights for all the characteristics (7) for all users (N=40)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Satisfaction )					
		Ratings(R)			Weights(W)		
For all users 74 to 113	15	0.84	0.97	1.00	0.68	0.93	1.00
	16	0.82	0.95	0.99	0.66	0.91	0.99
	17	0.85	0.98	1.00	0.69	0.94	1.00
	18	0.83	0.96	1.00	0.66	0.91	1.00
	19	0.86	0.98	1.00	0.69	0.94	0.99
	20	0.83	0.97	1.00	0.67	0.92	1.00
	21	0.87	0.98	1.00	0.71	0.96	1.00

**4.2.2.2-D Sup-attribute 1 (Comprehensibility) Rating and weights for all the characteristics (7) for all users (N=40)**

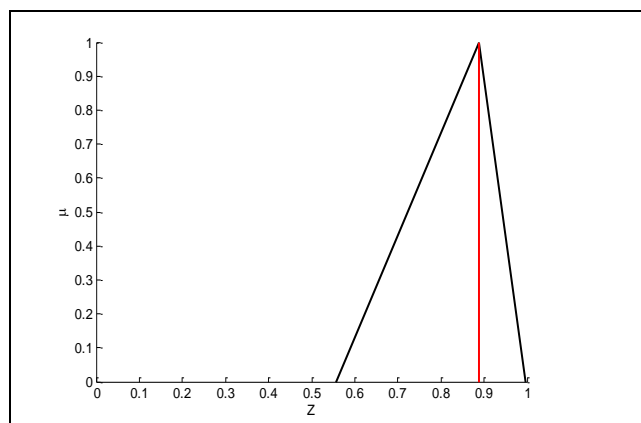
Serial Numbers for users	Characteristic	Sup-attribute 1 ( Comprehensibility)					
		Ratings(R)			Weights(W)		
For all users 74 to 113	22	0.86	0.98	1.00	0.71	0.96	1.00
	23	0.7	0.84	0.91	0.55	0.79	0.9
	24	0.84	0.97	1.00	0.68	0.93	1.00
	25	0.85	0.98	1.00	0.69	0.94	1.00
	26	0.68	0.82	0.90	0.52	0.75	0.88
	27	0.83	0.97	1.00	0.67	0.92	1.00
	28	0.85	0.98	1.00	0.69	0.94	1.00

Serial Numbers for users	Sup-attribute	attribute A - Effectiveness								
		Ratings(R)			Weights(W)			R*W		
For all users 74 to 113	1	0.85	0.98	1.00	0.69	0.94	1.00	0.59	0.92	1.00
	2	0.79	0.94	1.00	0.61	0.86	1.00	0.48	0.81	1.00
	3	0.83	0.97	1.00	0.67	0.92	1.00	0.56	0.89	1.00
	4	0.84	0.97	1.00	0.68	0.93	1.00	0.57	0.90	1.00
	5	0.85	0.97	1.00	0.69	0.94	0.99	0.59	0.91	0.99
	6	0.83	0.97	1.00	0.66	0.91	0.99	0.55	0.88	0.99
	7	0.84	0.97	1.00	0.68	0.93	1.00	0.57	0.90	1.00
<b>The Average</b>					<b>0.669</b>	<b>0.919</b>	<b>0.997</b>	<b>0.557</b>	<b>0.889</b>	<b>0.997</b>

Ratings (R), Effectiveness attribute A

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )/n

For Effectiveness: - R attribute A = (0.557, 0.889, 0.997)



Weight (W), Effectiveness attribute A

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute / n

For Effectiveness: - W sup-attribute 1 = (0.669, 0.919, 0.997)

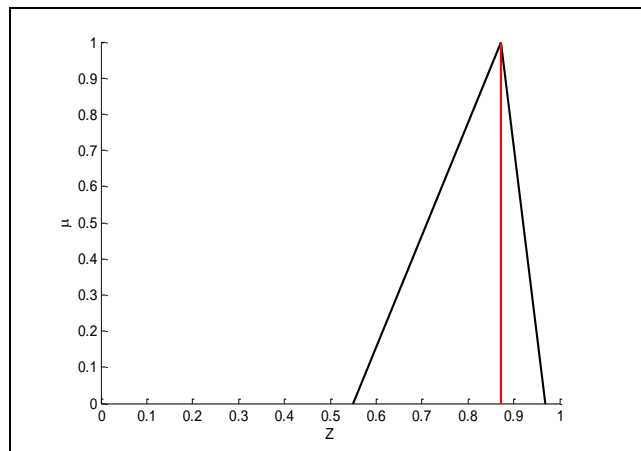
Attribute A ( Effectiveness )					
Ratings(R)			Weights(W)		
<b>0.557</b>	<b>0.889</b>	<b>0.997</b>	<b>0.669</b>	<b>0.919</b>	<b>0.997</b>

Serial Numbers for users	Sup-attribute	Attribute B - Efficiency								
		Ratings(R)			Weights(W)			R*W		
For all users 74 to 113	8	0.87	0.99	1.00	0.72	0.97	1.00	0.63	0.96	1.00
	9	0.86	0.98	1.00	0.7	0.95	1.00	0.60	0.93	1.00
	10	0.82	0.96	1.00	0.66	0.91	0.99	0.54	0.87	0.99
	11	0.84	0.97	1.00	0.68	0.93	1.00	0.57	0.90	1.00
	12	0.78	0.94	1.00	0.63	0.88	1.00	0.49	0.83	1.00
	13	0.90	1.00	1.00	0.75	1.00	1.00	0.68	1.00	1.00
	14	0.67	0.82	0.9	0.51	0.74	0.87	0.34	0.61	0.78
<b>The Average</b>					<b>0.664</b>	<b>0.911</b>	<b>0.980</b>	<b>0.550</b>	<b>0.872</b>	<b>0.968</b>

Ratings (R), **Efficiency** attribute B

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Efficiency**: - R attribute B = (0.550, 0.872,0.968)



Weight (W), **Efficiency** attribute B

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute / n

For **Efficiency**: - W attribute B = (0.664, 0.911,0.980)

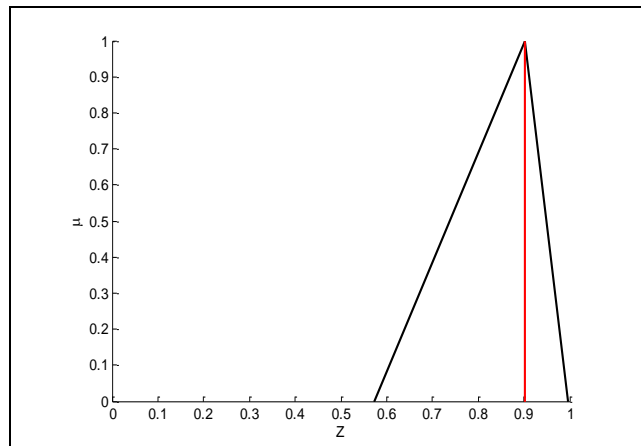
Attribute B ( Efficiency )					
Ratings(R)			Weights(W)		
<b>0.550</b>	<b>0.872</b>	<b>0.968</b>	<b>0.664</b>	<b>0.911</b>	<b>0.980</b>

Serial Numbers for users	Sup-attribute	Attribute C - Satisfaction								
		Ratings(R)			Weights(W)			R*W		
For all users 74 to 113	15	0.84	0.97	1.00	0.68	0.93	1.00	0.57	0.90	1.00
	16	0.82	0.95	0.99	0.66	0.91	0.99	0.54	0.86	0.98
	17	0.85	0.98	1.00	0.69	0.94	1.00	0.59	0.92	1.00
	18	0.83	0.96	1.00	0.66	0.91	1.00	0.55	0.87	1.00
	19	0.86	0.98	1.00	0.69	0.94	0.99	0.59	0.92	0.99
	20	0.83	0.97	1.00	0.67	0.92	1.00	0.56	0.89	1.00
	21	0.87	0.98	1.00	0.71	0.96	1.00	0.62	0.94	1.00
<b>The Average</b>					<b>0.680</b>	<b>0.930</b>	<b>0.997</b>	<b>0.573</b>	<b>0.902</b>	<b>0.996</b>

Ratings (R), Satisfaction attribute C

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Satisfaction**: - R attribute C = (0.573, 0.902,0.996)



Weight (W), Satisfaction attribute C

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute / n

For **Satisfaction**: - W attribute C = (0.680, 0.930,0.997)

Attribute C ( Satisfaction )					
Ratings(R)			Weights(W)		
<b>0.573</b>	<b>0.902</b>	<b>0.996</b>	<b>0.680</b>	<b>0.930</b>	<b>0.997</b>

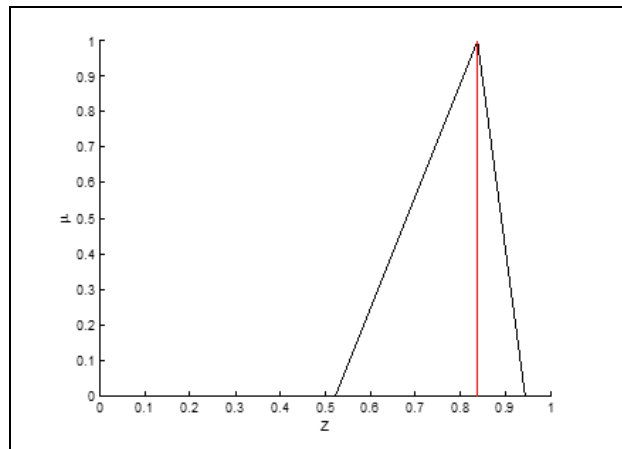


Serial Numbers for users	Sup-attribute	Attribute D - Comprehensibility								
		Ratings(R)			Weights(W)			R*W		
For all users 74 to 113	22	0.86	0.98	1.00	0.71	0.96	1.00	0.61	0.94	1.00
	23	0.7	0.84	0.91	0.55	0.79	0.9	0.39	0.66	0.82
	24	0.84	0.97	1.00	0.68	0.93	1.00	0.57	0.90	1.00
	25	0.85	0.98	1.00	0.69	0.94	1.00	0.59	0.92	1.00
	26	0.68	0.82	0.90	0.52	0.75	0.88	0.35	0.62	0.79
	27	0.83	0.97	1.00	0.67	0.92	1.00	0.56	0.89	1.00
	28	0.85	0.98	1.00	0.69	0.94	1.00	0.59	0.92	1.00
<b>The Average</b>					<b>0.644</b>	<b>0.890</b>	<b>0.969</b>	<b>0.521</b>	<b>0.837</b>	<b>0.944</b>

Ratings (R), **Comprehensibility** attribute D

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n)

For **Comprehensibility**: - R attribute D = (0.521, 0.837,0.944)



Weight (W), **Comprehensibility** attribute D

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute / n

For **Comprehensibility**: - W attribute D = (0.644, 0.890,0.969)

Attribute D ( Comprehensibility )					
Ratings(R)			Weights(W)		
<b>0.521</b>	<b>0.837</b>	<b>0.944</b>	<b>0.644</b>	<b>0.890</b>	<b>0.969</b>

#### 4.2.3.5- Ratings and weights of the Usability

The Variables	Fuzzy Rating (R)			Fuzzy weight (W)			R * W		
	Effectiveness	0.557	0.889	0.997	0.669	0.919	0.997	0.373	0.817
Efficiency	0.550	0.872	0.968	0.664	0.911	0.980	0.365	0.794	0.949
Satisfaction	0.573	0.902	0.996	0.680	0.930	0.997	0.390	0.839	0.993
Comprehensibility	0.521	0.837	0.944	0.644	0.890	0.969	0.336	0.745	0.915
<b>Average</b>				0.664	0.913	0.986	0.366	0.799	0.963

#### Ratings (R), Usability of English

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For Usability of English: - R Usability = (0.366, 0.799,0.963)

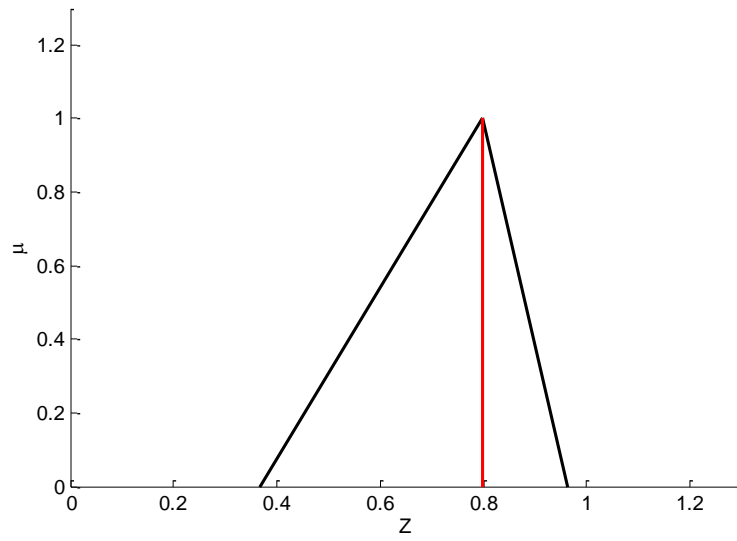
#### Weight (W), Usability of English

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For Usability of English: - W Usability = (0.664, 0.913,0.986)

Usability of English					
Ratings(R)			Weights(W)		
<b>0.366</b>	<b>0.799</b>	<b>0.963</b>	<b>0.664</b>	<b>0.913</b>	<b>0.986</b>

**R usability English =(0.366, 0.799, 0.963)**



### 4.3- The Result: (English Language)

English Language Application Usability =  $Z^* = 0.8934$

# 5- French Language

5.2.2.2- French Language Average ratings according to the statements (N=20).

Question 1,8,15,22 (Characteristic) for all Sub-attributes

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
114	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
115	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
116	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
117	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
118	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
119	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
120	1,8,15,22	0.1	0.3	0.5	0.7	0.9	1.0	0.1	0.3	0.5	0.7	0.9	1.0
121	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9
122	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
123	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
124	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
125	1,8,15,22	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
126	1,8,15,22	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
127	1,8,15,22	0.1	0.3	0.5	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
128	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0
129	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0
130	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
131	1,8,15,22	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
132	1,8,15,22	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
133	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
The Average		0.44	0.62	0.76	0.76	0.93	1.00	0.71	0.88	0.97	0.78	0.94	1.00

Questionnaires “Serial Numbers”	Statement No.	Question 2,9,16,23 Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
114	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
115	2,9,16,23	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
116	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.1	0.3	0.5
117	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
118	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
119	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.1	0.3	0.5
120	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9
121	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
122	2,9,16,23	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9
123	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
124	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.1	0.3	0.5
125	2,9,16,23	0.1	0.3	0.5	0.9	1.0	1.0	0.0	0.1	0.3	0.0	0.1	0.3
126	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9
127	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5
128	2,9,16,23	0.1	0.3	0.5	0.9	1.0	1.0	0.0	0.1	0.3	0.0	0.1	0.3
129	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
130	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
131	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
132	2,9,16,23	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0	0.1	0.3	0.5
133	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
The Average		0.55	0.74	0.89	0.78	0.94	1.00	0.65	0.83	0.93	0.38	0.55	0.70

Questionnaires “Serial Numbers”	Statement No.	Question 3,10,17,24 Characteristic for (EFFs, EFFy, SATn, COMp )												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
114	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
115	3,10,17,24	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
116	3,10,17,24	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
117	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
118	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
119	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3	
120	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
121	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5	0.9	1.0	1.0	
122	3,10,17,24	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
123	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
124	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.1	0.3	0.5	0.9	1.0	1.0	
125	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
126	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
127	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
128	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
129	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
130	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
131	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
132	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
133	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
The Average		0.72	0.90	0.99	0.74	0.92	1.00	0.70	0.87	0.95	0.74	0.90	0.97	

Questionnaires “Serial Numbers”	Statement No.	Question 4,11,18,25 Characteristic for (EFFs, EFFy, SATn, COMp )												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
114	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0	
115	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
116	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	
117	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
118	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
119	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.0	0.1	0.3	0.5	0.7	0.9	
120	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
121	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
122	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
123	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
124	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5	0.7	0.9	1.0	
125	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5	0.7	0.9	1.0	
126	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
127	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	
128	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.1	0.3	0.5	0.9	1.0	1.0	
129	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	
130	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
131	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
132	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5	0.7	0.9	1.0	
133	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
The Average		0.77	0.94	1.00	0.83	0.97	1.00	0.58	0.74	0.85	0.72	0.90	0.99	

Questionnaires “Serial Numbers”	Statement No.	Question 5,12,19,26 Characteristic for (EFFs, EFFy, SATn, COMp )												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
114	5,12,19,26	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
115	5,12,19,26	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0	
116	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.1	0.3	0.5	
117	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.9	1.0	1.0	
118	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0	
119	5,12,19,26	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3	
120	5,12,19,26	0.7	0.9	1.0				0.1	0.3	0.5	0.5	0.7	0.9	
121	5,12,19,26	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5	
122	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.5	0.7	0.9	
123	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.5	0.7	0.9	
124	5,12,19,26	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5	
125	5,12,19,26	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5	
126	5,12,19,26	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.5	0.7	0.9	
127	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
128	5,12,19,26	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5	
129	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.9	1.0	1.0	
130	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0	
131	5,12,19,26	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.5	0.7	0.9	
132	5,12,19,26	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.0	0.1	0.3	
133	5,12,19,26	0.7	0.9	1.0			0.5	0.7	0.9	1.0	0.7	0.9	1.0	
The Average		0.82	0.96	1.00	0.68	0.87	0.94	0.73	0.90	0.98	0.46	0.64	0.78	

Questionnaires “Serial Numbers”	Statement No.	Question 6,13,20,27 Characteristic for (EFFs, EFFy, SATn, COMp )												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
114	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	
115	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0	
116	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
117	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.9	1.0	1.0	
118	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0	
119	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5	0.7	0.9	1.0	
120	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
121	6,13,20,27	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
122	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
123	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
124	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
125	6,13,20,27	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
126	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
127	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.9	1.0	1.0	
128	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
129	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.5	0.7	0.9	
130	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0	
131	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
132	6,13,20,27	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
133	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
The Average		0.81	0.96	1.00	0.83	0.96	1.00	0.71	0.89	0.97	0.75	0.92	1.00	

**Question 7,14,21,28**

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
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Ratings		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
114	7,14,21,28	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
115	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
116	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
117	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
118	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0
119	7,14,21,28	0.1	0.3	0.5	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0
120	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.5	0.7	0.9	0.7	0.9	1.0
121	7,14,21,28	0.0	0.1	0.3	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
122	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0
123	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0
124	7,14,21,28	0.1	0.3	0.5	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0
125	7,14,21,28	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
126	7,14,21,28	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
127	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0
128	7,14,21,28	0.1	0.3	0.5	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0
129	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
130	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
131	7,14,21,28	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
132	7,14,21,28	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
133	7,14,21,28	0.7	0.9	1.0	0.1	0.3		0.9	1.0	1.0	0.7	0.9	1.0
The Average		0.60	0.75	0.84	0.60	0.76	0.88	0.80	0.95	1.00	0.84	0.97	1.00

### 5.2.3-Fuzzy Weight

#### 5.2.3.1- Triangular Fuzzy sets for fuzzy weights

Fuzzy Value			Fuzzy weights
1	Strongly Disagree	SD	(0.0, 0.0, 0.25)
2	Disagree	D	(0.0, 0.25, 0.5)
3	Neutral	N	(0.25, 0.5, 0.75)
4	Agree	A	(0.5, 0.75, 1.0)
5	Strongly Agree	SA	(0.75, 1.0, 1.0)

#### 5.2.3.2 French Language Average weights according to the statements (N=20).

##### Question 1,8,15,22 (Characteristic) for all sub-Attribute

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
114	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
115	1,8,15,22	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
116	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
117	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
118	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
119	1,8,15,22	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
120	1,8,15,22	0.0	0.25	0.5	0.5	0.75	1.0	0.0	0.25	0.5	0.5	0.75	1.0
121	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.5	0.75
122	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
123	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
124	1,8,15,22	0.25	0.5	0.75	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0

125	1,8,15,22	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
126	1,8,15,22	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
127	1,8,15,22	0.0	0.25	0.5	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
128	1,8,15,22	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75	0.5	0.75	1.0
129	1,8,15,22	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75	0.75	1.0	1.0
130	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
131	1,8,15,22	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
132	1,8,15,22	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
133	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
The Average		0.29	0.50	0.74	0.58	0.83	1.00	0.53	0.78	0.95	0.60	0.85	0.99

Questionnaires “Serial Numbers”	Statement No.	Question 2,9,16,23 Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
weights													
114	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
115	2,9,16,23	0.25	0.5	0.75	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
116	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75	0.0	0.25	0.5
117	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
118	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
119	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.0	0.25	0.5
120	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75
121	2,9,16,23	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
122	2,9,16,23	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75
123	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
124	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.0	0.25	0.5
125	2,9,16,23	0.0	0.25	0.5	0.75	1.0	1.0	0.0	0.0	0.25	0.0	0.0	0.25
126	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75
127	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1.0	0.75	1.0	1.0	0.0	0.25	0.5
128	2,9,16,23	0.0	0.25	0.5	0.75	1.0	1.0	0.0	0.0	0.25	0.0	0.0	0.25
129	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
130	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
131	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
132	2,9,16,23	0.25	0.5	0.75	0.75	1.0	1.0	0.5	0.75	1.0	0.0	0.25	0.5
133	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
The Average		0.35	0.60	0.83	0.60	0.85	1.00	0.48	0.70	0.91	0.25	0.45	0.66

Questionnaires “Serial Numbers”	Statement No.	Question 3,10,17,24 Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
weights													
114	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
115	3,10,17,24	0.25	0.5	0.75	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
116	3,10,17,24	0.25	0.5	0.75	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
117	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
118	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
119	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
120	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
121	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5	0.75	1.0	1.0
122	3,10,17,24	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
123	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0



124	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.0	0.25	0.5	0.75	1.0	1.0
125	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
126	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
127	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
128	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
129	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
130	3,10,17,24	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
131	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
132	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
133	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
The Average		0.53	0.78	0.96	0.55	0.80	1.00	0.53	0.78	0.95	0.56	0.80	0.96

Questionnaires “Serial Numbers”	Statement No.	Question 4,11,18,25 Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
114	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.5	0.75	0.5	0.75	1.0
115	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
116	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75	0.75	1.0	1.0
117	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
118	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
119	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.0	0.0	0.25	0.25	0.5	0.75
120	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
121	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
122	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
123	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
124	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.0	0.25	0.5	0.5	0.75	1.0
125	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.0	0.25	0.5	0.5	0.75	1.0
126	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
127	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75
128	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.0	0.25	0.5	0.75	1.0	1.0
129	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.5	0.75	0.75	1.0	1.0
130	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
131	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
132	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.0	0.25	0.5	0.5	0.75	1.0
133	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
The Average		0.59	0.84	1.00	0.66	0.91	1.00	0.41	0.65	0.83	0.53	0.78	0.98

Questionnaires “Serial Numbers”	Statement No.	Question 5,12,19,26 Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
114	5,12,19,26	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
115	5,12,19,26	0.5	0.75	1.0				0.75	1.0	1.0	0.75	1.0	1.0
116	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.0	0.25	0.5
117	5,12,19,26	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
118	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.5	0.75	1.0
119	5,12,19,26	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
120	5,12,19,26	0.5	0.75	1.0				0.0	0.25	0.5	0.25	0.5	0.75
121	5,12,19,26	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
122	5,12,19,26	0.75	1.0	1.0				0.5	0.75	1.0	0.25	0.5	0.75
123	5,12,19,26	0.75	1.0	1.0				0.5	0.75	1.0	0.25	0.5	0.75
124	5,12,19,26	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5

125	5,12,19,26	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
126	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.25	0.5	0.75
127	5,12,19,26	0.75	1.0	1.0				0.5	0.75	1.0	0.5	0.75	1.0
128	5,12,19,26	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.0	0.25	0.5
129	5,12,19,26	0.75	1.0	1.0				0.5	0.75	1.0	0.75	1.0	1.0
130	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
131	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.25	0.5	0.75
132	5,12,19,26	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.0	0.0	0.25
133	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
The Average		0.65	0.90	1.00	0.58	0.83	1.00	0.55	0.80	0.98	0.30	0.53	0.74

Questionnaires “Serial Numbers”	Statement No.	Question 6,13,20,27 Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
114	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.5	0.75	0.75	1.0	1.0
115	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
116	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
117	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.75	1.0	1.0
118	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
119	6,13,20,27	0.5	0.75	1.0	0.75	1.0	1.0	0.0	0.25	0.5	0.5	0.75	1.0
120	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
121	6,13,20,27	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
122	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.5	0.75	1.0
123	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.5	0.75	1.0
124	6,13,20,27	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
125	6,13,20,27	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
126	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
127	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.75	1.0	1.0
128	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
129	6,13,20,27	0.5	0.75	1.0				0.75	1.0	1.0	0.25	0.5	0.75
130	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
131	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
132	6,13,20,27	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
133	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
The Average		0.64	0.89	1.00	0.66	0.91	1.00	0.53	0.78	0.96	0.56	0.81	0.99

Questionnaires “Serial Numbers”	Statement No.	Question 7,14,21,28 Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
114	7,14,21,28	0.25	0.5	0.75	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
115	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
116	7,14,21,28	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
117	7,14,21,28	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
118	7,14,21,28	0.75	1.0	1.0	0.25	0.5	0.75	0.5	0.75	1.0	0.75	1.0	1.0
119	7,14,21,28	0.0	0.25	0.5	0.0	0.25	0.5	0.75	1.0	1.0	0.75	1.0	1.0
120	7,14,21,28	0.5	0.75	1.0	0.25	0.5	0.75	0.25	0.5	0.75	0.5	0.75	1.0
121	7,14,21,28	0.0	0.0	0.25	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
122	7,14,21,28	0.75	1.0	1.0	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0
123	7,14,21,28	0.75	1.0	1.0	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0
124	7,14,21,28	0.0	0.25	0.5	0.0	0.25	0.5	0.75	1.0	1.0	0.75	1.0	1.0
125	7,14,21,28	0.0	0.25	0.5	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0

126	7,14,21,28	0.5	0.75	1.0	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0
127	7,14,21,28	0.75	1.0	1.0	0.25	0.5	0.75	0.5	0.75	1.0	0.75	1.0	1.0
128	7,14,21,28	0.0	0.25	0.5	0.0	0.25	0.5	0.75	1.0	1.0	0.75	1.0	1.0
129	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
130	7,14,21,28	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
131	7,14,21,28	0.5	0.75	1.0	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0
132	7,14,21,28	0.0	0.25	0.5	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
133	7,14,21,28	0.5	0.75	1.0	0.0	0.25	0.5	0.75	1.0	1.0	0.5	0.75	1.0
The Average		0.45	0.69	0.83	0.38	0.63	0.79	0.63	0.88	0.99	0.68	0.93	1.00

**5.2.2.2- French Language Average ratings and weights according to the statements (N=20).**

**5.2.2.2-A Sup-attribute 1 (Effectiveness) Rating and weights for all the characteristics (7) for all users (N=20)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Effectiveness )					
		Ratings(R)			Weights(W)		
For all users 114 to 133	1	0.20	0.41	0.64	0.29	0.50	0.74
	2	0.24	0.49	0.76	0.35	0.60	0.83
	3	0.40	0.71	0.95	0.53	0.78	0.96
	4	0.46	0.79	1.00	0.59	0.84	1.00
	5	0.55	0.87	1.00	0.65	0.90	1.00
	6	0.53	0.85	1.00	0.64	0.89	1.00
	7	0.38	0.62	0.75	0.45	0.69	0.83

**5.2.2.2-B Sup-attribute 1 (Efficiency) Rating and weights for all the characteristics (7) for all users (N=20)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Efficiency )					
		Ratings(R)			Weights(W)		
For all users 114 to 133	8	0.45	0.77	1.00	0.58	0.83	1.00
	9	0.48	0.81	1.00	0.60	0.85	1.00
	10	0.42	0.74	1.00	0.55	0.80	1.00
	11	0.56	0.89	1.00	0.66	0.91	1.00
	12	0.39	0.72	1.00	0.53	0.78	1.00
	13	0.55	0.88	1.00	0.66	0.91	1.00
	14	0.31	0.55	0.70	0.39	0.64	0.80

**5.2.2.2-C Sup-attribute 1 (Satisfaction) Rating and weights for all the characteristics (7) for all users (N=20)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Satisfaction )					
		Ratings(R)			Weights(W)		
For all users 114 to 133	15	0.41	0.71	0.93	0.53	0.78	0.95
	16	0.35	0.64	0.89	0.48	0.70	0.91
	17	0.41	0.71	0.93	0.53	0.78	0.95
	18	0.33	0.57	0.76	0.41	0.65	0.83
	19	0.43	0.74	0.96	0.55	0.80	0.98
	20	0.40	0.71	0.95	0.53	0.78	0.96

	<b>21</b>	<b>0.52</b>	<b>0.84</b>	<b>0.98</b>	<b>0.63</b>	<b>0.88</b>	<b>0.99</b>
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**5.2.2.2-D Sup-attribute 1 (Comprehensibility) Rating and weights for all the characteristics (7) for all users (N=20)**

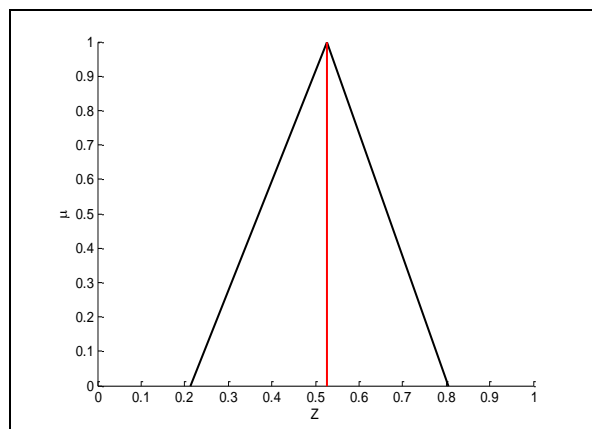
Serial Numbers for users	Characteristic	Sup-attribute 1 ( Comprehensibility)					
		Ratings(R)			Weights(W)		
For all users 114 to 133	22	0.49	0.81	0.98	0.60	0.85	0.99
	23	0.19	0.36	0.54	0.25	0.45	0.66
	24	0.45	0.76	0.95	0.56	0.80	0.96
	25	0.39	0.71	0.97	0.53	0.78	0.98
	26	0.22	0.43	0.64	0.30	0.53	0.74
	27	0.44	0.76	0.98	0.56	0.81	0.99
	28	0.58	0.90	1.00	0.68	0.93	1.00

Serial Numbers for users	Sup-attribute	attribute A - Effectiveness								
		Ratings(R)			Weights(W)			R*W		
For all users 114 to 133	1	0.20	0.41	0.64	0.29	0.50	0.74	0.06	0.21	0.47
	2	0.24	0.49	0.76	0.35	0.60	0.83	0.08	0.29	0.63
	3	0.40	0.71	0.95	0.53	0.78	0.96	0.21	0.55	0.91
	4	0.46	0.79	1.00	0.59	0.84	1.00	0.27	0.66	1.00
	5	0.55	0.87	1.00	0.65	0.90	1.00	0.36	0.78	1.00
	6	0.53	0.85	1.00	0.64	0.89	1.00	0.34	0.76	1.00
	7	0.38	0.62	0.75	0.45	0.69	0.83	0.17	0.43	0.62
<b>The Average</b>					0.500	0.743	0.909	0.213	0.526	0.806

Ratings (R), Effectiveness attribute A

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For Effectiveness: - R attribute A = (0.213, 0.526, 0.806)



Weight (W), Effectiveness attribute A

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For Effectiveness: - W sup-attribute 1 = (0.500, 0.743, 0.909)

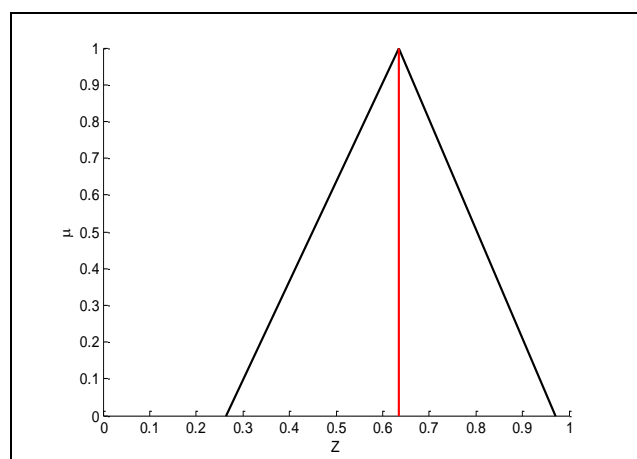
Attribute A ( Effectiveness )					
Ratings(R)			Weights(W)		
<b>0.213</b>	<b>0.526</b>	<b>0.806</b>	<b>0.500</b>	<b>0.743</b>	<b>0.909</b>

Serial Numbers for users	Sup-attribute	Attribute B - Efficiency								
		Ratings(R)			Weights(W)			R*W		
For all users 114 to 133	8	<b>0.45</b>	<b>0.77</b>	<b>1.00</b>	<b>0.58</b>	<b>0.83</b>	<b>1.00</b>	<b>0.26</b>	<b>0.64</b>	<b>1.00</b>
	9	<b>0.48</b>	<b>0.81</b>	<b>1.00</b>	<b>0.60</b>	<b>0.85</b>	<b>1.00</b>	<b>0.29</b>	<b>0.69</b>	<b>1.00</b>
	10	<b>0.42</b>	<b>0.74</b>	<b>1.00</b>	<b>0.55</b>	<b>0.80</b>	<b>1.00</b>	<b>0.23</b>	<b>0.59</b>	<b>1.00</b>
	11	<b>0.56</b>	<b>0.89</b>	<b>1.00</b>	<b>0.66</b>	<b>0.91</b>	<b>1.00</b>	<b>0.37</b>	<b>0.81</b>	<b>1.00</b>
	12	<b>0.39</b>	<b>0.72</b>	<b>1.00</b>	<b>0.53</b>	<b>0.78</b>	<b>1.00</b>	<b>0.21</b>	<b>0.56</b>	<b>1.00</b>
	13	<b>0.55</b>	<b>0.88</b>	<b>1.00</b>	<b>0.66</b>	<b>0.91</b>	<b>1.00</b>	<b>0.36</b>	<b>0.80</b>	<b>1.00</b>
	14	<b>0.31</b>	<b>0.55</b>	<b>0.70</b>	<b>0.39</b>	<b>0.64</b>	<b>0.80</b>	<b>0.12</b>	<b>0.35</b>	<b>0.56</b>
<b>The Average</b>					<b>0.567</b>	<b>0.817</b>	<b>0.971</b>	<b>0.263</b>	<b>0.635</b>	<b>0.937</b>

Ratings (R), Efficiency attribute B

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For Efficiency: - R attribute B = (0.263, 0.635,0.937)



Weight (W), Efficiency attribute B

$W \text{ attribute} = W \text{ sup-attribute } 1 + W \text{ sup-attribute } 2 + \dots + W \text{ sup-attribute } n$

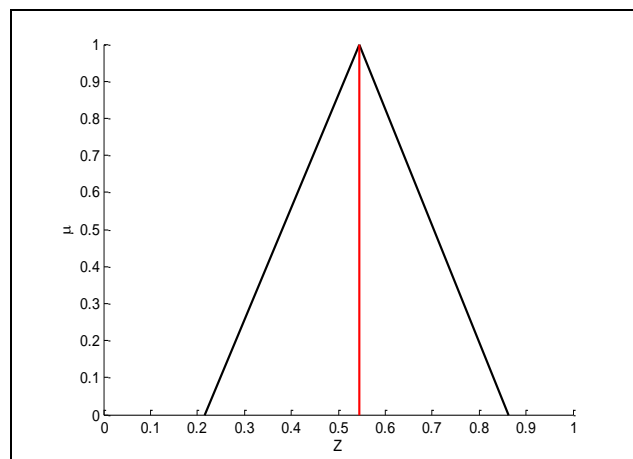
For **Efficiency**: -  $W \text{ attribute } B = (0.567, 0.817, 0.971)$

Attribute B ( Efficiency )										
Ratings(R)					Weights(W)					
<b>0.263</b>		<b>0.635</b>		<b>0.937</b>	<b>0.567</b>		<b>0.817</b>		<b>0.971</b>	
Serial Numbers for users	Sup-attribute	Attribute C - Satisfaction								
		Ratings(R)			Weights(W)			R*W		
For all users 114 to 133	15	<b>0.41</b>	<b>0.71</b>	<b>0.93</b>	<b>0.53</b>	<b>0.78</b>	<b>0.95</b>	<b>0.22</b>	<b>0.55</b>	<b>0.88</b>
	16	<b>0.35</b>	<b>0.64</b>	<b>0.89</b>	<b>0.48</b>	<b>0.70</b>	<b>0.91</b>	<b>0.17</b>	<b>0.45</b>	<b>0.81</b>
	17	<b>0.41</b>	<b>0.71</b>	<b>0.93</b>	<b>0.53</b>	<b>0.78</b>	<b>0.95</b>	<b>0.22</b>	<b>0.55</b>	<b>0.88</b>
	18	<b>0.33</b>	<b>0.57</b>	<b>0.76</b>	<b>0.41</b>	<b>0.65</b>	<b>0.83</b>	<b>0.14</b>	<b>0.37</b>	<b>0.63</b>
	19	<b>0.43</b>	<b>0.74</b>	<b>0.96</b>	<b>0.55</b>	<b>0.80</b>	<b>0.98</b>	<b>0.24</b>	<b>0.59</b>	<b>0.94</b>
	20	<b>0.40</b>	<b>0.71</b>	<b>0.95</b>	<b>0.53</b>	<b>0.78</b>	<b>0.96</b>	<b>0.21</b>	<b>0.55</b>	<b>0.91</b>
	21	<b>0.52</b>	<b>0.84</b>	<b>0.98</b>	<b>0.63</b>	<b>0.88</b>	<b>0.99</b>	<b>0.33</b>	<b>0.74</b>	<b>0.97</b>
<b>The Average</b>					<b>0.523</b>	<b>0.767</b>	<b>0.939</b>	<b>0.216</b>	<b>0.544</b>	<b>0.862</b>

Ratings (R), **Satisfaction** attribute C

$R \text{ attribute} = (R \text{ sup-attribute } 1 * W \text{ sup-attribute } 1 + R \text{ sup-attribute } 2 * W \text{ sup-attribute } 2 + \dots + R \text{ sup-attribute } n * W \text{ sup-attribute } n)$

For **Satisfaction**: -  $R \text{ attribute } C = (0.216, 0.544, 0.862)$



Weight (W), **Satisfaction** attribute C

$W \text{ attribute} = W \text{ sup-attribute } 1 + W \text{ sup-attribute } 2 + \dots + W \text{ sup-attribute } n$

For **Satisfaction**: -  $W \text{ attribute } C = (0.523, 0.767, 0.939)$

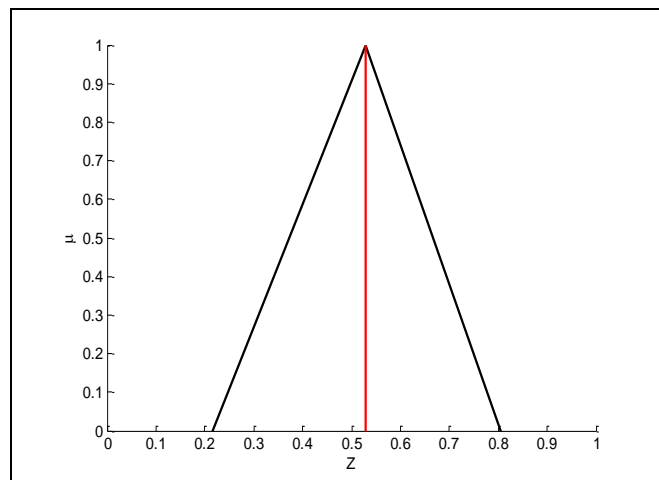
Attribute C ( Satisfaction )					
Ratings(R)			Weights(W)		
<b>0.216</b>	<b>0.544</b>	<b>0.862</b>	<b>0.523</b>	<b>0.767</b>	<b>0.939</b>

Serial Numbers for users	Sup-attribute	Attribute D - Comprehensibility								
		Ratings(R)			Weights(W)			R*W		
For all users 114 to 133	22	<b>0.49</b>	<b>0.81</b>	<b>0.98</b>	<b>0.60</b>	<b>0.85</b>	<b>0.99</b>	<b>0.29</b>	<b>0.69</b>	<b>0.97</b>
	23	<b>0.19</b>	<b>0.36</b>	<b>0.54</b>	<b>0.25</b>	<b>0.45</b>	<b>0.66</b>	<b>0.05</b>	<b>0.16</b>	<b>0.36</b>
	24	<b>0.45</b>	<b>0.76</b>	<b>0.95</b>	<b>0.56</b>	<b>0.80</b>	<b>0.96</b>	<b>0.25</b>	<b>0.61</b>	<b>0.91</b>
	25	<b>0.39</b>	<b>0.71</b>	<b>0.97</b>	<b>0.53</b>	<b>0.78</b>	<b>0.98</b>	<b>0.21</b>	<b>0.55</b>	<b>0.95</b>
	26	<b>0.22</b>	<b>0.43</b>	<b>0.64</b>	<b>0.30</b>	<b>0.53</b>	<b>0.74</b>	<b>0.07</b>	<b>0.23</b>	<b>0.47</b>
	27	<b>0.44</b>	<b>0.76</b>	<b>0.98</b>	<b>0.56</b>	<b>0.81</b>	<b>0.99</b>	<b>0.25</b>	<b>0.62</b>	<b>0.97</b>
	28	<b>0.58</b>	<b>0.90</b>	<b>1.00</b>	<b>0.68</b>	<b>0.93</b>	<b>1.00</b>	<b>0.39</b>	<b>0.84</b>	<b>1.00</b>

Ratings (R), **Comprehensibility** attribute D

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Comprehensibility**: - R attribute D = (0.215, 0.528,0.805)



Weight (W), **Comprehensibility** attribute D

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Comprehensibility**: - W attribute D = (0.497, 0.736,0.903)

Attribute D ( Comprehensibility )					
Ratings(R)			Weights(W)		
<b>0.215</b>	<b>0.528</b>	<b>0.805</b>	<b>0.497</b>	<b>0.736</b>	<b>0.903</b>

**5.2.3.5- Ratings and weights of the Usability**

The Variables	Fuzzy Rating (R)			Fuzzy weight (W)			R * W		
	Effectiveness	0.213	0.526	0.806	0.500	0.743	0.909	0.107	0.391
Efficiency	0.263	0.635	0.937	0.567	0.817	0.971	0.149	0.519	0.910
Satisfaction	0.216	0.544	0.862	0.523	0.767	0.939	0.113	0.417	0.809
Comprehensibility	0.215	0.528	0.805	0.497	0.736	0.903	0.107	0.389	0.727
Average				0.522	0.766	0.931	0.119	0.429	0.795

Ratings (R), Usability of French

$$R \text{ attribute} = (R \text{ sup-attribute } 1 * W \text{ sup-attribute } 1 + R \text{ sup-attribute } 2 * W \text{ sup-attribute } 2 + \dots + R \text{ sup-attribute } n * W \text{ sup-attribute } n)$$

For Usability of French: - R Usability = (0.119, 0.429, 0.795)

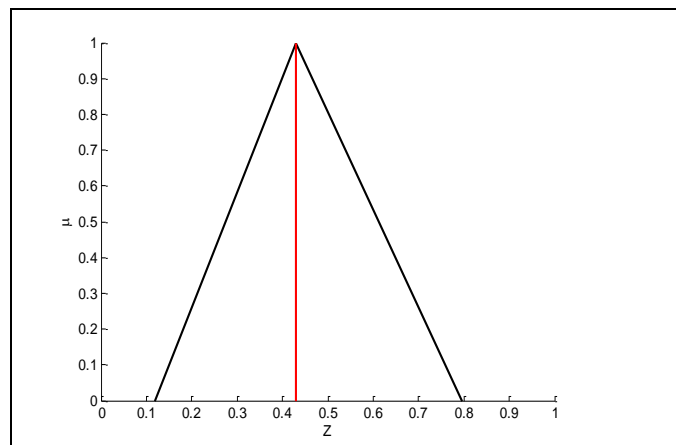
Weight (W), Usability of French

$$W \text{ attribute} = W \text{ sup-attribute } 1 + W \text{ sup-attribute } 2 + \dots + W \text{ sup-attribute } n$$

For Usability of French: - W Usability = (0.522, 0.766, 0.931)

Usability of French					
Ratings(R)			Weights(W)		
<b>0.119</b>	<b>0.429</b>	<b>0.795</b>	<b>0.522</b>	<b>0.766</b>	<b>0.931</b>

**R usability French = (0.119, 0.429, 0.795)**



**R = 0.438**

**French Language Application Usability  $Z^* = 0.438$**



# 6- Italian Language

## 6.2.2.2- Italian Language Average ratings according to the statements (N=27).

### Question 1,8,15,22 (Characteristic) for all Sub-attributes

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
134	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
135	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
136	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
137	1,8,15,22	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
138	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	
139	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
140	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
141	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
142	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	
143	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
144	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
145	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
146	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
147	1,8,15,22	0.1	0.3	0.5	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
148	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
149	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
150	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
151	1,8,15,22	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
152	1,8,15,22	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
153	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
154	1,8,15,22	0.0	0.1	0.3	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	
155	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
156	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
157	1,8,15,22	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
158	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
159	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
160	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
The Average		0.34	0.49	0.65	0.73	0.91	1.00	0.76	0.92	0.99	0.79	0.94	1.00	

### Question 2,9,16,23

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
134	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
135	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
136	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
137	2,9,16,23	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	

138	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
139	2,9,16,23	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
140	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
141	2,9,16,23	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
142	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
143	2,9,16,23	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
144	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.1	0.3	0.5
145	2,9,16,23	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
146	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.1	0.3	0.5
147	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0
148	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9
149	2,9,16,23	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
150	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
151	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
152	2,9,16,23	0.7	0.9	1.0	0.5	0.7	0.9	0.5	0.7	0.9	0.0	0.1	0.3
153	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.1	0.3	0.5
154	2,9,16,23	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
155	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
156	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
157	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
158	2,9,16,23	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
159	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5	0.0	0.1	0.3
160	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.1	0.3	0.5
The Average		0.52	0.70	0.84	0.74	0.91	1.00	0.71	0.89	0.97	0.30	0.46	0.62

### Question 3,10,17,24

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
134	3,10,17,24	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0
135	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
136	3,10,17,24	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.5	0.7	0.9
137	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0
138	3,10,17,24	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0
139	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
140	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
141	3,10,17,24	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
142	3,10,17,24	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
143	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
144	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
145	3,10,17,24	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
146	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
147	3,10,17,24	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0
148	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
149	3,10,17,24	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
150	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0
151	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
152	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
153	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0

154	3,10,17,24	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
155	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
156	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
157	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
158	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
159	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
160	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.73	0.89	0.98	0.71	0.89	0.99	0.77	0.93	0.99	0.79	0.94	1.00

### Question 4,11,18,25

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
134	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
135	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0
136	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9
137	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
138	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0
139	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
140	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
141	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
142	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
143	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
144	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
145	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
146	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
147	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
148	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
149	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
150	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
151	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
152	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
153	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9
154	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
155	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
156	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
157	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
158	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
159	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
160	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
The Average		0.75	0.93	1.00	0.78	0.94	1.00	0.73	0.91	0.99	0.73	0.89	0.97

### Question 5,12,19,26

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
134	5,12,19,26	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
135	5,12,19,26	0.5	0.7	0.9				0.7	0.9	1.0	0.7	0.9	1.0

136	5,12,19,26	0.5	0.7	0.9				0.7	0.9	1.0	0.7	0.9	1.0
137	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
138	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
139	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
140	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
141	5,12,19,26	0.7	0.9	1.0	0.1	0.3	0.5	0.7	0.9	1.0	0.9	1.0	1.0
142	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0
143	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
144	5,12,19,26	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
145	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.9	1.0	1.0
146	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
147	5,12,19,26	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
148	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
149	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
150	5,12,19,26	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
151	5,12,19,26	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5	0.7	0.9	1.0
152	5,12,19,26	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0
153	5,12,19,26	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
154	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
155	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.5	0.7	0.9
156	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.1	0.3	0.5
157	5,12,19,26	0.7	0.9	1.0				0.9	1.0	1.0	0.7	0.9	1.0
158	5,12,19,26	0.9	1.0	1.0	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0
159	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
160	5,12,19,26	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
The Average		0.77	0.93	0.99	0.68	0.83	0.90	0.75	0.91	0.98	0.70	0.87	0.96

### Question 6,13,20,27

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
134	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	
135	6,13,20,27	0.5	0.7	0.9				0.5	0.7	0.9	0.5	0.7	0.9	
136	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.7	0.9	1.0	
137	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.5	0.7	0.9	
138	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.5	0.7	0.9	
139	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
140	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.9	1.0	1.0	
141	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0	
142	6,13,20,27	0.9	1.0	1.0				0.5	0.7	0.9	0.9	1.0	1.0	
143	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0	
144	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
145	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0	
146	6,13,20,27	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
147	6,13,20,27	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
148	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
149	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.7	0.9	1.0	
150	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
151	6,13,20,27	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
152	6,13,20,27	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	

153	6,13,20,27	0.9	1.0	1.0	0.7	0.9	1.0	0.1	0.3	0.5	0.5	0.7	0.9
154	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0
155	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.9	1.0	1.0
156	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.9	1.0	1.0
157	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.7	0.9	1.0
158	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0
159	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
160	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
The Average		0.78	0.93	0.99	0.82	0.96	1.00	0.73	0.90	0.97	0.75	0.91	0.98

### Question 7,14,21,28

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
134	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0
135	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.1	0.3	0.5	0.9	1.0	1.0
136	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
137	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
138	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.5	0.7	0.9
139	7,14,21,28	0.7	0.9	1.0	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0
140	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0
141	7,14,21,28	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0
142	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
143	7,14,21,28	0.7	0.9	1.0	0.0	0.1	0.3	0.9	1.0	1.0	0.9	1.0	1.0
144	7,14,21,28	0.7	0.9	1.0	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0
145	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
146	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
147	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0
148	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0
149	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
150	7,14,21,28	0.9	1.0	1.0	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0
151	7,14,21,28	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
152	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
153	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
154	7,14,21,28	0.7	0.9	1.0	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0
155	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
156	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0
157	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0
158	7,14,21,28	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
159	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
160	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.77	0.94	1.00	0.57	0.74	0.86	0.81	0.94	0.98	0.81	0.95	1.00

### 6.2.3-Fuzzy Weight

#### 6.2.3.1- Triangular Fuzzy sets for fuzzy weights

Fuzzy Value			Fuzzy weights
1	Strongly Disagree	SD	(0.0, 0.0, 0.25)
2	Disagree	D	(0.0, 0.25, 0.5)
3	Neutral	N	(0.25, 0.5, 0.75)

4	Agree	A	(0.5, 0.75, 1.0)
5	Strongly Agree	SA	(0.75, 1.0, 1.0)

6.2.3.2 Italian Language Average weights according to the statements (N=27).

Question 1,8,15,22 (Characteristic) for all sub-Attribute

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
134	1,8,15,22	0.25	0.5	0.75	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
135	1,8,15,22	0.25	0.5	0.75	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
136	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
137	1,8,15,22	0.0	0.0	0.25	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
138	1,8,15,22	0.25	0.5	0.75	0.5	0.75	1.0	0.25	0.5	0.75	0.75	1.0	1.0
139	1,8,15,22	0.0	0.25	0.50	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
140	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
141	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
142	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.25	0.5	0.75	0.75	1.0	1.0
143	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
144	1,8,15,22	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
145	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
146	1,8,15,22	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
147	1,8,15,22	0.0	0.25	0.5	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
148	1,8,15,22	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
149	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
150	1,8,15,22	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
151	1,8,15,22	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
152	1,8,15,22	0.0	0.25	0.5	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
153	1,8,15,22	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
154	1,8,15,22	0.0	0.0	0.25	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0
155	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
156	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
157	1,8,15,22	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
158	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
159	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
160	1,8,15,22	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
<b>The Average</b>		<b>0.22</b>	<b>0.38</b>	<b>0.61</b>	<b>0.54</b>	<b>0.79</b>	<b>0.99</b>	<b>0.57</b>	<b>0.82</b>	<b>0.98</b>	<b>0.61</b>	<b>0.86</b>	<b>1.00</b>

Question 2,9,16,23

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
134	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
135	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0

136	2,9,16,23	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
137	2,9,16,23	0.25	0.5	0.75	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
138	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
139	2,9,16,23	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
140	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
141	2,9,16,23	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
142	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
143	2,9,16,23	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
144	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.0	0.25	0.5
145	2,9,16,23	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
146	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.0	0.25	0.5
147	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1.0	0.25	0.5	0.75	0.5	0.75	1.0
148	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75
149	2,9,16,23	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
150	2,9,16,23	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
151	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
152	2,9,16,23	0.5	0.75	1.0	0.25	0.5	0.75	0.25	0.5	0.75	0.0	0.0	0.25
153	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.0	0.25	0.5
154	2,9,16,23	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
155	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
156	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
157	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
158	2,9,16,23	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
159	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5	0.0	0.0	0.25
160	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.0	0.25	0.5
The Average		0.34	0.58	0.81	0.55	0.80	0.99	0.52	0.77	0.96	0.19	0.39	0.60

### Question 3,10,17,24

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
134	3,10,17,24	0.25	0.5	0.75	0.25	0.5	0.75	0.75	1.0	1.0	0.75	1.0	1.0
135	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
136	3,10,17,24	0.5	0.75	1.0	0.25	0.5	0.75	0.75	1.0	1.0	0.25	0.5	0.75
137	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.5	0.75	0.75	1.0	1.0
138	3,10,17,24	0.75	1.0	1.0	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0
139	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
140	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
141	3,10,17,24	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
142	3,10,17,24	0.25	0.5	0.75	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
143	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
144	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
145	3,10,17,24	0.25	0.5	0.75	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
146	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
147	3,10,17,24	0.5	0.75	1.0	0.25	0.5	0.75	0.75	1.0	1.0	0.5	0.75	1.0
148	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
149	3,10,17,24	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
150	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75	0.75	1.0	1.0
151	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
152	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
153	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
154	3,10,17,24	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
155	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
156	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
157	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0

158	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
159	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
160	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
The Average		0.54	0.79	0.94	0.51	0.76	0.96	0.58	0.83	0.98	0.61	0.86	0.99

**Question 4,11,18,25**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
weights													
134	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
135	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.5	0.75	0.5	0.75	1.0
136	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75
137	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
138	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75	0.5	0.75	1.0
139	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
140	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
141	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
142	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
143	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
144	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
145	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
146	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
147	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
148	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
149	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
150	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
151	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
152	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
153	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.5	0.75
154	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
155	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
156	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
157	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
158	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
159	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
160	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
The Average		0.56	0.81	1.00	0.60	0.85	1.00	0.54	0.79	0.98	0.55	0.79	0.95

**Question 5,12,19,26**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
weights													
134	5,12,19,26	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
135	5,12,19,26	0.25	0.5	0.75				0.5	0.75	1.0	0.5	0.75	1.0
136	5,12,19,26	0.25	0.5	0.75				0.5	0.75	1.0	0.5	0.75	1.0
137	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
138	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
139	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0



140	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
141	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.75	1.0	1.0
142	5,12,19,26	0.75	1.0	1.0				0.5	0.75	1.0	0.5	0.75	1.0
143	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
144	5,12,19,26	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
145	5,12,19,26	0.75	1.0	1.0				0.5	0.75	1.0	0.75	1.0	1.0
146	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
147	5,12,19,26	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
148	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
149	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.5	0.75	1.0
150	5,12,19,26	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
151	5,12,19,26	0.5	0.75	1.0	0.75	1.0	1.0	0.0	0.25	0.5	0.5	0.75	1.0
152	5,12,19,26	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.5	0.75	0.75	1.0	1.0
153	5,12,19,26	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
154	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.5	0.75	1.0
155	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.25	0.5	0.75
156	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.0	0.25	0.5
157	5,12,19,26	0.5	0.75	1.0				0.75	1.0	1.0	0.5	0.75	1.0
158	5,12,19,26	0.75	1.0	1.0				0.5	0.75	1.0	0.5	0.75	1.0
159	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
160	5,12,19,26	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
The Average		0.59	0.84	0.98	0.63	0.88	1.00	0.57	0.82	0.97	0.52	0.77	0.95

### Question 6,13,20,27

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )												
		weights			Effectiveness			Efficiency			Satisfaction			Comprehensibility
134	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.5	0.75	
135	6,13,20,27	0.25	0.5	0.75				0.25	0.5	0.75	0.25	0.5	0.75	
136	6,13,20,27	0.5	0.75	1.0				0.75	1.0	1.0	0.5	0.75	1.0	
137	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.25	0.5	0.75	
138	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.25	0.5	0.75	
139	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0	
140	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.75	1.0	1.0	
141	6,13,20,27	0.5	0.75	1.0				0.75	1.0	1.0	0.75	1.0	1.0	
142	6,13,20,27	0.75	1.0	1.0				0.25	0.5	0.75	0.75	1.0	1.0	
143	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0	
144	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	
145	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0	
146	6,13,20,27	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	
147	6,13,20,27	0.25	0.5	0.75	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	
148	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0	
149	6,13,20,27	0.5	0.75	1.0				0.75	1.0	1.0	0.5	0.75	1.0	
150	6,13,20,27	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	
151	6,13,20,27	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	
152	6,13,20,27	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	
153	6,13,20,27	0.75	1.0	1.0	0.5	0.75	1.0	0.0	0.25	0.5	0.25	0.5	0.75	
154	6,13,20,27	0.5	0.75	1.0				0.75	1.0	1.0	0.75	1.0	1.0	
155	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.75	1.0	1.0	
156	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.75	1.0	1.0	
157	6,13,20,27	0.5	0.75	1.0				0.75	1.0	1.0	0.5	0.75	1.0	
158	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.5	0.75	1.0	
159	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	
160	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	
The Average		0.60	0.85	0.98	0.65	0.90	1.00	0.55	0.80	0.96	0.56	0.81	0.95	

**Question 7,14,21,28**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
134	7,14,21,28	0.5	0.75	1.0	0.25	0.5	0.75	0.75	1.0	1.0	0.5	0.75	1.0
135	7,14,21,28	0.5	0.75	1.0	0.25	0.5	0.75	0.0	0.25	0.50	0.75	1.0	1.0
136	7,14,21,28	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
137	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
138	7,14,21,28	0.5	0.75	1.0	0.25	0.5	0.75	0.75	1.0	1.0	0.25	0.5	0.75
139	7,14,21,28	0.5	0.75	1.0	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0
140	7,14,21,28	0.5	0.75	1.0	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0
141	7,14,21,28	0.5	0.75	1.0	0.0	0.25	0.5	0.75	1.0	1.0	0.75	1.0	1.0
142	7,14,21,28	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
143	7,14,21,28	0.5	0.75	1.0	0.0	0.0	0.25	0.75	1.0	1.0	0.75	1.0	1.0
144	7,14,21,28	0.5	0.75	1.0	0.0	0.25	0.5	0.75	1.0	1.0	0.75	1.0	1.0
145	7,14,21,28	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
146	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
147	7,14,21,28	0.5	0.75	1.0	0.25	0.5	0.75	0.75	1.0	1.0	0.75	1.0	1.0
148	7,14,21,28	0.5	0.75	1.0	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0
149	7,14,21,28	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
150	7,14,21,28	0.75	1.0	1.0	0.0	0.25	0.5	0.75	1.0	1.0	0.75	1.0	1.0
151	7,14,21,28	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
152	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
153	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
154	7,14,21,28	0.5	0.75	1.0	0.0	0.25	0.5	0.75	1.0	1.0	0.75	1.0	1.0
155	7,14,21,28	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
156	7,14,21,28	0.75	1.0	1.0	0.25	0.5	0.75	0.5	0.75	1.0	0.75	1.0	1.0
157	7,14,21,28	0.5	0.75	1.0	0.25	0.5	0.75	0.75	1.0	1.0	0.5	0.75	1.0
158	7,14,21,28	0.5	0.75	1.0	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0
159	7,14,21,28	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
160	7,14,21,28	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
<b>The Average</b>		0.59	0.84	1.00	0.36	0.59	0.78	0.65	0.90	0.98	0.64	0.89	0.99

**6.2.2.2- Italian Language Average ratings and weights according to the statements (N=27).**

**6.2.2.2-A Sup-attribute 1 (Effectiveness) Rating and weights for all the characteristics (7) for all users (N=27)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Effectiveness )					
		Ratings(R)			Weights(W)		
For all users 134 to 160	1	0.16	0.31	0.50	0.22	0.38	0.61
	2	0.25	0.48	0.73	0.34	0.58	0.81
	3	0.42	0.72	0.93	0.54	0.79	0.94
	4	0.43	0.76	1.00	0.56	0.81	1.00
	5	0.48	0.80	0.98	0.59	0.84	0.98
	6	0.49	0.81	0.98	0.60	0.85	0.98
	7	0.47	0.80	1.00	0.59	0.84	1.00

**6.2.2.2-B Sup-attribute 1 (Efficiency) Rating and weights for all the characteristics (7) for all users (N=27)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Efficiency )					
		Ratings(R)			Weights(W)		
For all users 134 to 160	8	0.40	0.72	0.99	0.54	0.79	0.99
	9	0.41	0.74	0.99	0.55	0.80	0.99
	10	0.38	0.69	0.95	0.51	0.76	0.96
	11	0.48	0.81	1.00	0.60	0.85	1.00
	12	0.51	0.84	1.00	0.63	0.88	1.00
	13	0.55	0.87	1.00	0.65	0.90	1.00
	14	0.30	0.54	0.74	0.39	0.63	0.81

**6.2.2.2-C Sup-attribute 1 (Satisfaction) Rating and weights for all the characteristics (7) for all users (N=27)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Satisfaction )					
		Ratings(R)			Weights(W)		
For all users 134 to 160	15	0.45	0.77	0.98	0.57	0.82	0.98
	16	0.39	0.70	0.95	0.52	0.77	0.96
	17	0.47	0.78	0.98	0.58	0.83	0.98
	18	0.41	0.72	0.98	0.54	0.79	0.98
	19	0.46	0.77	0.96	0.57	0.82	0.97
	20	0.43	0.74	0.95	0.55	0.80	0.96
	21	0.55	0.87	0.97	0.65	0.90	0.98

**6.2.2.2-D Sup-attribute 1 (Comprehensibility) Rating and weights for all the characteristics (7) for all users (N=27)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Comprehensibility )					
		Ratings(R)			Weights(W)		
For all users 134 to 160	22	0.49	0.82	1.00	0.61	0.86	1.00
	23	0.16	0.29	0.45	0.19	0.39	0.60
	24	0.50	0.82	0.99	0.61	0.86	0.99
	25	0.43	0.73	0.94	0.55	0.79	0.95
	26	0.40	0.70	0.93	0.52	0.77	0.95
	27	0.45	0.76	0.94	0.56	0.81	0.95
	28	0.53	0.86	0.99	0.64	0.89	0.99

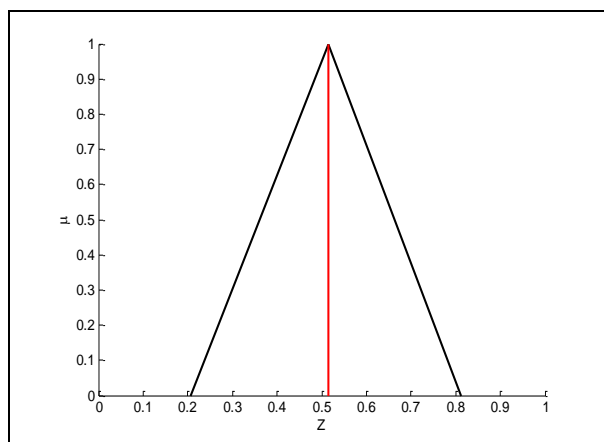
Serial Numbers for users	Sup-attribute	attribute A - Effectiveness								
		Ratings(R)			Weights(W)			R*W		
For all	1	0.16	0.31	0.50	0.22	0.38	0.61	0.04	0.12	0.31

users 134 to 160	2	0.25	0.48	0.73	0.34	0.58	0.81	0.09	0.28	0.59
	3	0.42	0.72	0.93	0.54	0.79	0.94	0.23	0.57	0.87
	4	0.43	0.76	1.00	0.56	0.81	1.00	0.24	0.62	1.00
	5	0.48	0.80	0.98	0.59	0.84	0.98	0.28	0.67	0.96
	6	0.49	0.81	0.98	0.60	0.85	0.98	0.29	0.69	0.96
The Average					0.491	0.727	0.903	0.206	0.516	0.813

Ratings (R), Effectiveness attribute A

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + ..... + R sup-attribute n \* W sup-attribute n )

For Effectiveness: - R attribute A = (0.206, 0.516, 0.813)



Weight (W), Effectiveness attribute A

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For Effectiveness: - W sup-attribute 1 = (0.491, 0.727, 0.903)

Attribute A ( Effectiveness )					
Ratings(R)			Weights(W)		
0.206	0.516	0.813	0.491	0.727	0.903

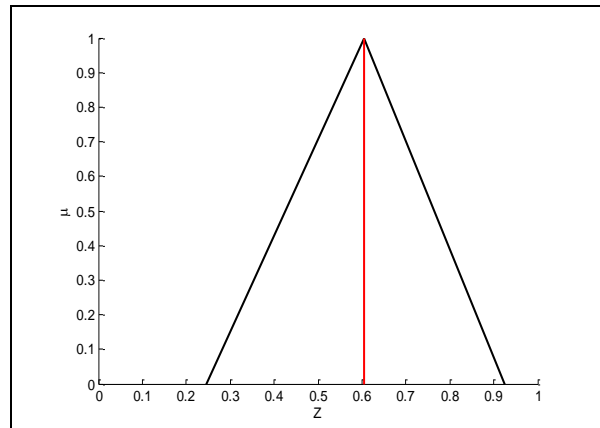
Serial Numbers for users	Sup-attribute	Attribute B - Efficiency								
		Ratings(R)			Weights(W)			R*W		
For all users	8	0.40	0.72	0.99	0.54	0.79	0.99	0.22	0.57	0.98
	9	0.41	0.74	0.99	0.55	0.80	0.99	0.23	0.59	0.98
	10	0.38	0.69	0.95	0.51	0.76	0.96	0.19	0.52	0.91
	11	0.48	0.81	1.00	0.60	0.85	1.00	0.29	0.69	1.00

134 to 160	12	0.51	0.84	1.00	0.63	0.88	1.00	0.32	0.74	1.00
	13	0.55	0.87	1.00	0.65	0.90	1.00	0.36	0.78	1.00
	14	0.30	0.54	0.74	0.39	0.63	0.81	0.12	0.34	0.60
<b>The Average</b>					0.553	0.801	0.964	0.246	0.605	0.925

Ratings (R), **Efficiency** attribute B

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + ..... + R sup-attribute n \* W sup-attribute n )

For **Efficiency**: - R attribute B = (0.246, 0.605, 0.925)



Weight (W), **Efficiency** attribute B

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Efficiency**: - W attribute B = (0.553, 0.801, 0.964)

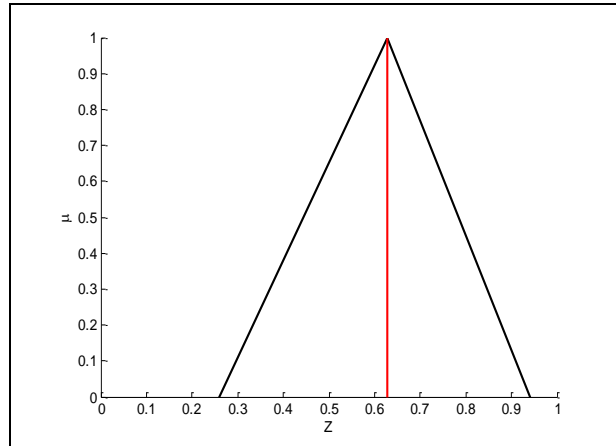
Attribute B ( Efficiency )					
Ratings(R)			Weights(W)		
0.246	0.605	0.925	0.553	0.801	0.964

Serial Numbers for users	Sup-attribute	Attribute C - Satisfaction								
		Ratings(R)			Weights(W)			R*W		
For all users 134 to 160	15	0.45	0.77	0.98	0.57	0.82	0.98	0.26	0.63	0.96
	16	0.39	0.70	0.95	0.52	0.77	0.96	0.20	0.54	0.91
	17	0.47	0.78	0.98	0.58	0.83	0.98	0.27	0.65	0.96
	18	0.41	0.72	0.98	0.54	0.79	0.98	0.22	0.57	0.96
	19	0.46	0.77	0.96	0.57	0.82	0.97	0.26	0.63	0.93
	20	0.43	0.74	0.95	0.55	0.80	0.96	0.24	0.59	0.91
<b>The Average</b>					0.569	0.819	0.973	0.259	0.628	0.941

Ratings (R), **Satisfaction** attribute C

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Satisfaction**: - R attribute C = (0.259, 0.628,0.941)



Weight (W), **Satisfaction** attribute C

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Satisfaction**: - W attribute C = (0.569, 0.819,0.973)

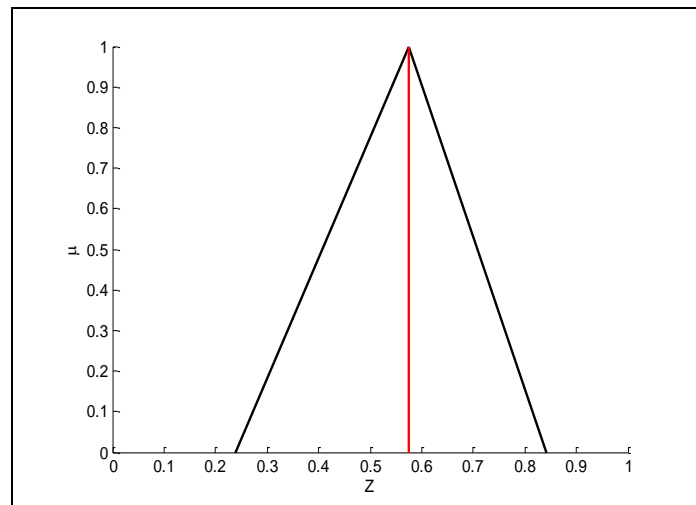
Attribute C ( Satisfaction )					
Ratings(R)			Weights(W)		
<b>0.259</b>	<b>0.628</b>	<b>0.941</b>	<b>0.569</b>	<b>0.819</b>	<b>0.973</b>

Serial Numbers for users	Sup-attribute	Attribute D - Comprehensibility								
		Ratings(R)			Weights(W)			R*W		
For all users 134 to 160	22	<b>0.49</b>	<b>0.82</b>	<b>1.00</b>	<b>0.61</b>	<b>0.86</b>	<b>1.00</b>	<b>0.30</b>	<b>0.71</b>	<b>1.00</b>
	23	<b>0.16</b>	<b>0.29</b>	<b>0.45</b>	<b>0.19</b>	<b>0.39</b>	<b>0.60</b>	<b>0.03</b>	<b>0.11</b>	<b>0.27</b>
	24	<b>0.50</b>	<b>0.82</b>	<b>0.99</b>	<b>0.61</b>	<b>0.86</b>	<b>0.99</b>	<b>0.31</b>	<b>0.71</b>	<b>0.98</b>
	25	<b>0.43</b>	<b>0.73</b>	<b>0.94</b>	<b>0.55</b>	<b>0.79</b>	<b>0.95</b>	<b>0.24</b>	<b>0.58</b>	<b>0.89</b>
	26	<b>0.40</b>	<b>0.70</b>	<b>0.93</b>	<b>0.52</b>	<b>0.77</b>	<b>0.95</b>	<b>0.21</b>	<b>0.54</b>	<b>0.88</b>
	27	<b>0.45</b>	<b>0.76</b>	<b>0.94</b>	<b>0.56</b>	<b>0.81</b>	<b>0.95</b>	<b>0.25</b>	<b>0.62</b>	<b>0.89</b>
	28	<b>0.53</b>	<b>0.86</b>	<b>0.99</b>	<b>0.64</b>	<b>0.89</b>	<b>0.99</b>	<b>0.34</b>	<b>0.77</b>	<b>0.98</b>
<b>The Average</b>					<b>0.526</b>	<b>0.767</b>	<b>0.919</b>	<b>0.239</b>	<b>0.574</b>	<b>0.843</b>

Ratings (R), **Comprehensibility** attribute D

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Comprehensibility**: - R attribute D = (0.239, 0.574,0.843)



Weight (W), **Comprehensibility** attribute D

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Comprehensibility**: - W attribute D = (0.526, 0.767,0.919)

Attribute D ( Comprehensibility )					
Ratings(R)			Weights(W)		
<b>0.239</b>	<b>0.574</b>	<b>0.843</b>	<b>0.526</b>	<b>0.767</b>	<b>0.919</b>

### 6.2.3.5- Ratings and weights of the Usability

The Variables	Fuzzy Rating (R)			Fuzzy weight (W)			R * W		
	<b>Effectiveness</b>	<b>0.206</b>	<b>0.516</b>	<b>0.813</b>	<b>0.491</b>	<b>0.727</b>	<b>0.903</b>	<b>0.101</b>	<b>0.375</b>
<b>Efficiency</b>	<b>0.246</b>	<b>0.605</b>	<b>0.925</b>	<b>0.553</b>	<b>0.801</b>	<b>0.964</b>	<b>0.136</b>	<b>0.485</b>	<b>0.892</b>
<b>Satisfaction</b>	<b>0.259</b>	<b>0.628</b>	<b>0.941</b>	<b>0.569</b>	<b>0.819</b>	<b>0.973</b>	<b>0.147</b>	<b>0.514</b>	<b>0.916</b>
<b>Comprehensibility</b>	<b>0.239</b>	<b>0.574</b>	<b>0.843</b>	<b>0.526</b>	<b>0.767</b>	<b>0.919</b>	<b>0.126</b>	<b>0.440</b>	<b>0.775</b>
<b>Average</b>				<b>0.535</b>	<b>0.779</b>	<b>0.940</b>	<b>0.128</b>	<b>0.454</b>	<b>0.829</b>

Ratings (R), Usability of Italian

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For Usability of Italian: - R Usability = (0.128, 0.454,0.829)

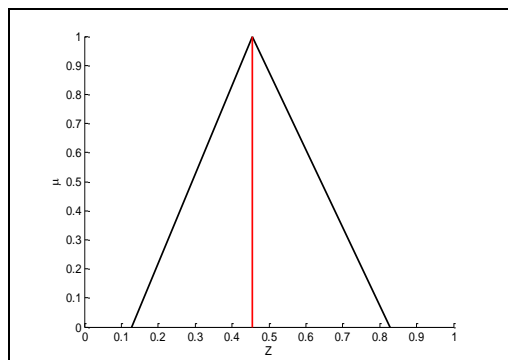
Weight (W), Usability of Italian

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For Usability of Italian: - W Usability = (0.535, 0.779,0.940)

Usability of Italian					
Ratings(R)			Weights(W)		
0.128	0.454	0.829	0.535	0.779	0.940

R usability Italian =(0.128, 0.454, 0.829) = 0.4649



### 6.3- The Result: (Italian Language)

Italian Language Application Usability =  $z^*$  = **0.4649**



# 7- Malay Language

7.2.2.2- Malay Language Average ratings according to the statements (N=20).

Question 1,8,15,22 (Characteristic) for all Sub-attributes

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
161	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
162	1,8,15,22	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
163	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
164	1,8,15,22	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
165	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5	0.9	1.0	1.0
166	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
167	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
168	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
169	1,8,15,22	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
170	1,8,15,22	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
171	1,8,15,22	0.0	0.1	0.3	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
172	1,8,15,22	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
173	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
174	1,8,15,22	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
175	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
176	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
177	1,8,15,22	0.0	0.1	0.3	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0
178	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
179	1,8,15,22	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
180	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0
The Average		0.56	0.71	0.81	0.78	0.94	1.00	0.75	0.91	0.97	0.82	0.96	1.00

Question 2,9,16,23

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
161	2,9,16,23	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0
162	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9
163	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9
164	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
165	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
166	2,9,16,23	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.0	0.1	0.3
167	2,9,16,23	0.1	0.3	0.5	0.9	1.0	1.0	0.5	0.7	0.9	0.0	0.1	0.3
168	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.0	0.1	0.3	0.1	0.3	0.5
169	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.0	0.1	0.3	0.0	0.1	0.3
170	2,9,16,23	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9
171	2,9,16,23	0.1	0.3	0.5	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9
172	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
173	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5
174	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.1	0.3	0.5
175	2,9,16,23	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
176	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
177	2,9,16,23	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
178	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0
179	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0

180	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
The Average		0.58	0.77	0.89	0.75	0.92	0.99	0.66	0.83	0.92	0.33	0.50	0.67

### Question 3,10,17,24

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
161	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
162	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	
163	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0	
164	3,10,17,24	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	
165	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
166	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
167	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
168	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
169	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
170	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
171	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
172	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
173	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
174	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
175	3,10,17,24	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
176	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
177	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
178	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
179	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0	
180	3,10,17,24	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
The Average		0.79	0.94	0.99	0.76	0.93	1.00	0.76	0.92	0.99	0.75	0.93	1.00	

### Question 4,11,18,25

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
161	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.5	0.7	0.9	
162	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
163	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
164	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
165	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
166	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
167	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
168	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
169	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
170	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
171	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
172	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
173	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
174	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5	0.9	1.0	1.0	
175	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
176	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
177	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
178	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
179	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
180	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	
The Average		0.80	0.95	1.00	0.79	0.95	1.00	0.72	0.89	0.97	0.76	0.93	1.00	

**Question 5,12,19,26**

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
161	5,12,19,26	0.7	0.9	1.0					0.5	0.7	0.9	0.7	0.9	1.0
162	5,12,19,26	0.5	0.7	0.9					0.7	0.9	1.0	0.5	0.7	0.9
163	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0		0.9	1.0	1.0	0.9	1.0	1.0
164	5,12,19,26	0.9	1.0	1.0					0.5	0.7	0.9	0.9	1.0	1.0
165	5,12,19,26	0.9	1.0	1.0	0.7	0.9	1.0		0.9	1.0	1.0	0.0	0.1	0.3
166	5,12,19,26	0.7	0.9	1.0	0.7	0.9	1.0		0.7	0.9	1.0	0.0	0.1	0.3
167	5,12,19,26	0.7	0.9	1.0	0.7	0.9	1.0		0.7	0.9	1.0	0.0	0.1	0.3
168	5,12,19,26	0.9	1.0	1.0	0.7	0.9	1.0		0.7	0.9	1.0	0.1	0.3	0.5
169	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0		0.9	1.0	1.0	0.1	0.3	0.5
170	5,12,19,26	0.9	1.0	1.0					0.9	1.0	1.0	0.5	0.7	0.9
171	5,12,19,26	0.7	0.9	1.0					0.7	0.9	1.0	0.1	0.3	0.5
172	5,12,19,26	0.7	0.9	1.0					0.9	1.0	1.0	0.1	0.3	0.5
173	5,12,19,26	0.7	0.9	1.0	0.7	0.9	1.0		0.9	1.0	1.0	0.0	0.1	0.3
174	5,12,19,26	0.9	1.0	1.0	0.7	0.9	1.0		0.9	1.0	1.0	0.1	0.3	0.5
175	5,12,19,26	0.7	0.9	1.0					0.7	0.9	1.0	0.1	0.3	0.5
176	5,12,19,26	0.9	1.0	1.0					0.7	0.9	1.0	0.1	0.3	0.5
177	5,12,19,26	0.7	0.9	1.0	0.1	0.3	0.5		0.7	0.9	1.0	0.1	0.3	0.5
178	5,12,19,26	0.9	1.0	1.0					0.9	1.0	1.0	0.5	0.7	0.9
179	5,12,19,26	0.7	0.9	1.0					0.7	0.9	1.0	0.9	1.0	1.0
180	5,12,19,26	0.9	1.0	1.0					0.9	1.0	1.0	0.5	0.7	0.9
The Average		0.79	0.94	1.00	0.68	0.86	0.94		0.77	0.93	0.99	0.31	0.48	0.64

**Question 6,13,20,27**

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
161	6,13,20,27	0.7	0.9	1.0					0.7	0.9	1.0	0.7	0.9	1.0
162	6,13,20,27	0.7	0.9	1.0					0.7	0.9	1.0	0.7	0.9	1.0
163	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0		0.9	1.0	1.0	0.7	0.9	1.0
164	6,13,20,27	0.7	0.9	1.0					0.9	1.0	1.0	0.5	0.7	0.9
165	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0		0.7	0.9	1.0	0.7	0.9	1.0
166	6,13,20,27	0.9	1.0	1.0	0.7	0.9	1.0		0.9	1.0	1.0	0.7	0.9	1.0
167	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0		0.1	0.3	0.5	0.7	0.9	1.0
168	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0		0.9	1.0	1.0	0.1	0.3	0.5
169	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0		0.9	1.0	1.0	0.9	1.0	1.0
170	6,13,20,27	0.9	1.0	1.0					0.9	1.0	1.0	0.7	0.9	1.0
171	6,13,20,27	0.7	0.9	1.0					0.7	0.9	1.0	0.7	0.9	1.0
172	6,13,20,27	0.7	0.9	1.0					0.9	1.0	1.0	0.7	0.9	1.0
173	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0		0.7	0.9	1.0	0.7	0.9	1.0
174	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0		0.7	0.9	1.0	0.9	1.0	1.0
175	6,13,20,27	0.7	0.9	1.0					0.7	0.9	1.0	0.7	0.9	1.0
176	6,13,20,27	0.9	1.0	1.0					0.7	0.9	1.0	0.7	0.9	1.0
177	6,13,20,27	0.7	0.9	1.0					0.7	0.9	1.0	0.7	0.9	1.0
178	6,13,20,27	0.9	1.0	1.0					0.7	0.9	1.0	0.7	0.9	1.0
179	6,13,20,27	0.9	1.0	1.0					0.9	1.0	1.0	0.9	1.0	1.0
180	6,13,20,27	0.9	1.0	1.0					0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.78	0.94	1.00	0.88	0.99	1.00		0.76	0.92	0.98	0.70	0.88	0.97

**Question 7,14,21,28**

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
161	7,14,21,28	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0
162	7,14,21,28	0.1	0.3	0.5	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0
163	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9
164	7,14,21,28	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
165	7,14,21,28	0.1	0.3	0.5	0.0	0.1	0.3	0.9	1.0	1.0	0.9	1.0	1.0
166	7,14,21,28	0.9	1.0	1.0	0.1	0.3	0.5	0.7	0.9	1.0	0.9	1.0	1.0
167	7,14,21,28	0.1	0.3	0.5	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0
168	7,14,21,28	0.9	1.0	1.0	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0
169	7,14,21,28	0.7	0.9	1.0	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0
170	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0
171	7,14,21,28	0.7	0.9	1.0	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0
172	7,14,21,28	0.7	0.9	1.0	0.1	0.3	0.5	0.9	1.0	1.0	0.7	0.9	1.0
173	7,14,21,28	0.1	0.3	0.5	0.0	0.1	0.3	0.9	1.0	1.0	0.9	1.0	1.0
174	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0
175	7,14,21,28	0.7	0.9	1.0	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0
176	7,14,21,28	0.9	1.0	1.0	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0
177	7,14,21,28	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
178	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
179	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
180	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.64	0.80	0.89	0.38	0.54	0.69	0.81	0.95	1.00	0.82	0.96	1.00

### 7.2.3-Fuzzy Weight

#### 7.2.3.1- Triangular Fuzzy sets for fuzzy weights

Fuzzy Value			Fuzzy weights
1	Strongly Disagree	SD	(0.0, 0.0, 0.25)
2	Disagree	D	(0.0, 0.25, 0.5)
3	Neutral	N	(0.25, 0.5, 0.75)
4	Agree	A	(0.5, 0.75, 1.0)
5	Strongly Agree	SA	(0.75, 1.0, 1.0)

#### 7.2.3.2 Malay Language Average weights according to the statements (N=20).

Question 1,8,15,22 (Characteristic) for all sub-Attribute

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
161	1,8,15,22	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
162	1,8,15,22	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.75	1	1
163	1,8,15,22	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
164	1,8,15,22	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.75	1	1
165	1,8,15,22	0.5	0.75	1	0.75	1	1	0	0.25	0.5	0.75	1	1
166	1,8,15,22	0.75	1	1	0.75	1	1	0.75	1	1	0.5	0.75	1

167	1,8,15,22	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.75	1	1
168	1,8,15,22	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.75	1	1
169	1,8,15,22	0.75	1	1	0.5	0.75	1	0.75	1	1	0.75	1	1
170	1,8,15,22	0	0.25	0.5	0.75	1	1	0.75	1	1	0.5	0.75	1
171	1,8,15,22	0	0	0.25	0.75	1	1	0.75	1	1	0.5	0.75	1
172	1,8,15,22	0	0.25	0.5	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
173	1,8,15,22	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
174	1,8,15,22	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.75	1	1
175	1,8,15,22	0	0	0.25	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
176	1,8,15,22	0	0	0.25	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
177	1,8,15,22	0	0	0.25	0.25	0.5	0.75	0.5	0.75	1	0.5	0.75	1
178	1,8,15,22	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.75	1	1
179	1,8,15,22	0.25	0.5	0.75	0.75	1	1	0.75	1	1	0.75	1	1
180	1,8,15,22	0.5	0.75	1	0.75	1	1	0.25	0.5	0.75	0.75	1	1
The Average		0.43	0.63	0.79	0.60	0.85	0.99	0.58	0.83	0.96	0.65	0.90	1.00

### Question 2,9,16,23

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
161	2,9,16,23	0.5	0.75	1	0.25	0.5	0.75	0.5	0.75	1	0.5	0.75	1
162	2,9,16,23	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.25	0.5	0.75
163	2,9,16,23	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.25	0.5	0.75
164	2,9,16,23	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1
165	2,9,16,23	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0	0.25	0.5
166	2,9,16,23	0.5	0.75	1	0.25	0.5	0.75	0.5	0.75	1	0	0	0.25
167	2,9,16,23	0	0.25	0.5	0.75	1	1	0.25	0.5	0.75	0	0	0.25
168	2,9,16,23	0.75	1	1	0.5	0.75	1	0	0	0.25	0	0.25	0.5
169	2,9,16,23	0.5	0.75	1	0.75	1	1	0	0	0.25	0	0	0.25
170	2,9,16,23	0.25	0.5	0.75	0.75	1	1	0.75	1	1	0.25	0.5	0.75
171	2,9,16,23	0	0.25	0.5	0.5	0.75	1	0.75	1	1	0.25	0.5	0.75
172	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1	0.5	0.75	1	0	0.25	0.5
173	2,9,16,23	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0	0.25	0.5
174	2,9,16,23	0.5	0.75	1	0.75	1	1	0.75	1	1	0	0.25	0.5
175	2,9,16,23	0	0.25	0.5	0.5	0.75	1	0.5	0.75	1	0	0.25	0.5
176	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1	0.5	0.75	1	0	0	0.25
177	2,9,16,23	0	0.25	0.5	0.5	0.75	1	0.5	0.75	1	0	0.25	0.5
178	2,9,16,23	0.75	1	1	0.5	0.75	1	0.25	0.5	0.75	0.5	0.75	1
179	2,9,16,23	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.75	1	1
180	2,9,16,23	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.5	0.75	1
The Average		0.40	0.65	0.86	0.56	0.81	0.98	0.49	0.71	0.90	0.20	0.40	0.63

### Question 3,10,17,24

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											

weights		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
161	3,10,17,24	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
162	3,10,17,24	0.5	0.75	1	0.75	1	1	0.25	0.5	0.75	0.75	1	1
163	3,10,17,24	0.75	1	1	0.75	1	1	0.25	0.5	0.75	0.5	0.75	1
164	3,10,17,24	0.75	1	1	0.25	0.5	0.75	0.75	1	1	0.75	1	1
165	3,10,17,24	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
166	3,10,17,24	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
167	3,10,17,24	0.75	1	1	0.5	0.75	1	0.75	1	1	0.5	0.75	1
168	3,10,17,24	0.75	1	1	0.75	1	1	0.75	1	1	0.5	0.75	1
169	3,10,17,24	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
170	3,10,17,24	0.75	1	1	0.75	1	1	0.75	1	1	0.5	0.75	1
171	3,10,17,24	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
172	3,10,17,24	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
173	3,10,17,24	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.75	1	1
174	3,10,17,24	0.75	1	1	0.5	0.75	1	0.75	1	1	0.5	0.75	1
175	3,10,17,24	0.25	0.5	0.75	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
176	3,10,17,24	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
177	3,10,17,24	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
178	3,10,17,24	0.5	0.75	1	0.75	1	1	0.75	1	1	0.5	0.75	1
179	3,10,17,24	0.75	1	1	0.5	0.75	1	0.25	0.5	0.75	0.5	0.75	1
180	3,10,17,24	0.25	0.5	0.75	0.75	1	1	0.75	1	1	0.75	1	1
The Average		0.61	0.86	0.98	0.58	0.83	0.99	0.58	0.83	0.96	0.56	0.81	1.00

**Question 4,11,18,25**

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		weights		Effectiveness			Efficiency			Satisfaction			Comprehensibility
161	4,11,18,25	0.5	0.75	1	0.5	0.75	1	0.25	0.5	0.75	0.25	0.5	0.75
162	4,11,18,25	0.75	1	1	0.5	0.75	1	0.75	1	1	0.75	1	1
163	4,11,18,25	0.75	1	1	0.75	1	1	0.5	0.75	1	0.5	0.75	1
164	4,11,18,25	0.75	1	1	0.5	0.75	1	0.75	1	1	0.5	0.75	1
165	4,11,18,25	0.5	0.75	1	0.75	1	1	0.75	1	1	0.5	0.75	1
166	4,11,18,25	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
167	4,11,18,25	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.75	1	1
168	4,11,18,25	0.75	1	1	0.75	1	1	0.75	1	1	0.5	0.75	1
169	4,11,18,25	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
170	4,11,18,25	0.75	1	1	0.75	1	1	0.75	1	1	0.5	0.75	1
171	4,11,18,25	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
172	4,11,18,25	0.5	0.75	1	0.75	1	1	0.75	1	1	0.5	0.75	1
173	4,11,18,25	0.75	1	1	0.75	1	1	0.5	0.75	1	0.75	1	1
174	4,11,18,25	0.5	0.75	1	0.75	1	1	0	0.25	0.5	0.75	1	1
175	4,11,18,25	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
176	4,11,18,25	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
177	4,11,18,25	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
178	4,11,18,25	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
179	4,11,18,25	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.75	1	1
180	4,11,18,25	0.5	0.75	1	0.5	0.75	1	0.25	0.5	0.75	0.75	1	1
The Average		0.63	0.88	1.00	0.61	0.86	1.00	0.54	0.79	0.95	0.58	0.83	0.99

**Question 5,12,19,26**

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		weights		Effectiveness			Efficiency			Satisfaction			Comprehensibility
161	5,12,19,26	0.5	0.75	1				0.25	0.5	0.75	0.5	0.75	1
162	5,12,19,26	0.25	0.5	0.75				0.5	0.75	1	0.25	0.5	0.75

163	5,12,19,26	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
164	5,12,19,26	0.75	1	1	0.75	1	1	0.25	0.5	0.75	0.75	1	1
165	5,12,19,26	0.75	1	1	0.5	0.75	1	0.75	1	1	0	0	0.25
166	5,12,19,26	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0	0	0.25
167	5,12,19,26	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0	0	0.25
168	5,12,19,26	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0	0.25	0.5
169	5,12,19,26	0.75	1	1	0.75	1	1	0.75	1	1	0	0.25	0.5
170	5,12,19,26	0.75	1	1				0.75	1	1	0.25	0.5	0.75
171	5,12,19,26	0.5	0.75	1				0.5	0.75	1	0	0.25	0.5
172	5,12,19,26	0.5	0.75	1				0.75	1	1	0	0.25	0.5
173	5,12,19,26	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0	0	0.25
174	5,12,19,26	0.75	1	1	0.5	0.75	1	0.75	1	1	0	0.25	0.5
175	5,12,19,26	0.5	0.75	1				0.5	0.75	1	0	0.25	0.5
176	5,12,19,26	0.75	1	1				0.5	0.75	1	0	0.25	0.5
177	5,12,19,26	0.5	0.75	1				0.5	0.75	1	0	0.25	0.5
178	5,12,19,26	0.75	1	1				0.75	1	1	0.25	0.5	0.75
179	5,12,19,26	0.5	0.75	1				0.5	0.75	1	0.75	1	1
180	5,12,19,26	0.75	1	1				0.75	1	1	0.25	0.5	0.75
The Average		0.61	0.86	0.99	0.58	0.83	1.00	0.59	0.84	0.98	0.19	0.39	0.60

### Question 6,13,20,27

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
161	6,13,20,27	0.5	0.75	1				0.5	0.75	1	0.5	0.75	1
162	6,13,20,27	0.5	0.75	1				0.5	0.75	1	0.5	0.75	1
163	6,13,20,27	0.5	0.75	1	0.75	1	1	0.75	1	1	0.5	0.75	1
164	6,13,20,27	0.5	0.75	1				0.75	1	1	0.25	0.5	0.75
165	6,13,20,27	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.5	0.75	1
166	6,13,20,27	0.75	1	1	0.5	0.75	1	0.75	1	1	0.5	0.75	1
167	6,13,20,27	0.75	1	1	0.75	1	1	0	0.25	0.5	0.5	0.75	1
168	6,13,20,27	0.5	0.75	1	0.75	1	1	0.75	1	1	0	0.25	0.5
169	6,13,20,27	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1
170	6,13,20,27	0.75	1	1				0.75	1	1	0.5	0.75	1
171	6,13,20,27	0.5	0.75	1				0.5	0.75	1	0.5	0.75	1
172	6,13,20,27	0.5	0.75	1				0.75	1	1	0.5	0.75	1
173	6,13,20,27	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.5	0.75	1
174	6,13,20,27	0.75	1	1	0.75	1	1	0.5	0.75	1	0.75	1	1
175	6,13,20,27	0.5	0.75	1				0.5	0.75	1	0.5	0.75	1
176	6,13,20,27	0.75	1	1				0.5	0.75	1	0.5	0.75	1
177	6,13,20,27	0.5	0.75	1				0.5	0.75	1	0.5	0.75	1
178	6,13,20,27	0.75	1	1				0.5	0.75	1	0.5	0.75	1
179	6,13,20,27	0.75	1	1				0.75	1	1	0.75	1	1
180	6,13,20,27	0.75	1	1				0.75	1	1	0.75	1	1
The Average		0.60	0.85	1.00	0.72	0.97	1.00	0.59	0.84	0.98	0.51	0.76	0.96

### Question 7,14,21,28

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
161	7,14,21,28	0.25	0.5	0.75	0.25	0.5	0.75	0.75	1	1	0.75	1	1
162	7,14,21,28	0	0.25	0.5	0.5	0.75	1	0.25	0.5	0.75	0.75	1	1
163	7,14,21,28	0.75	1	1	0.5	0.75	1	0.75	1	1	0.25	0.5	0.75
164	7,14,21,28	0.25	0.5	0.75				0.5	0.75	1	0.75	1	1

165	7,14,21,28	0	0.25	0.5	0	0	0.25	0.75	1	1	0.75	1	1
166	7,14,21,28	0.75	1	1	0	0.25	0.5	0.5	0.75	1	0.75	1	1
167	7,14,21,28	0	0.25	0.5	0	0.25	0.5	0.5	0.75	1	0.5	0.75	1
168	7,14,21,28	0.75	1	1	0	0.25	0.5	0.5	0.75	1	0.5	0.75	1
169	7,14,21,28	0.5	0.75	1	0	0.25	0.5	0.75	1	1	0.75	1	1
170	7,14,21,28	0.75	1	1	0.25	0.5	0.75	0.75	1	1	0.75	1	1
171	7,14,21,28	0.5	0.75	1	0	0.25	0.5	0.75	1	1	0.75	1	1
172	7,14,21,28	0.5	0.75	1	0	0.25	0.5	0.75	1	1	0.5	0.75	1
173	7,14,21,28	0	0.25	0.5	0	0	0.25	0.75	1	1	0.75	1	1
174	7,14,21,28	0.5	0.75	1	0.25	0.5	0.75	0.75	1	1	0.75	1	1
175	7,14,21,28	0.5	0.75	1	0	0	0.25	0.5	0.75	1	0.5	0.75	1
176	7,14,21,28	0.75	1	1	0	0.25	0.5	0.5	0.75	1	0.5	0.75	1
177	7,14,21,28	0.5	0.75	1	0	0.25	0.5	0.5	0.75	1	0.5	0.75	1
178	7,14,21,28	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
179	7,14,21,28	0.75	1	1	0.75	1	1	0.75	1	1	0.25	0.5	0.75
180	7,14,21,28	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
The Average		0.48	0.73	0.88	0.21	0.42	0.63	0.64	0.89	0.99	0.63	0.88	0.98

**7.2.2.2- Malay Language Average ratings and weights according to the statements (N=20).**

**7.2.2.2-A Sup-attribute 1 (Effectiveness) Rating and weights for all the characteristics (7) for all users (N=20)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Effectiveness )					
		Ratings(R)			Weights(W)		
For all users 161 to 180	1	0.56	0.71	0.81	0.43	0.63	0.79
	2	0.58	0.77	0.89	0.40	0.65	0.86
	3	0.79	0.94	0.99	0.61	0.86	0.98
	4	0.80	0.95	1.00	0.63	0.88	1.00
	5	0.79	0.94	1.00	0.61	0.86	0.99
	6	0.78	0.94	1.00	0.60	0.85	1.00
	7	0.64	0.80	0.89	0.48	0.73	0.88

**7.2.2.2-B Sup-attribute 1 (Efficiency) Rating and weights for all the characteristics (7) for all users (N=20)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Efficiency )					
		Ratings(R)			Weights(W)		
For all users 161 to 180	8	0.78	0.94	1.00	0.60	0.85	0.99
	9	0.75	0.92	0.99	0.56	0.81	0.98
	10	0.76	0.93	1.00	0.58	0.83	0.99
	11	0.79	0.95	1.00	0.61	0.86	1.00
	12	0.68	0.86	0.94	0.58	0.83	1.00
	13	0.88	0.99	1.00	0.72	0.97	1.00
	14	0.38	0.54	0.69	0.21	0.42	0.63

**7.2.2.2-C Sup-attribute 1 (Satisfaction) Rating and weights for all the characteristics (7) for all users (N=20)**

Serial Numbers	Characteristic	Sup-attribute 1 ( Satisfaction )					
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		Ratings(R)			Weights(W)		
For all users 161 to 180	15	0.75	0.91	0.97	0.58	0.83	0.96
	16	0.66	0.83	0.92	0.49	0.71	0.90
	17	0.76	0.92	0.99	0.58	0.83	0.96
	18	0.72	0.89	0.97	0.54	0.79	0.95
	19	0.77	0.93	0.99	0.59	0.84	0.98
	20	0.76	0.92	0.98	0.59	0.84	0.98
	21	0.81	0.95	1.00	0.64	0.89	0.99

**7.2.2.2-D Sup-attribute 1 (Comprehensibility) Rating and weights for all the characteristics (7) for all users (N=20)**

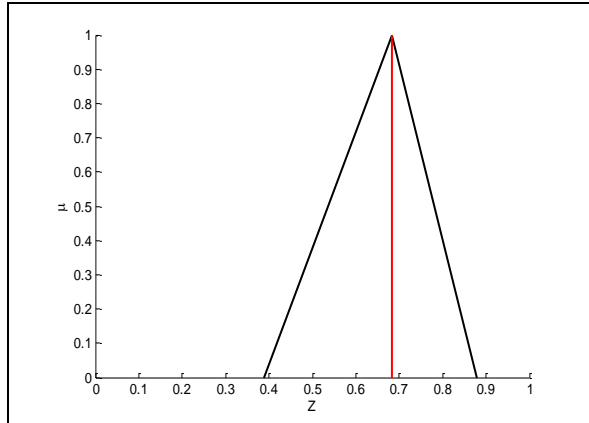
Serial Numbers for users	Characteristic	Sup-attribute 1 ( Comprehensibility)					
		Ratings(R)			Weights(W)		
For all users 161 to 180	22	0.82	0.96	1.00	0.65	0.90	1.00
	23	0.33	0.50	0.67	0.20	0.40	0.63
	24	0.75	0.93	1.00	0.56	0.81	1.00
	25	0.76	0.93	1.00	0.58	0.83	0.99
	26	0.31	0.48	0.64	0.19	0.39	0.60
	27	0.70	0.88	0.97	0.51	0.76	0.96
	28	0.82	0.96	1.00	0.63	0.88	0.98

Serial Numbers for users	Sup- attribute	attribute A - Effectiveness								
		Ratings(R)			Weights(W)			R*W		
For all users 161 to 180	1	0.56	0.71	0.81	0.43	0.63	0.79	0.24	0.45	0.64
	2	0.58	0.77	0.89	0.40	0.65	0.86	0.23	0.50	0.77
	3	0.79	0.94	0.99	0.61	0.86	0.98	0.48	0.81	0.97
	4	0.80	0.95	1.00	0.63	0.88	1.00	0.50	0.84	1.00
	5	0.79	0.94	1.00	0.61	0.86	0.99	0.48	0.81	0.99
	6	0.78	0.94	1.00	0.60	0.85	1.00	0.47	0.80	1.00
	7	0.64	0.80	0.89	0.48	0.73	0.88	0.31	0.58	0.78
<b>The Average</b>					0.537	0.780	0.929	0.388	0.683	0.878

Ratings (R), Effectiveness attribute A

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For Effectiveness: - R attribute A = (0.388, 0.683, 0.878)



Weight (W), Effectiveness attribute A

$$W \text{ attribute} = W \text{ sup-attribute 1} + W \text{ sup-attribute 2} + \dots + W \text{ sup-attribute } n$$

For Effectiveness: -  $W \text{ sup-attribute 1} = (0.537, 0.780, 0.929)$

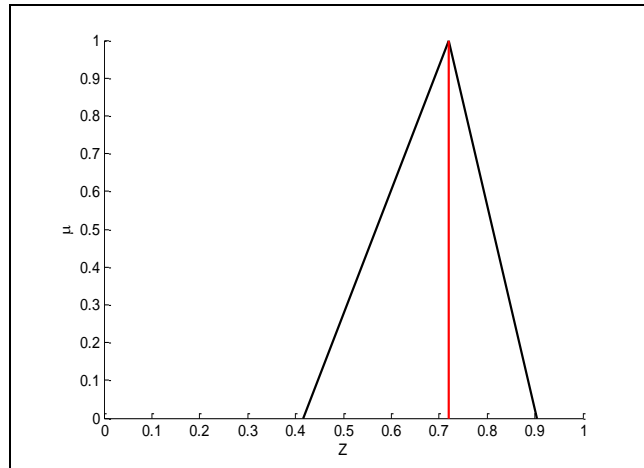
Attribute A ( Effectiveness )					
Ratings(R)			Weights(W)		
<b>0.388</b>	<b>0.683</b>	<b>0.878</b>	<b>0.537</b>	<b>0.780</b>	<b>0.929</b>

Serial Numbers for users	Sup-attribute	Attribute B - Efficiency								
		Ratings(R)			Weights(W)			R*W		
For all users 161 to 180	8	<b>0.78</b>	<b>0.94</b>	<b>1.00</b>	<b>0.60</b>	<b>0.85</b>	<b>0.99</b>	<b>0.47</b>	<b>0.80</b>	<b>0.99</b>
	9	<b>0.75</b>	<b>0.92</b>	<b>0.99</b>	<b>0.56</b>	<b>0.81</b>	<b>0.98</b>	<b>0.42</b>	<b>0.75</b>	<b>0.97</b>
	10	<b>0.76</b>	<b>0.93</b>	<b>1.00</b>	<b>0.58</b>	<b>0.83</b>	<b>0.99</b>	<b>0.44</b>	<b>0.77</b>	<b>0.99</b>
	11	<b>0.79</b>	<b>0.95</b>	<b>1.00</b>	<b>0.61</b>	<b>0.86</b>	<b>1.00</b>	<b>0.48</b>	<b>0.82</b>	<b>1.00</b>
	12	<b>0.68</b>	<b>0.86</b>	<b>0.94</b>	<b>0.58</b>	<b>0.83</b>	<b>1.00</b>	<b>0.39</b>	<b>0.71</b>	<b>0.94</b>
	13	<b>0.88</b>	<b>0.99</b>	<b>1.00</b>	<b>0.72</b>	<b>0.97</b>	<b>1.00</b>	<b>0.63</b>	<b>0.96</b>	<b>1.00</b>
	14	<b>0.38</b>	<b>0.54</b>	<b>0.69</b>	<b>0.21</b>	<b>0.42</b>	<b>0.63</b>	<b>0.08</b>	<b>0.23</b>	<b>0.43</b>
<b>The Average</b>					<b>0.551</b>	<b>0.796</b>	<b>0.941</b>	<b>0.417</b>	<b>0.719</b>	<b>0.904</b>

Ratings (R), Efficiency attribute B

$$R \text{ attribute} = (R \text{ sup-attribute 1} * W \text{ sup-attribute 1} + R \text{ sup-attribute 2} * W \text{ sup-attribute 2} + \dots + R \text{ sup-attribute } n * W \text{ sup-attribute } n)$$

For Efficiency: -  $R \text{ attribute B} = (0.417, 0.719, 0.904)$



Weight (W), **Efficiency** attribute B

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Efficiency**: - W attribute B = (0.551, 0.796, 0.941)

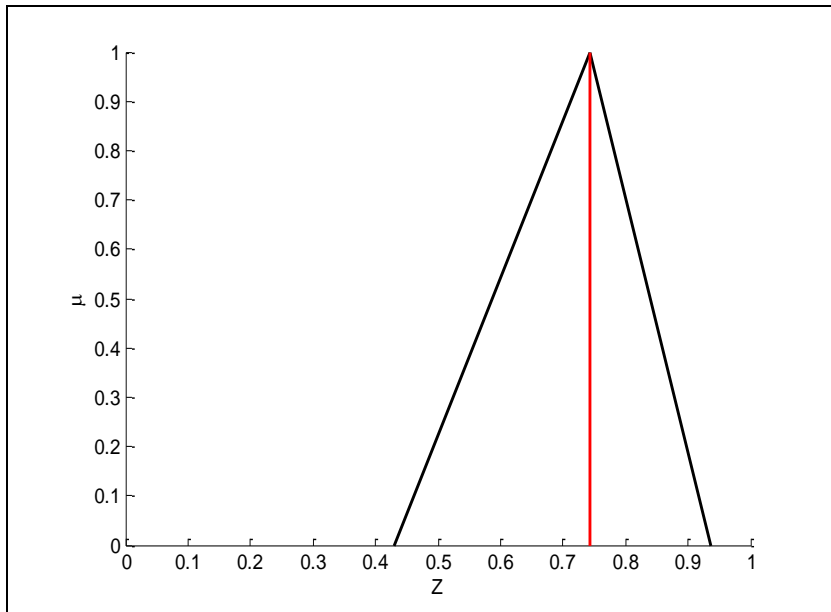
Attribute B ( Efficiency )					
Ratings(R)			Weights(W)		
<b>0.417</b>	<b>0.719</b>	<b>0.904</b>	<b>0.551</b>	<b>0.796</b>	<b>0.941</b>

Serial Numbers for users	Sup-attribute	Attribute C - Satisfaction								
		Ratings(R)			Weights(W)			R*W		
For all users 161 to 180	15	0.75	0.91	0.97	0.58	0.83	0.96	0.44	0.76	0.93
	16	0.66	0.83	0.92	0.49	0.71	0.90	0.32	0.59	0.83
	17	0.76	0.92	0.99	0.58	0.83	0.96	0.44	0.76	0.95
	18	0.72	0.89	0.97	0.54	0.79	0.95	0.39	0.70	0.92
	19	0.77	0.93	0.99	0.59	0.84	0.98	0.45	0.78	0.97
	20	0.76	0.92	0.98	0.59	0.84	0.98	0.45	0.77	0.96
	21	0.81	0.95	1.00	0.64	0.89	0.99	0.52	0.85	0.99
<b>The Average</b>					<b>0.573</b>	<b>0.819</b>	<b>0.960</b>	<b>0.430</b>	<b>0.744</b>	<b>0.936</b>

Ratings (R), **Satisfaction** attribute C

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + ..... + R sup-attribute n \* W sup-attribute n )

For **Satisfaction**: - R attribute C = (0.430, 0.744, 0.936)



Weight (W), **Satisfaction** attribute C

$$W \text{ attribute} = W \text{ sup-attribute } 1 + W \text{ sup-attribute } 2 + \dots + W \text{ sup-attribute } n$$

For **Satisfaction**: - W attribute C = (0.573, 0.819, 0.960)

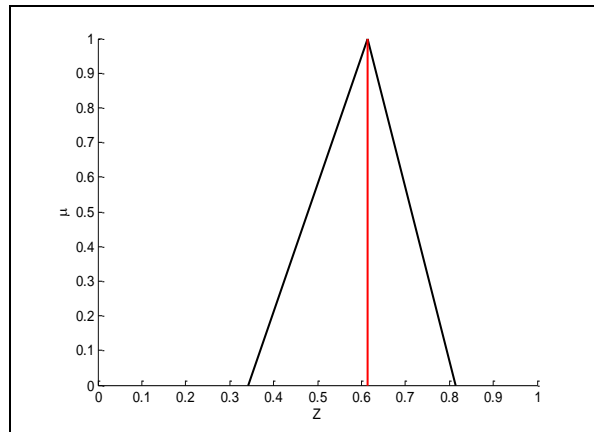
Attribute C ( Satisfaction )					
Ratings(R)			Weights(W)		
<b>0.430</b>	<b>0.744</b>	<b>0.936</b>	<b>0.573</b>	<b>0.819</b>	<b>0.960</b>

Serial Numbers for users	Sup-attribute	Attribute D - Comprehensibility								
		Ratings(R)			Weights(W)			R*W		
For all users 161 to 180	22	0.82	0.96	1.00	0.65	0.90	1.00	0.53	0.86	1.00
	23	0.33	0.50	0.67	0.20	0.40	0.63	0.07	0.20	0.42
	24	0.75	0.93	1.00	0.56	0.81	1.00	0.42	0.75	1.00
	25	0.76	0.93	1.00	0.58	0.83	0.99	0.44	0.77	0.99
	26	0.31	0.48	0.64	0.19	0.39	0.60	0.06	0.19	0.38
	27	0.70	0.88	0.97	0.51	0.76	0.96	0.36	0.67	0.93
	28	0.82	0.96	1.00	0.63	0.88	0.98	0.52	0.84	0.98
<b>The Average</b>					<b>0.474</b>	<b>0.710</b>	<b>0.880</b>	<b>0.342</b>	<b>0.613</b>	<b>0.815</b>

Ratings (R), **Comprehensibility** attribute D

$$R \text{ attribute} = (R \text{ sup-attribute } 1 * W \text{ sup-attribute } 1 + R \text{ sup-attribute } 2 * W \text{ sup-attribute } 2 + \dots + R \text{ sup-attribute } n * W \text{ sup-attribute } n)$$

For **Comprehensibility**: - R attribute D = (0.342, 0.613, 0.815)



Weight (W), **Comprehensibility** attribute D

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Comprehensibility**: - W attribute D = (0.474, 0.710, 0.880)

Attribute D ( Comprehensibility )					
Ratings(R)			Weights(W)		
0.342	0.613	0.815	0.474	0.710	0.880

### 7.2.3.5- Ratings and weights of the Usability

The Variables	Fuzzy Rating (R)			Fuzzy weight (W)			R * W		
	Effectiveness	0.388	0.683	0.878	0.537	0.780	0.929	0.208	0.533
Efficiency	0.417	0.719	0.904	0.551	0.796	0.941	0.230	0.572	0.851
Satisfaction	0.430	0.744	0.936	0.573	0.819	0.960	0.246	0.609	0.899
Comprehensibility	0.342	0.613	0.815	0.474	0.710	0.880	0.162	0.435	0.717
<b>Average</b>				0.534	0.776	0.928	0.212	0.537	0.821

Ratings (R), Usability of Malay

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + ..... + R sup-attribute n \* W sup-attribute n )/n

For Usability of Malay: - R Usability = (0.212, 0.537, 0.821)

Weight (W), Usability of Malay

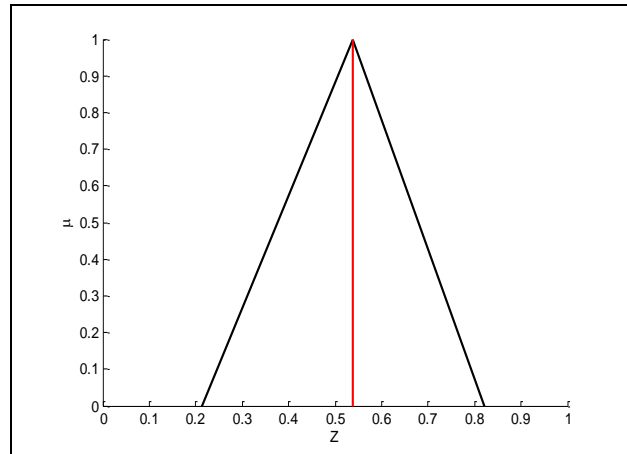
W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute / n

For Usability of Malay: - W Usability = (0.534, 0.776, 0.928)

## Usability of Malay

Ratings(R)			Weights(W)		
0.212	0.537	0.821	0.534	0.776	0.928

**R usability Malay = (0.212, 0.537, 0.821)**



**R = 0.588**

**Malay Language Application Usability  $Z^* = 0.588$**

# 8- Nederland Language

## 8.2.2.2- Nederland Language Average ratings according to the statements (N=9).

### Question 1,8,15,22 (Characteristic) for all Sub-attributes

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
Ratings		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
181	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
182	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
183	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
184	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
185	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
186	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
187	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
188	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
189	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
The Average		0.74	0.92	1.00	0.86	0.98	1.00	0.88	0.99	1.00	0.86	0.98	1.00

### Question 2,9,16,23

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
Ratings		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
181	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5
182	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9
183	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9
184	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9
185	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
186	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
187	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9
188	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
189	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9
The Average		0.83	0.97	1.00	0.77	0.93	1.00	0.79	0.94	1.00	0.57	0.74	0.89

### Question 3,10,17,24

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
Ratings		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
181	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
182	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
183	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0
184	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0

185	3,10,17,24	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0
186	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
187	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
188	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
189	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
The Average		0.79	0.94	1.00	0.81	0.94	0.99	0.79	0.93	0.99	0.79	0.94	1.00

### Question 4,11,18,25

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
181	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
182	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
183	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
184	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
185	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
186	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
187	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
188	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
189	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.74	0.92	1.00	0.79	0.94	1.00	0.79	0.94	1.00	0.83	0.97	1.00

### Question 5,12,19,26

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
181	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9
182	5,12,19,26	0.7	0.9	1.0				0.9	1.0	1.0	0.5	0.7	0.9
183	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9
184	5,12,19,26	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.0	0.1	0.3
185	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.5	0.7	0.9
186	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
187	5,12,19,26	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9
188	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.5	0.7	0.9
189	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9
The Average		0.83	0.97	1.00	0.90	1.00	1.00	0.86	0.98	1.00	0.47	0.66	0.84

### Question 6,13,20,27

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
181	6,13,20,27	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
182	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.9	1.0	1.0
183	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
184	6,13,20,27	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
185	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.9	1.0	1.0
186	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.9	1.0	1.0
187	6,13,20,27	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0



188	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
189	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
The Average		0.86	0.98	1.00	0.78	0.94	1.00	0.81	0.96	1.00	0.86	0.98	1.00

### Question 7,14,21,28

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
181	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	
182	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
183	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	
184	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
185	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
186	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
187	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	
188	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
189	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
The Average		0.88	0.99	1.00	0.72	0.88	0.97	0.81	0.96	1.00	0.86	0.98	1.00	

### 8.2.3-Fuzzy Weight

#### 8.2.3.1- Triangular Fuzzy sets for fuzzy weights

Fuzzy Value			Fuzzy weights
1	Strongly Disagree	SD	(0.0, 0.0, 0.25)
2	Disagree	D	(0.0, 0.25, 0.5)
3	Neutral	N	(0.25, 0.5, 0.75)
4	Agree	A	(0.5, 0.75, 1.0)
5	Strongly Agree	SA	(0.75, 1.0, 1.0)

#### 8.2.3.2 Nederland Language Average weights according to the statements (N=9).

#### Question 1,8,15,22 (Characteristic) for all sub-Attribute

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )												
		weights			Effectiveness			Efficiency			Satisfaction			Comprehensibility
181	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	
182	1,8,15,22	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	
183	1,8,15,22	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	
184	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	
185	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	
186	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	
187	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	
188	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	
189	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	

The Average	0.56	0.81	1.00	0.69	0.94	1.00	0.72	0.97	1.00	0.69	0.94	1.00
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### Question 2,9,16,23

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
181	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.0	0.25	0.5
182	2,9,16,23	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75
183	2,9,16,23	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
184	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.0	0.25	0.5
185	2,9,16,23	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
186	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
187	2,9,16,23	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75
188	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
189	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
The Average		0.67	0.92	1.00	0.58	0.83	1.00	0.61	0.86	1.00	0.28	0.53	0.72

### Question 3,10,17,24

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
181	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
182	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
183	3,10,17,24	0.5	0.75	1.0	0.75	1.0	1.0	0.25	0.5	0.75	0.5	0.75	1.0
184	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
185	3,10,17,24	0.5	0.75	1.0	0.25	0.5	0.75	0.5	0.75	1.0	0.75	1.0	1.0
186	3,10,17,24	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
187	3,10,17,24	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
188	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
189	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
The Average		0.61	0.86	1.00	0.64	0.89	0.97	0.61	0.86	0.97	0.61	0.86	1.00

### Question 4,11,18,25

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
181	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
182	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
183	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
184	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
185	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
186	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
187	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
188	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
189	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
The Average		0.56	0.81	1.00	0.61	0.86	1.00	0.61	0.86	1.00	0.67	0.92	1.00

### Question 5,12,19,26

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>181</b>	<b>5,12,19,26</b>	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	<b>0.25</b>	<b>0.5</b>	<b>0.75</b>
<b>182</b>	<b>5,12,19,26</b>	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>	0.75	1.0	1.0	<b>0.25</b>	<b>0.5</b>	<b>0.75</b>
<b>183</b>	<b>5,12,19,26</b>	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	<b>0.0</b>	<b>0.25</b>	<b>0.5</b>
<b>184</b>	<b>5,12,19,26</b>	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>	0.75	1.0	1.0	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.25</b>
<b>185</b>	<b>5,12,19,26</b>	0.75	1.0	1.0				0.75	1.0	1.0	<b>0.25</b>	<b>0.5</b>	<b>0.75</b>
<b>186</b>	<b>5,12,19,26</b>	0.75	1.0	1.0				0.75	1.0	1.0	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>
<b>187</b>	<b>5,12,19,26</b>	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>	0.75	1.0	1.0	0.75	1.0	1.0	<b>0.0</b>	<b>0.25</b>	<b>0.5</b>
<b>188</b>	<b>5,12,19,26</b>	0.75	1.0	1.0				0.75	1.0	1.0	<b>0.25</b>	<b>0.5</b>	<b>0.75</b>
<b>189</b>	<b>5,12,19,26</b>	0.75	1.0	1.0	0.75	1.0	1.0	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>	<b>0.25</b>	<b>0.5</b>	<b>0.75</b>
<b>The Average</b>		<b>0.67</b>	<b>0.92</b>	<b>1.00</b>	<b>0.71</b>	<b>0.96</b>	<b>1.00</b>	<b>0.69</b>	<b>0.94</b>	<b>1.00</b>	<b>0.19</b>	<b>0.42</b>	<b>0.67</b>

### Question 6,13,20,27

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>181</b>	<b>6,13,20,27</b>	0.75	1.0	1.0	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>	0.75	1.0	1.0	0.75	1.0	1.0
<b>182</b>	<b>6,13,20,27</b>	0.75	1.0	1.0				<b>0.5</b>	<b>0.75</b>	<b>1.0</b>	0.75	1.0	1.0
<b>183</b>	<b>6,13,20,27</b>	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
<b>184</b>	<b>6,13,20,27</b>	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>	0.75	1.0	1.0	0.75	1.0	1.0
<b>185</b>	<b>6,13,20,27</b>	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>				<b>0.5</b>	<b>0.75</b>	<b>1.0</b>	0.75	1.0	1.0
<b>186</b>	<b>6,13,20,27</b>	0.75	1.0	1.0				<b>0.5</b>	<b>0.75</b>	<b>1.0</b>	0.75	1.0	1.0
<b>187</b>	<b>6,13,20,27</b>	0.75	1.0	1.0	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>	0.75	1.0	1.0	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>
<b>188</b>	<b>6,13,20,27</b>	0.75	1.0	1.0				0.75	1.0	1.0	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>
<b>189</b>	<b>6,13,20,27</b>	0.75	1.0	1.0	0.75	1.0	1.0	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>	0.75	1.0	1.0
<b>The Average</b>		<b>0.69</b>	<b>0.94</b>	<b>1.00</b>	<b>0.60</b>	<b>0.85</b>	<b>1.00</b>	<b>0.64</b>	<b>0.89</b>	<b>1.00</b>	<b>0.69</b>	<b>0.94</b>	<b>1.00</b>

### Question 7,14,21,28

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>181</b>	<b>7,14,21,28</b>	0.75	1.0	1.0	<b>0.25</b>	<b>0.5</b>	<b>0.75</b>	0.75	1.0	1.0	0.75	1.0	1.0
<b>182</b>	<b>7,14,21,28</b>	0.75	1.0	1.0				<b>0.5</b>	<b>0.75</b>	<b>1.0</b>	0.75	1.0	1.0
<b>183</b>	<b>7,14,21,28</b>	0.75	1.0	1.0	<b>0.0</b>	<b>0.25</b>	<b>0.5</b>	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>
<b>184</b>	<b>7,14,21,28</b>	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
<b>185</b>	<b>7,14,21,28</b>	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
<b>186</b>	<b>7,14,21,28</b>	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
<b>187</b>	<b>7,14,21,28</b>	0.75	1.0	1.0	<b>0.0</b>	<b>0.25</b>	<b>0.5</b>	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>	0.75	1.0	1.0
<b>188</b>	<b>7,14,21,28</b>	0.75	1.0	1.0	0.75	1.0	1.0	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>	0.75	1.0	1.0
<b>189</b>	<b>7,14,21,28</b>	0.75	1.0	1.0	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>	0.75	1.0	1.0	<b>0.5</b>	<b>0.75</b>	<b>1.0</b>
<b>The Average</b>		<b>0.72</b>	<b>0.97</b>	<b>1.00</b>	<b>0.47</b>	<b>0.72</b>	<b>0.84</b>	<b>0.64</b>	<b>0.89</b>	<b>1.00</b>	<b>0.69</b>	<b>0.94</b>	<b>1.00</b>

### 8.2.2.2- Nederland Language Average ratings and weights according to the statements (N=9).

**8.2.2.2-A Sup-attribute 1 (Effectiveness) Rating and weights for all the characteristics (7) for all users (N=9)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Effectiveness )					
		Ratings(R)			Weights(W)		
For all users 181 to 189	1	0.42	0.75	1.00	0.56	0.81	1.00
	2	0.57	0.89	1.00	0.67	0.92	1.00
	3	0.49	0.82	1.00	0.61	0.86	1.00
	4	0.42	0.75	1.00	0.56	0.81	1.00
	5	0.57	0.89	1.00	0.67	0.92	1.00
	6	0.60	0.93	1.00	0.69	0.94	1.00
	7	0.64	0.96	1.00	0.72	0.97	1.00

**8.2.2.2-B Sup-attribute 1 (Efficiency) Rating and weights for all the characteristics (7) for all users (N=9)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Efficiency )					
		Ratings(R)			Weights(W)		
For all users 181 to 189	8	0.60	0.93	1.00	0.69	0.94	1.00
	9	0.46	0.78	1.00	0.58	0.83	1.00
	10	0.54	0.86	0.96	0.64	0.89	0.97
	11	0.49	0.82	1.00	0.61	0.86	1.00
	12	0.68	1.00	1.00	0.75	1.00	1.00
	13	0.60	0.85	1.00	0.48	0.81	1.00
	14	0.40	0.67	0.82	0.47	0.72	0.84

**8.2.2.2-C Sup-attribute 1 (Satisfaction) Rating and weights for all the characteristics (7) for all users (N=9)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Satisfaction )					
		Ratings(R)			Weights(W)		
For all users 181 to 189	15	0.60	0.93	1.00	0.69	0.94	1.00
	16	0.46	0.78	1.00	0.58	0.83	1.00
	17	0.54	0.86	0.96	0.64	0.89	0.97
	18	0.49	0.82	1.00	0.61	0.86	1.00
	19	0.68	1.00	1.00	0.75	1.00	1.00
	20	0.60	0.85	1.00	0.48	0.81	1.00
	21	0.40	0.67	0.82	0.47	0.72	0.84

**8.2.2.2-D Sup-attribute 1 (Comprehensibility) Rating and weights for all the characteristics (7) for all users (N=9)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Comprehensibility )					
		Ratings(R)			Weights(W)		
For all	22	0.64	0.96	1.00	0.72	0.97	1.00

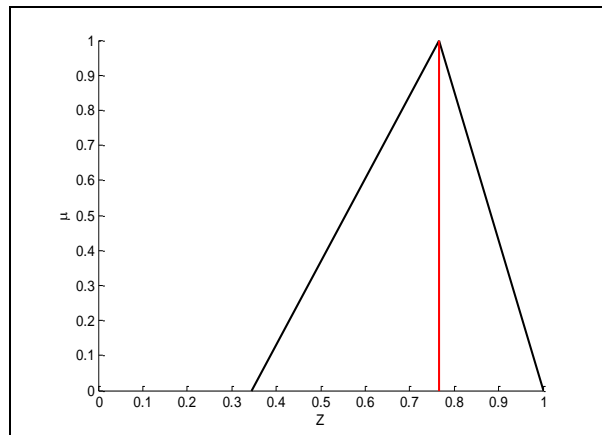
users 181 to 189	23	0.49	0.82	1.00	0.61	0.86	1.00
	24	0.51	0.82	0.96	0.61	0.86	0.97
	25	0.49	0.82	1.00	0.61	0.86	1.00
	26	0.60	0.93	1.00	0.69	0.94	1.00
	27	0.53	0.86	1.00	0.64	0.89	1.00
	28	0.53	0.86	1.00	0.64	0.89	1.00

Serial Numbers for users	Sup-attribute	attribute A - Effectiveness								
		Ratings(R)			Weights(W)			R*W		
For all users 181 to 189	1	0.42	0.75	1.00	0.56	0.81	1.00	0.24	0.61	1.00
	2	0.57	0.89	1.00	0.67	0.92	1.00	0.38	0.82	1.00
	3	0.49	0.82	1.00	0.61	0.86	1.00	0.30	0.71	1.00
	4	0.42	0.75	1.00	0.56	0.81	1.00	0.24	0.61	1.00
	5	0.57	0.89	1.00	0.67	0.92	1.00	0.38	0.82	1.00
	6	0.60	0.93	1.00	0.69	0.94	1.00	0.41	0.87	1.00
	7	0.64	0.96	1.00	0.72	0.97	1.00	0.46	0.93	1.00
The Average					0.640	0.890	1.000	0.344	0.766	1.000

Ratings (R), Effectiveness attribute A

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + ..... + R sup-attribute n \* W sup-attribute n )

For Effectiveness: - R attribute A = (0.344, 0.766, 1)



Weight (W), Effectiveness attribute A

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For Effectiveness: - W sup-attribute 1 = (0.640, 0.890, 1)

Attribute A ( Effectiveness )

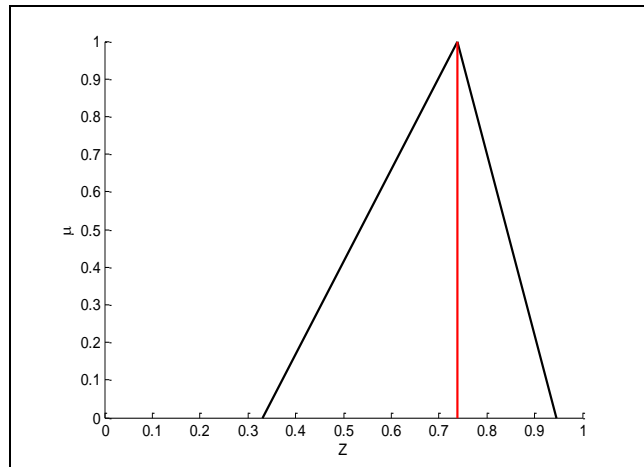
Ratings(R)			Weights(W)		
<b>0.344</b>	<b>0.766</b>	<b>1.000</b>	<b>0.640</b>	<b>0.890</b>	<b>1.000</b>

Serial Numbers for users	Sup-attribute	Attribute B - Efficiency								
		Ratings(R)			Weights(W)			R*W		
For all users 181 to 189	8	<b>0.60</b>	<b>0.93</b>	<b>1.00</b>	<b>0.69</b>	<b>0.94</b>	<b>1.00</b>	<b>0.41</b>	<b>0.87</b>	<b>1.00</b>
	9	<b>0.46</b>	<b>0.78</b>	<b>1.00</b>	<b>0.58</b>	<b>0.83</b>	<b>1.00</b>	<b>0.27</b>	<b>0.65</b>	<b>1.00</b>
	10	<b>0.54</b>	<b>0.86</b>	<b>0.96</b>	<b>0.64</b>	<b>0.89</b>	<b>0.97</b>	<b>0.35</b>	<b>0.77</b>	<b>0.93</b>
	11	<b>0.49</b>	<b>0.82</b>	<b>1.00</b>	<b>0.61</b>	<b>0.86</b>	<b>1.00</b>	<b>0.30</b>	<b>0.71</b>	<b>1.00</b>
	12	<b>0.68</b>	<b>1.00</b>	<b>1.00</b>	<b>0.75</b>	<b>1.00</b>	<b>1.00</b>	<b>0.51</b>	<b>1.00</b>	<b>1.00</b>
	13	<b>0.60</b>	<b>0.85</b>	<b>1.00</b>	<b>0.48</b>	<b>0.81</b>	<b>1.00</b>	<b>0.29</b>	<b>0.69</b>	<b>1.00</b>
<b>The Average</b>					<b>0.603</b>	<b>0.864</b>	<b>0.973</b>	<b>0.330</b>	<b>0.738</b>	<b>0.946</b>

Ratings (R), **Efficiency** attribute B

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Efficiency**: - R attribute B = (0.330, 0.738,0.946)



Weight (W), **Efficiency** attribute B

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Efficiency**: - W attribute B = (0.603, 0.864,0.973)

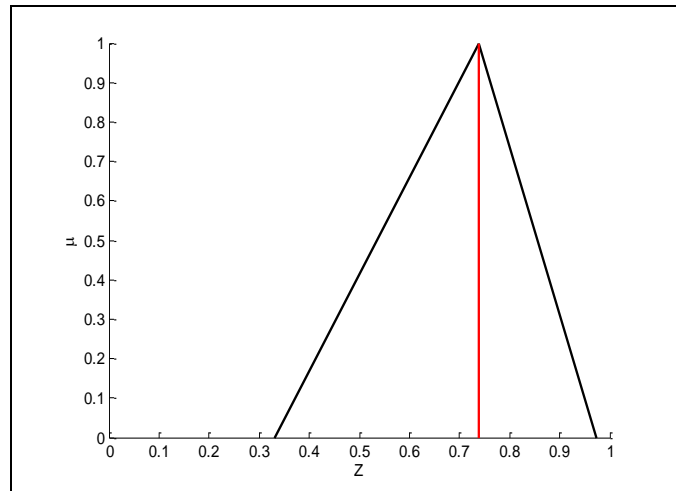
Attribute B ( Efficiency )					
Ratings(R)			Weights(W)		
<b>0.330</b>	<b>0.738</b>	<b>0.946</b>	<b>0.603</b>	<b>0.864</b>	<b>0.973</b>

Serial Numbers for users	Sup-attribute	Attribute C - Satisfaction								
		Ratings(R)			Weights(W)			R*W		
For all users 181 to 189	15	0.60	0.93	1.00	0.69	0.94	1.00	0.41	0.87	1.00
	16	0.46	0.78	1.00	0.58	0.83	1.00	0.27	0.65	1.00
	17	0.54	0.86	0.96	0.64	0.89	0.97	0.35	0.77	0.93
	18	0.49	0.82	1.00	0.61	0.86	1.00	0.30	0.71	1.00
	19	0.68	1.00	1.00	0.75	1.00	1.00	0.51	1.00	1.00
	20	0.60	0.85	1.00	0.48	0.81	1.00	0.29	0.69	1.00
	21	0.40	0.67	0.82	0.47	0.72	0.84	0.19	0.48	0.69
The Average					0.603	0.864	0.973	0.330	0.738	0.946

Ratings (R), Satisfaction attribute C

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + ..... + R sup-attribute n \* W sup-attribute n )

For Satisfaction: - R attribute C = (0.330, 0.738, 0.946)



Weight (W), Satisfaction attribute C

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute /

For Satisfaction: - W attribute C = (0.603, 0.864, 0.973)

Attribute C ( Satisfaction )					
Ratings(R)			Weights(W)		
0.330	0.738	0.946	0.603	0.864	0.973

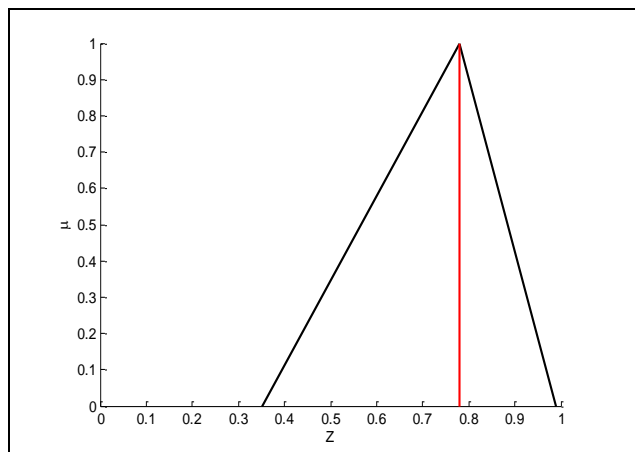
Serial Numbers for users	Sup-attribute	Attribute D - Comprehensibility		
		Ratings(R)	Weights(W)	R*W

For all users 181 to 189	22	0.64	0.96	1.00	0.72	0.97	1.00	0.46	0.93	1.00
	23	0.49	0.82	1.00	0.61	0.86	1.00	0.30	0.71	1.00
	24	0.51	0.82	0.96	0.61	0.86	0.97	0.31	0.71	0.93
	25	0.49	0.82	1.00	0.61	0.86	1.00	0.30	0.71	1.00
	26	0.60	0.93	1.00	0.69	0.94	1.00	0.41	0.87	1.00
	27	0.53	0.86	1.00	0.64	0.89	1.00	0.34	0.77	1.00
	28	0.53	0.86	1.00	0.64	0.89	1.00	0.34	0.77	1.00
The Average					0.646	0.896	0.996	0.352	0.779	0.990

Ratings (R), **Comprehensibility** attribute D

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Comprehensibility**: - R attribute D = (0.352, 0.779,0.990)



Weight (W), **Comprehensibility** attribute D

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute /

For **Comprehensibility**: - W attribute D = (0.646, 0.896,0.996)

Attribute D ( Comprehensibility )					
Ratings(R)			Weights(W)		
0.352	0.779	0.990	0.646	0.896	0.996

8.2.3.5- Ratings and weights of the Usability

The Variables	Fuzzy Rating (R)			Fuzzy weight (W)			R * W		
Effectiveness	0.344	0.766	1.000	0.640	0.890	1.000	0.220	0.682	1.000
Efficiency	0.330	0.738	0.946	0.603	0.864	0.973	0.199	0.638	0.920



<b>Satisfaction</b>	<b>0.330</b>	<b>0.738</b>	<b>0.946</b>	<b>0.603</b>	<b>0.864</b>	<b>0.973</b>	<b>0.199</b>	<b>0.638</b>	<b>0.920</b>
<b>Comprehensibility</b>	<b>0.352</b>	<b>0.779</b>	<b>0.990</b>	<b>0.646</b>	<b>0.896</b>	<b>0.996</b>	<b>0.227</b>	<b>0.698</b>	<b>0.986</b>
<b>Average</b>				<b>0.623</b>	<b>0.879</b>	<b>0.986</b>	<b>0.211</b>	<b>0.664</b>	<b>0.957</b>

### Ratings (R), Usability of Nederland

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For Usability of Nederland: - R Usability = (0.211, 0.664,0.957)

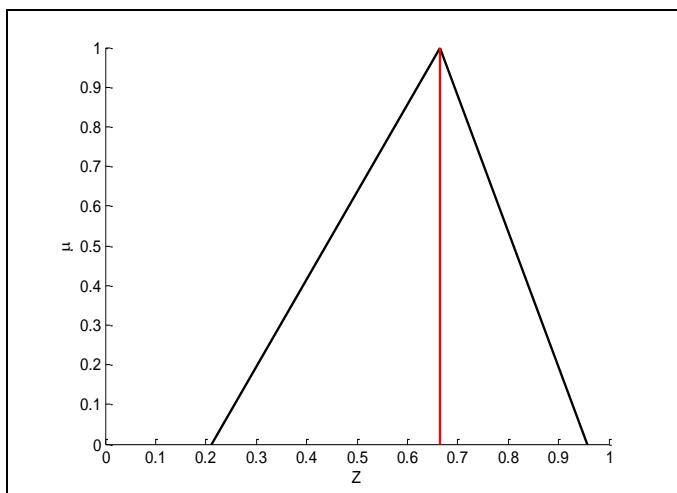
### Weight (W), Usability of Nederland

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For Usability of Nederland: - W Usability = (0.623, 0.879,0.986)

Usability of Nederland					
Ratings(R)			Weights(W)		
<b>0.211</b>	<b>0.664</b>	<b>0.957</b>	<b>0.623</b>	<b>0.879</b>	<b>0.986</b>

**R usability Nederland =(0.211, 0.664, 0.957) = 0.6882**



### 8.3- The Result: (Nederland Language)

**Nederland Language Application Usability = Z\* = 0.6882**

## 9- Polish Language

### 9.2.2.2- Polish Language Average ratings according to the statements (N=21).

Questionnaires "Serial Numbers"	Statement No.	Question 1,8,15,22 (Characteristic) for all Sub-attributes Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
190	1,8,15,22	0.9	1	1	0.7	0.9	1	0.9	1	1	0.9	1	1
191	1,8,15,22	0.7	0.9	1	0.9	1	1	0.5	0.7	0.9	0.9	1	1
192	1,8,15,22	0.7	0.9	1	0.9	1	1	0.9	1	1	0.7	0.9	1
193	1,8,15,22	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1
194	1,8,15,22	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.9	1	1
195	1,8,15,22	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.7	0.9	1
196	1,8,15,22	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1
197	1,8,15,22	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.9	1	1
198	1,8,15,22	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1
199	1,8,15,22	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1
200	1,8,15,22	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.7	0.9	1
201	1,8,15,22	0	0.1	0.3	0.9	1	1	0.9	1	1	0.9	1	1
202	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1	0.7	0.9	1	0.9	1	1
203	1,8,15,22	0	0.1	0.3	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1
204	1,8,15,22	0	0.1	0.3	0	0.1	0.3	0.7	0.9	1	0.7	0.9	1
205	1,8,15,22	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1
206	1,8,15,22	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1
207	1,8,15,22	0.9	1	1	0.7	0.9	1	0.9	1	1	0.9	1	1
208	1,8,15,22	0	0.1	0.3	0.9	1	1	0.9	1	1	0.7	0.9	1
209	1,8,15,22	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.9	1	1
210	1,8,15,22	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.9	1	1
The Average		0.58	0.74	0.86	0.75	0.90	0.97	0.79	0.93	0.99	0.82	0.96	1.00

Questionnaires "Serial Numbers"	Statement No.	Question 2,9,16,23 Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
190	2,9,16,23	0.7	0.9	1	0.9	1	1	0.5	0.7	0.9	0.1	0.3	0.5
191	2,9,16,23	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1
192	2,9,16,23	0.9	1	1	0.9	1	1	0.9	1	1	0.1	0.3	0.5
193	2,9,16,23	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9
194	2,9,16,23	0.9	1	1	0.9	1	1	0.9	1	1	0.5	0.7	0.9
195	2,9,16,23	0.7	0.9	1	0.9	1	1	0.9	1	1	0.1	0.3	0.5
196	2,9,16,23	0.9	1	1	0.9	1	1	0.7	0.9	1	0.9	1	1
197	2,9,16,23	0.9	1	1	0.9	1	1	0.9	1	1	0	0.1	0.3
198	2,9,16,23	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0	0.1	0.3
199	2,9,16,23	0.9	1	1	0.9	1	1	0.7	0.9	1	0.1	0.3	0.5
200	2,9,16,23	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.5	0.7	0.9
201	2,9,16,23	0.1	0.3	0.5	0.9	1	1	0.9	1	1	0.5	0.7	0.9
202	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1	0.7	0.9	1	0.1	0.3	0.5
203	2,9,16,23	0.1	0.3	0.5	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1

204	2,9,16,23	0.1	0.3	0.5	0.5	0.7	0.9	0.7	0.9	1	0.1	0.3	0.5
205	2,9,16,23	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9
206	2,9,16,23	0.9	1	1	0.7	0.9	1	0.9	1	1	0	0.1	0.3
207	2,9,16,23	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.9	1	1
208	2,9,16,23	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.1	0.3	0.5
209	2,9,16,23	0.7	0.9	1	0.9	1	1	0.9	1	1	0	0.1	0.3
210	2,9,16,23	0.7	0.9	1	0.9	1	1	0.1	0.3	0.5	0	0.1	0.3
The Average		0.66	0.82	0.91	0.80	0.95	1.00	0.77	0.91	0.97	0.30	0.47	0.64

Questionnaires "Serial Numbers"	Statement No.	Question 3,10,17,24 Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
190	3,10,17,24	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1
191	3,10,17,24	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.9	1	1
192	3,10,17,24	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.9	1	1
193	3,10,17,24	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1
194	3,10,17,24	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1
195	3,10,17,24	0.9	1	1	0.7	0.9	1	0.9	1	1	0.7	0.9	1
196	3,10,17,24	0.9	1	1	0.9	1	1	0.9	1	1	0.7	0.9	1
197	3,10,17,24	0.9	1	1	0.7	0.9	1	0.9	1	1	0.9	1	1
198	3,10,17,24	0.9	1	1	0.7	0.9	1	0.1	0.3	0.5	0.7	0.9	1
199	3,10,17,24	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.9	1	1
200	3,10,17,24	0.7	0.9	1	0.9	1	1	0.9	1	1	0.7	0.9	1
201	3,10,17,24	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.9	1	1
202	3,10,17,24	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.9	1	1
203	3,10,17,24	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.1	0.3	0.5
204	3,10,17,24	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.7	0.9	1
205	3,10,17,24	0.7	0.9	1	0.9	1	1	0.9	1	1	0.7	0.9	1
206	3,10,17,24	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1
207	3,10,17,24	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.9	1	1
208	3,10,17,24	0.7	0.9	1	0.9	1	1	0.9	1	1	0.7	0.9	1
209	3,10,17,24	0.9	1	1	0.7	0.9	1	0.9	1	1	0.7	0.9	1
210	3,10,17,24	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.7	0.9	1
The Average		0.74	0.91	1.00	0.77	0.93	1.00	0.81	0.94	0.98	0.75	0.91	0.98

Questionnaires "Serial Numbers"	Statement No.	Question 4,11,18,25 Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
190	4,11,18,25	0.9	1	1	0.9	1	1	0.9	1	1	0.5	0.7	0.9
191	4,11,18,25	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.9	1	1
192	4,11,18,25	0.9	1	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1
193	4,11,18,25	0.9	1	1	0.9	1	1	0.7	0.9	1	0.9	1	1
194	4,11,18,25	0.7	0.9	1	0.9	1	1	0.9	1	1	0.7	0.9	1
195	4,11,18,25	0.9	1	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1
196	4,11,18,25	0.9	1	1	0.9	1	1	0.9	1	1	0.7	0.9	1
197	4,11,18,25	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1
198	4,11,18,25	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1
199	4,11,18,25	0.9	1	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1
200	4,11,18,25	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1
201	4,11,18,25	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1
202	4,11,18,25	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.9	1	1

203	4,11,18,25	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1
204	4,11,18,25	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.7	0.9	1
205	4,11,18,25	0.7	0.9	1	0.9	1	1	0.9	1	1	0.7	0.9	1
206	4,11,18,25	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1
207	4,11,18,25	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1
208	4,11,18,25	0.9	1	1	0.9	1	1	0.9	1	1	0.7	0.9	1
209	4,11,18,25	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1
210	4,11,18,25	0.9	1	1	0.9	1	1	0.7	0.9	1	0.9	1	1
The Average		0.78	0.94	1.00	0.82	0.96	1.00	0.81	0.96	1.00	0.78	0.93	1.00

### Question 5,12,19,26

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
190	5,12,19,26	0.9	1	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1
191	5,12,19,26	0.9	1	1				0.9	1	1	0.1	0.3	0.5
192	5,12,19,26	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.5	0.7	0.9
193	5,12,19,26	0.7	0.9	1				0.9	1	1	0.5	0.7	0.9
194	5,12,19,26	0.7	0.9	1	0.9	1	1	0.9	1	1	0.1	0.3	0.5
195	5,12,19,26	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.1	0.3	0.5
196	5,12,19,26	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9
197	5,12,19,26	0.9	1	1	0.7	0.9	1	0.9	1	1	0.1	0.3	0.5
198	5,12,19,26	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.1	0.3	0.5
199	5,12,19,26	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.1	0.3	0.5
200	5,12,19,26	0.7	0.9	1				0.9	1	1	0.5	0.7	0.9
201	5,12,19,26	0.9	1	1				0.9	1	1	0.5	0.7	0.9
202	5,12,19,26	0.9	1	1				0.7	0.9	1	0.1	0.3	0.5
203	5,12,19,26	0.7	0.9	1				0.7	0.9	1	0.7	0.9	1
204	5,12,19,26	0.7	0.9	1				0.9	1	1	0.5	0.7	0.9
205	5,12,19,26	0.9	1	1	0.7	0.9	1	0.9	1	1	0.5	0.7	0.9
206	5,12,19,26	0.9	1	1	0.9	1	1	0.9	1	1	0.1	0.3	0.5
207	5,12,19,26	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1
208	5,12,19,26	0.9	1	1				0.9	1	1	0.5	0.7	0.9
209	5,12,19,26	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.1	0.3	0.5
210	5,12,19,26	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0	0.1	0.3
The Average		0.81	0.96	1.00	0.76	0.93	1.00	0.81	0.96	1.00	0.33	0.53	0.71

### Question 6,13,20,27

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
190	6,13,20,27	0.9	1	1	0.7	0.9	1	0.9	1	1	0.9	1	1
191	6,13,20,27	0.9	1	1				0.9	1	1	0.9	1	1
192	6,13,20,27	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.9	1	1
193	6,13,20,27	0.7	0.9	1				0.7	0.9	1	0.9	1	1
194	6,13,20,27	0.9	1	1	0.7	0.9	1	0.9	1	1	0.9	1	1
195	6,13,20,27	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.9	1	1
196	6,13,20,27	0.9	1	1	0.7	0.9	1	0.9	1	1	0.9	1	1
197	6,13,20,27	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.9	1	1
198	6,13,20,27	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1
199	6,13,20,27	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.9	1	1
200	6,13,20,27	0.7	0.9	1				0.9	1	1	0.9	1	1
201	6,13,20,27	0.9	1	1				0.9	1	1	0.9	1	1

202	6,13,20,27	0.9	1	1				0.7	0.9	1	0.9	1	1
203	6,13,20,27	0.7	0.9	1				0.7	0.9	1	0.1	0.3	0.5
204	6,13,20,27	0.7	0.9	1				0.7	0.9	1	0.7	0.9	1
205	6,13,20,27	0.9	1	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1
206	6,13,20,27	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1
207	6,13,20,27	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1
208	6,13,20,27	0.9	1	1				0.9	1	1	0.7	0.9	1
209	6,13,20,27	0.9	1	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1
210	6,13,20,27	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1
The Average		0.80	0.95	1.00	0.79	0.95	1.00	0.79	0.94	1.00	0.80	0.93	0.98

### Question 7,14,21,28

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
190	7,14,21,28	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1
191	7,14,21,28	0.9	1	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1
192	7,14,21,28	0.9	1	1	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1
193	7,14,21,28	0.5	0.7	0.9	0.5	0.7	0.9	0.7	0.9	1	0.9	1	1
194	7,14,21,28	0.9	1	1	0.1	0.3	0.5	0.7	0.9	1	0.9	1	1
195	7,14,21,28	0.9	1	1	0	0.1	0.3	0.9	1	1	0.9	1	1
196	7,14,21,28	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1
197	7,14,21,28	0.7	0.9	1	0.1	0.3	0.5	0.7	0.9	1	0.7	0.9	1
198	7,14,21,28	0.1	0.3	0.5	0.1	0.3	0.5	0.9	1	1	0.7	0.9	1
199	7,14,21,28	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1
200	7,14,21,28	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1
201	7,14,21,28	0.9	1	1	0.1	0.3	0.5	0.9	1	1	0.9	1	1
202	7,14,21,28	0.9	1	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1
203	7,14,21,28	0.7	0.9	1	0.1	0.3	0.5	0.7	0.9	1	0.7	0.9	1
204	7,14,21,28	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1
205	7,14,21,28	0.9	1	1	0.1	0.3	0.5	0.9	1	1	0.9	1	1
206	7,14,21,28	0.7	0.9	1	0.1	0.3	0.5	0.9	1	1	0.7	0.9	1
207	7,14,21,28	0.9	1	1	0	0.1	0.3	0.7	0.9	1	0.9	1	1
208	7,14,21,28	0.9	1	1	0.1	0.3	0.5	0.9	1	1	0.7	0.9	1
209	7,14,21,28	0.9	1	1	0.1	0.3	0.5	0.9	1	1	0.9	1	1
210	7,14,21,28	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1
The Average		0.77	0.91	0.97	0.31	0.50	0.68	0.84	0.97	1.00	0.83	0.97	1.00

## 9.2.3-Fuzzy Weight

### 9.2.3.1- Triangular Fuzzy sets for fuzzy weights

Fuzzy Value			Fuzzy weights
1	Strongly Disagree	SD	(0.0, 0.0, 0.25)
2	Disagree	D	(0.0, 0.25, 0.5)
3	Neutral	N	(0.25, 0.5, 0.75)
4	Agree	A	(0.5, 0.75, 1.0)
5	Strongly Agree	SA	(0.75, 1.0, 1.0)

### 9.2.3.2 Polish Language Average weights according to the statements (N=21).

**Question 1,8,15,22 (Characteristic) for all sub-Attribute**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
190	1,8,15,22	0.75	1	1	0.5	0.75	1	0.75	1	1	0.75	1	1
191	1,8,15,22	0.5	0.75	1	0.75	1	1	0.25	0.5	0.75	0.75	1	1
192	1,8,15,22	0.5	0.75	1	0.75	1	1	0.75	1	1	0.5	0.75	1
193	1,8,15,22	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1
194	1,8,15,22	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.75	1	1
195	1,8,15,22	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.5	0.75	1
196	1,8,15,22	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1
197	1,8,15,22	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.75	1	1
198	1,8,15,22	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.5	0.75	1
199	1,8,15,22	0.5	0.75	1	0.5	0.75	1	0.25	0.5	0.75	0.75	1	1
200	1,8,15,22	0.25	0.5	0.75	0.75	1	1	0.75	1	1	0.5	0.75	1
201	1,8,15,22	0	0	0.25	0.75	1	1	0.75	1	1	0.75	1	1
202	1,8,15,22	0.25	0.5	0.75	0.5	0.75	1	0.5	0.75	1	0.75	1	1
203	1,8,15,22	0	0	0.25	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
204	1,8,15,22	0	0	0.25	0	0	0.25	0.5	0.75	1	0.5	0.75	1
205	1,8,15,22	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1
206	1,8,15,22	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
207	1,8,15,22	0.75	1	1	0.5	0.75	1	0.75	1	1	0.75	1	1
208	1,8,15,22	0	0	0.25	0.75	1	1	0.75	1	1	0.5	0.75	1
209	1,8,15,22	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.75	1	1
210	1,8,15,22	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.75	1	1
<b>The Average</b>		<b>0.42</b>	<b>0.62</b>	<b>0.83</b>	<b>0.58</b>	<b>0.82</b>	<b>0.96</b>	<b>0.61</b>	<b>0.86</b>	<b>0.98</b>	<b>0.65</b>	<b>0.90</b>	<b>1.00</b>

Questionnaires "Serial Numbers"	Statement No.	Question 2,9,16,23 Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
190	2,9,16,23	0.5	0.75	1	0.75	1	1	0.25	0.5	0.75	0	0.25	0.5
191	2,9,16,23	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
192	2,9,16,23	0.75	1	1	0.75	1	1	0.75	1	1	0	0.25	0.5
193	2,9,16,23	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.25	0.5	0.75
194	2,9,16,23	0.75	1	1	0.75	1	1	0.75	1	1	0.25	0.5	0.75
195	2,9,16,23	0.5	0.75	1	0.75	1	1	0.75	1	1	0	0.25	0.5
196	2,9,16,23	0.75	1	1	0.75	1	1	0.5	0.75	1	0.75	1	1
197	2,9,16,23	0.75	1	1	0.75	1	1	0.75	1	1	0	0	0.25
198	2,9,16,23	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0	0	0.25
199	2,9,16,23	0.75	1	1	0.75	1	1	0.5	0.75	1	0	0.25	0.5
200	2,9,16,23	0.25	0.5	0.75	0.75	1	1	0.75	1	1	0.25	0.5	0.75
201	2,9,16,23	0	0.25	0.5	0.75	1	1	0.75	1	1	0.25	0.5	0.75
202	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1	0.5	0.75	1	0	0.25	0.5

203	2,9,16,23	0	0.25	0.5	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
204	2,9,16,23	0	0.25	0.5	0.25	0.5	0.75	0.5	0.75	1	0	0.25	0.5
205	2,9,16,23	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.25	0.5	0.75
206	2,9,16,23	0.75	1	1	0.5	0.75	1	0.75	1	1	0	0	0.25
207	2,9,16,23	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.75	1	1
208	2,9,16,23	0.25	0.5	0.75	0.75	1	1	0.75	1	1	0	0.25	0.5
209	2,9,16,23	0.5	0.75	1	0.75	1	1	0.75	1	1	0	0	0.25
210	2,9,16,23	0.5	0.75	1	0.75	1	1	0	0.25	0.5	0	0	0.25
The Average		0.49	0.74	0.89	0.63	0.88	0.99	0.60	0.85	0.96	0.18	0.37	0.60

### Question 3,10,17,24

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
190	3,10,17,24	0.5	0.75	1	0.25	0.5	0.75	0.75	1	1	0.5	0.75	1
191	3,10,17,24	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.75	1	1
192	3,10,17,24	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.75	1	1
193	3,10,17,24	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1
194	3,10,17,24	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.5	0.75	1
195	3,10,17,24	0.75	1	1	0.5	0.75	1	0.75	1	1	0.5	0.75	1
196	3,10,17,24	0.75	1	1	0.75	1	1	0.75	1	1	0.5	0.75	1
197	3,10,17,24	0.75	1	1	0.5	0.75	1	0.75	1	1	0.75	1	1
198	3,10,17,24	0.75	1	1	0.5	0.75	1	0	0.25	0.5	0.5	0.75	1
199	3,10,17,24	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.75	1	1
200	3,10,17,24	0.5	0.75	1	0.75	1	1	0.75	1	1	0.5	0.75	1
201	3,10,17,24	0.25	0.5	0.75	0.75	1	1	0.75	1	1	0.75	1	1
202	3,10,17,24	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.75	1	1
203	3,10,17,24	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0	0.25	0.5
204	3,10,17,24	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.5	0.75	1
205	3,10,17,24	0.5	0.75	1	0.75	1	1	0.75	1	1	0.5	0.75	1
206	3,10,17,24	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.5	0.75	1
207	3,10,17,24	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.75	1	1
208	3,10,17,24	0.5	0.75	1	0.75	1	1	0.75	1	1	0.5	0.75	1
209	3,10,17,24	0.75	1	1	0.5	0.75	1	0.75	1	1	0.5	0.75	1
210	3,10,17,24	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.5	0.75	1
The Average		0.55	0.80	0.99	0.58	0.83	0.99	0.65	0.90	0.98	0.57	0.82	0.98

Questionnaires "Serial Numbers"	Statement No.	Question 4,11,18,25 Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
190	4,11,18,25	0.75	1	1	0.75	1	1	0.75	1	1	0.25	0.5	0.75
191	4,11,18,25	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.75	1	1
192	4,11,18,25	0.75	1	1	0.25	0.5	0.75	0.75	1	1	0.75	1	1
193	4,11,18,25	0.75	1	1	0.75	1	1	0.5	0.75	1	0.75	1	1
194	4,11,18,25	0.5	0.75	1	0.75	1	1	0.75	1	1	0.5	0.75	1
195	4,11,18,25	0.75	1	1	0.75	1	1	0.5	0.75	1	0.5	0.75	1
196	4,11,18,25	0.75	1	1	0.75	1	1	0.75	1	1	0.5	0.75	1
197	4,11,18,25	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
198	4,11,18,25	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1
199	4,11,18,25	0.75	1	1	0.75	1	1	0.5	0.75	1	0.5	0.75	1
200	4,11,18,25	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1
201	4,11,18,25	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1
202	4,11,18,25	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.75	1	1

203	4,11,18,25	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
204	4,11,18,25	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.5	0.75	1
205	4,11,18,25	0.5	0.75	1	0.75	1	1	0.75	1	1	0.5	0.75	1
206	4,11,18,25	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
207	4,11,18,25	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1
208	4,11,18,25	0.75	1	1	0.75	1	1	0.75	1	1	0.5	0.75	1
209	4,11,18,25	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.5	0.75	1
210	4,11,18,25	0.75	1	1	0.75	1	1	0.5	0.75	1	0.75	1	1
The Average		0.60	0.85	1.00	0.65	0.90	0.99	0.64	0.89	1.00	0.60	0.85	0.99

**Question 5,12,19,26**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
190	5,12,19,26	0.75	1	1	0.75	1	1	0.5	0.75	1	0.5	0.75	1
191	5,12,19,26	0.75	1	1				0.75	1	1	0	0.25	0.5
192	5,12,19,26	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.25	0.5	0.75
193	5,12,19,26	0.5	0.75	1				0.75	1	1	0.25	0.5	0.75
194	5,12,19,26	0.5	0.75	1	0.75	1	1	0.75	1	1	0	0.25	0.5
195	5,12,19,26	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0	0.25	0.5
196	5,12,19,26	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.25	0.5	0.75
197	5,12,19,26	0.75	1	1	0.5	0.75	1	0.75	1	1	0	0.25	0.5
198	5,12,19,26	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0	0.25	0.5
199	5,12,19,26	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0	0.25	0.5
200	5,12,19,26	0.5	0.75	1				0.75	1	1	0.25	0.5	0.75
201	5,12,19,26	0.75	1	1				0.75	1	1	0.25	0.5	0.75
202	5,12,19,26	0.75	1	1				0.5	0.75	1	0	0.25	0.5
203	5,12,19,26	0.5	0.75	1	0	0.25	0.5	0.5	0.75	1	0.5	0.75	1
204	5,12,19,26	0.5	0.75	1				0.75	1	1	0.25	0.5	0.75
205	5,12,19,26	0.75	1	1	0.5	0.75	1	0.75	1	1	0.25	0.5	0.75
206	5,12,19,26	0.75	1	1	0.75	1	1	0.75	1	1	0	0.25	0.5
207	5,12,19,26	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
208	5,12,19,26	0.75	1	1				0.75	1	1	0.25	0.5	0.75
209	5,12,19,26	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0	0.25	0.5
210	5,12,19,26	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0	0	0.25
The Average		0.64	0.89	1.00	0.54	0.79	0.96	0.64	0.89	1.00	0.17	0.40	0.65

Questionnaires "Serial Numbers"	Statement No.	Question 6,13,20,27 Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
190	6,13,20,27	0.75	1	1	0.5	0.75	1	0.75	1	1	0.75	1	1
191	6,13,20,27	0.75	1	1				0.75	1	1	0.75	1	1
192	6,13,20,27	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.75	1	1
193	6,13,20,27	0.5	0.75	1				0.5	0.75	1	0.75	1	1
194	6,13,20,27	0.75	1	1	0.5	0.75	1	0.75	1	1	0.75	1	1
195	6,13,20,27	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.75	1	1
196	6,13,20,27	0.75	1	1	0.5	0.75	1	0.75	1	1	0.75	1	1
197	6,13,20,27	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.75	1	1
198	6,13,20,27	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.5	0.75	1
199	6,13,20,27	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.75	1	1
200	6,13,20,27	0.5	0.75	1				0.75	1	1	0.75	1	1



201	6,13,20,27	0.75	1	1				0.75	1	1	0.75	1	1
202	6,13,20,27	0.75	1	1				0.5	0.75	1	0.75	1	1
203	6,13,20,27	0.5	0.75	1				0.5	0.75	1	0	0.25	0.5
204	6,13,20,27	0.5	0.75	1				0.5	0.75	1	0.5	0.75	1
205	6,13,20,27	0.75	1	1	0.75	1	1	0.5	0.75	1	0.5	0.75	1
206	6,13,20,27	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
207	6,13,20,27	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
208	6,13,20,27	0.75	1	1				0.75	1	1	0.5	0.75	1
209	6,13,20,27	0.75	1	1	0.75	1	1	0.5	0.75	1	0.5	0.75	1
210	6,13,20,27	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.5	0.75	1
The Average		0.63	0.88	1.00	0.62	0.87	1.00	0.61	0.86	1.00	0.63	0.88	0.98

### Question 7,14,21,28

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
190	7,14,21,28	0.5	0.75	1	0.25	0.5	0.75	0.75	1	1	0.75	1	1
191	7,14,21,28	0.75	1	1	0.25	0.5	0.75	0.75	1	1	0.75	1	1
192	7,14,21,28	0.75	1	1	0.25	0.5	0.75	0.75	1	1	0.5	0.75	1
193	7,14,21,28	0.25	0.5	0.75	0.25	0.5	0.75	0.5	0.75	1	0.75	1	1
194	7,14,21,28	0.75	1	1	0	0.25	0.5	0.5	0.75	1	0.75	1	1
195	7,14,21,28	0.75	1	1	0	0	0.25	0.75	1	1	0.75	1	1
196	7,14,21,28	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
197	7,14,21,28	0.5	0.75	1	0	0.25	0.5	0.5	0.75	1	0.5	0.75	1
198	7,14,21,28	0	0.25	0.5	0	0.25	0.5	0.75	1	1	0.5	0.75	1
199	7,14,21,28	0.5	0.75	1	0.25	0.5	0.75	0.75	1	1	0.75	1	1
200	7,14,21,28	0.5	0.75	1	0.25	0.5	0.75	0.75	1	1	0.75	1	1
201	7,14,21,28	0.75	1	1	0	0.25	0.5	0.75	1	1	0.75	1	1
202	7,14,21,28	0.75	1	1	0.25	0.5	0.75	0.75	1	1	0.75	1	1
203	7,14,21,28	0.5	0.75	1				0.5	0.75	1	0.5	0.75	1
204	7,14,21,28	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
205	7,14,21,28	0.75	1	1	0	0.25	0.5	0.75	1	1	0.75	1	1
206	7,14,21,28	0.5	0.75	1	0	0.25	0.5	0.75	1	1	0.5	0.75	1
207	7,14,21,28	0.75	1	1	0	0	0.25	0.5	0.75	1	0.75	1	1
208	7,14,21,28	0.75	1	1	0	0.25	0.5	0.75	1	1	0.5	0.75	1
209	7,14,21,28	0.75	1	1	0	0.25	0.5	0.75	1	1	0.75	1	1
210	7,14,21,28	0.5	0.75	1	0.25	0.5	0.75	0.75	1	1	0.75	1	1
The Average		0.60	0.85	0.96	0.16	0.39	0.63	0.68	0.93	1.00	0.67	0.92	1.00

#### 9.2.2.2- Polish Language Average ratings and weights according to the statements (N=21).

##### 9.2.2.2-A Sup-attribute 1 (Effectiveness) Rating and weights for all the characteristics (7) for all users (N=21)

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Effectiveness )					
		Ratings(R)			Weights(W)		
For all users 190 to 210	1	0.58	0.74	0.86	0.42	0.62	0.83
	2	0.66	0.82	0.91	0.49	0.74	0.89
	3	0.74	0.91	1.00	0.55	0.80	0.99
	4	0.78	0.94	1.00	0.60	0.85	1.00
	5	0.81	0.96	1.00	0.64	0.89	1.00

	6	0.80	0.95	1.00	0.63	0.88	1.00
	7	0.77	0.91	0.97	0.60	0.85	0.96

**9.2.2.2-B Sup-attribute 1 (Efficiency) Rating and weights for all the characteristics (7) for all users (N=21)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Efficiency )					
		Ratings(R)			Weights(W)		
For all users 190 to 210	8	0.75	0.90	0.97	0.58	0.82	0.96
	9	0.80	0.95	1.00	0.63	0.88	0.99
	10	0.77	0.93	1.00	0.58	0.83	0.99
	11	0.82	0.96	1.00	0.65	0.90	0.99
	12	0.76	0.93	1.00	0.54	0.79	0.96
	13	0.79	0.95	1.00	0.62	0.87	1.00
	14	0.31	0.50	0.68	0.16	0.39	0.63

**9.2.2.2-C Sup-attribute 1 (Satisfaction) Rating and weights for all the characteristics (7) for all users (N=21)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Satisfaction )					
		Ratings(R)			Weights(W)		
For all users 190 to 210	15	0.79	0.93	0.99	0.61	0.86	0.98
	16	0.77	0.91	0.97	0.60	0.85	0.96
	17	0.81	0.94	0.98	0.65	0.90	0.98
	18	0.81	0.96	1.00	0.64	0.89	1.00
	19	0.81	0.96	1.00	0.64	0.89	1.00
	20	0.79	0.94	1.00	0.61	0.86	1.00
	21	0.84	0.97	1.00	0.68	0.93	1.00

**9.2.2.2-D Sup-attribute 1 (Comprehensibility) Rating and weights for all the characteristics (7) for all users (N=21)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Comprehensibility )					
		Ratings(R)			Weights(W)		
For all users 190 to 210	22	0.82	0.96	1.00	0.65	0.90	1.00
	23	0.30	0.47	0.64	0.18	0.37	0.60
	24	0.75	0.91	0.98	0.57	0.82	0.98
	25	0.78	0.93	1.00	0.60	0.85	0.99
	26	0.33	0.53	0.71	0.17	0.40	0.65
	27	0.80	0.93	0.98	0.63	0.88	0.98
	28	0.83	0.97	1.00	0.67	0.92	1.00

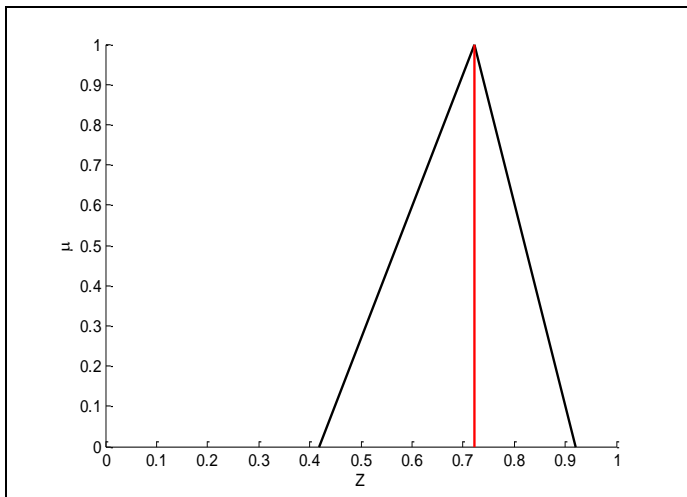
Serial	Sup-	attribute A - Effectiveness
--------	------	-----------------------------

Numbers for users	attribute	Ratings(R)			Weights(W)			R*W		
For all users 190 to 210	1	0.58	0.74	0.86	0.42	0.62	0.83	0.24	0.46	0.71
	2	0.66	0.82	0.91	0.49	0.74	0.89	0.32	0.61	0.81
	3	0.74	0.91	1.00	0.55	0.80	0.99	0.41	0.73	0.99
	4	0.78	0.94	1.00	0.60	0.85	1.00	0.47	0.80	1.00
	5	0.81	0.96	1.00	0.64	0.89	1.00	0.52	0.85	1.00
	6	0.80	0.95	1.00	0.63	0.88	1.00	0.50	0.84	1.00
	7	0.77	0.91	0.97	0.60	0.85	0.96	0.46	0.77	0.93
The Average					0.561	0.804	0.953	0.418	0.722	0.921

Ratings (R), Effectiveness attribute A

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + ..... + R sup-attribute n \* W sup-attribute n)

For Effectiveness: - R attribute A = (0.418, 0.722, 0.921)



Weight (W), Effectiveness attribute A

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute /

For Effectiveness: - W sup-attribute 1 = (0.561, 0.804, 0.953)

Attribute A ( Effectiveness )					
Ratings(R)			Weights(W)		
0.418	0.722	0.921	0.561	0.804	0.953

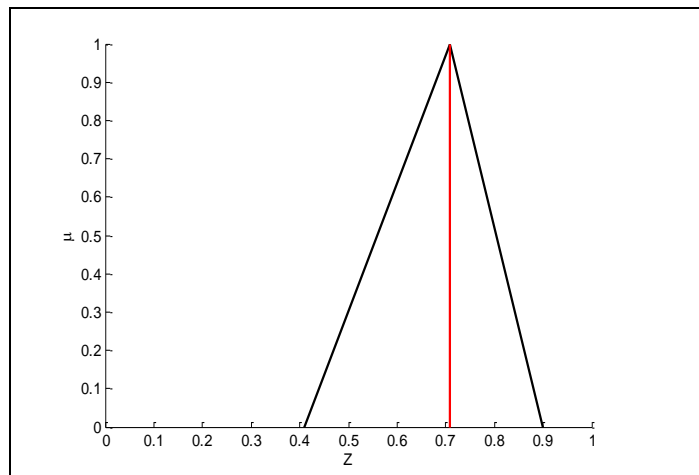
Serial	Sup-	Attribute B - Efficiency
--------	------	--------------------------

Numbers for users	attribute	Ratings(R)			Weights(W)			R*W		
For all users 190 to 210	8	0.75	0.90	0.97	0.58	0.82	0.96	0.44	0.74	0.93
	9	0.80	0.95	1.00	0.63	0.88	0.99	0.50	0.84	0.99
	10	0.77	0.93	1.00	0.58	0.83	0.99	0.45	0.77	0.99
	11	0.82	0.96	1.00	0.65	0.90	0.99	0.53	0.86	0.99
	12	0.76	0.93	1.00	0.54	0.79	0.96	0.41	0.73	0.96
	13	0.79	0.95	1.00	0.62	0.87	1.00	0.49	0.83	1.00
	14	0.31	0.50	0.68	0.16	0.39	0.63	0.05	0.20	0.43
The Average					0.537	0.783	0.931	0.410	0.709	0.899

Ratings (R), **Efficiency** attribute B

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Efficiency**: - R attribute B = (0.410, 0.709,0.899)



Weight (W), **Efficiency** attribute B

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute /

For **Efficiency**: - W attribute B = (0.537, 0.783,0.931)

Attribute B ( Efficiency )					
Ratings(R)			Weights(W)		
0.410	0.709	0.899	0.537	0.783	0.931

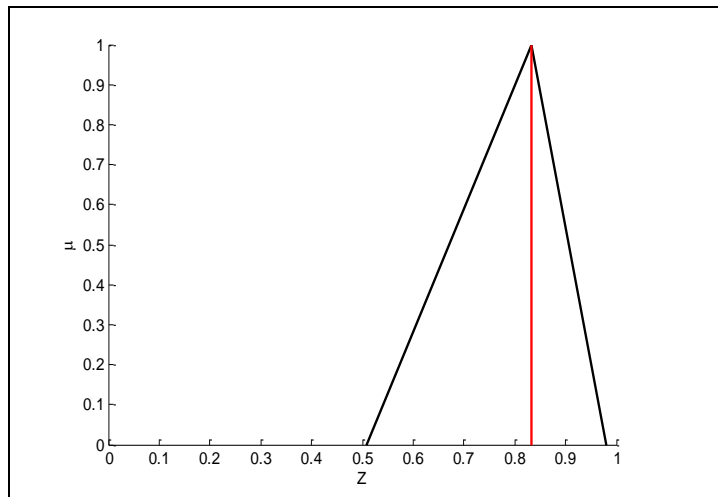
Serial	Sup-	Attribute C - Satisfaction
--------	------	----------------------------

		Ratings(R)			Weights(W)			R*W		
For all users 190 to 210	15	0.79	0.93	0.99	0.61	0.86	0.98	0.48	0.80	0.97
	16	0.77	0.91	0.97	0.60	0.85	0.96	0.46	0.77	0.93
	17	0.81	0.94	0.98	0.65	0.90	0.98	0.53	0.85	0.96
	18	0.81	0.96	1.00	0.64	0.89	1.00	0.52	0.85	1.00
	19	0.81	0.96	1.00	0.64	0.89	1.00	0.52	0.85	1.00
	20	0.79	0.94	1.00	0.61	0.86	1.00	0.48	0.81	1.00
	21	0.84	0.97	1.00	0.68	0.93	1.00	0.57	0.90	1.00
<b>The Average</b>					0.633	0.883	0.989	0.509	0.834	0.980

Ratings (R), **Satisfaction** attribute C

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + ..... + R sup-attribute n \* W sup-attribute n)

For **Satisfaction**: - R attribute C = (0.509, 0.834, 0.980)



Weight (W), **Satisfaction** attribute C

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Satisfaction**: - W attribute C = (0.633, 0.883, 0.989)

Attribute C ( Satisfaction )					
Ratings(R)			Weights(W)		
0.509	0.834	0.980	0.633	0.883	0.989

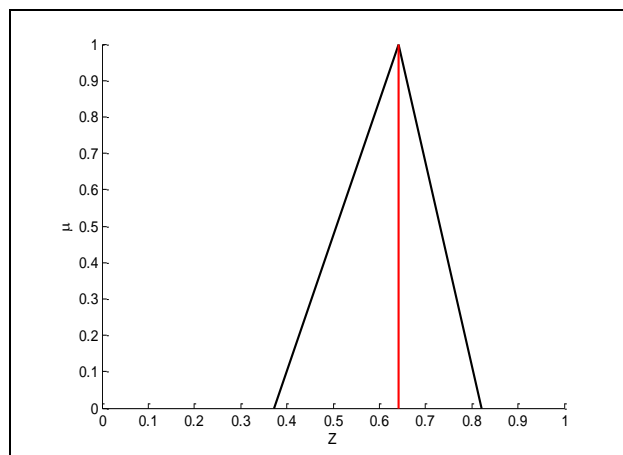
Serial Numbers for users	Sup-attribute	Attribute D - Comprehensibility								
		Ratings(R)			Weights(W)			R*W		
For all	22	0.82	0.96	1.00	0.65	0.90	1.00	0.53	0.86	1.00

users 190 to 210	23	0.30	0.47	0.64	0.18	0.37	0.60	0.05	0.17	0.38
	24	0.75	0.91	0.98	0.57	0.82	0.98	0.43	0.75	0.96
	25	0.78	0.93	1.00	0.60	0.85	0.99	0.47	0.79	0.99
	26	0.33	0.53	0.71	0.17	0.40	0.65	0.06	0.21	0.46
	27	0.80	0.93	0.98	0.63	0.88	0.98	0.50	0.82	0.96
	28	0.83	0.97	1.00	0.67	0.92	1.00	0.56	0.89	1.00
<b>The Average</b>					0.496	0.734	0.886	0.371	0.642	0.822

Ratings (R), **Comprehensibility** attribute D

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Comprehensibility**: - R attribute D = (0.371, 0.642,0.822)



Weight (W), **Comprehensibility** attribute D

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute /

For **Comprehensibility**: - W attribute D = (0.496, 0.734,0.886)

Attribute D ( Comprehensibility )					
Ratings(R)			Weights(W)		
0.371	0.642	0.822	0.496	0.734	0.886

### 9.2.3.5- Ratings and weights of the Usability

The Variables	Fuzzy Rating (R)			Fuzzy weight (W)			R * W		
Effectiveness	0.418	0.722	0.921	0.561	0.804	0.953	0.234	0.580	0.878
Efficiency	0.410	0.709	0.899	0.537	0.783	0.931	0.220	0.555	0.837
Satisfaction	0.509	0.834	0.980	0.633	0.883	0.989	0.322	0.736	0.969
Comprehensibility	0.371	0.642	0.822	0.496	0.734	0.886	0.184	0.471	0.728
<b>Average</b>				0.557	0.801	0.940	0.240	0.586	0.853

## Ratings (R), Usability of Polish

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )/n

For Usability of Polish: - R Usability = (0.240, 0.586,0.853)

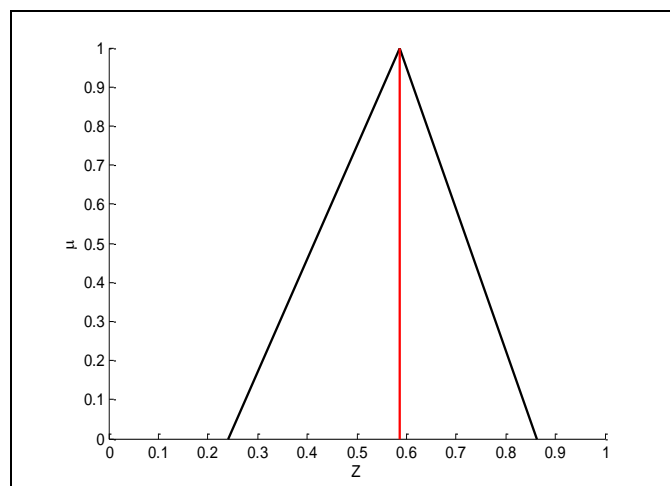
## Weight (W), Usability of Polish

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute / n

For Usability of Polish: - W Usability = (0.557, 0.801,0.940)

Usability of Polish					
Ratings(R)			Weights(W)		
<b>0.240</b>	<b>0.586</b>	<b>0.853</b>	<b>0.557</b>	<b>0.801</b>	<b>0.940</b>

**R usability Polish = (0.240, 0.586, 0.863) = 0.6461**



**0.6461**

**Polish Language Application Usability =  $Z^*$  = 0.6461**

# 10-Portuguese Language

## 10.2.2.2- Portuguese Language Average ratings according to the statements (N=7).

### Question 1,8,15,22 (Characteristic) for all Sub-attributes

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
211	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
212	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
213	1,8,15,22	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
214	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
215	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
216	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
217	1,8,15,22	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
The Average		0.79	0.94	1.00	0.81	0.96	1.00	0.84	0.97	1.00	0.84	0.97	1.00

### Question 2,9,16,23

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
211	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
212	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0
213	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
214	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9
215	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5
216	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
217	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
The Average		0.81	0.96	1.00	0.76	0.93	1.00	0.73	0.90	0.99	0.56	0.73	0.84

### Question 3,10,17,24

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
211	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
212	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
213	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
214	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
215	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
216	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0



217	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.84	0.97	1.00	0.79	0.94	1.00	0.79	0.94	1.00	0.84	0.97	1.00

### Question 4,11,18,25

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
211	4,11,18,25	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0
212	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
213	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0
214	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
215	4,11,18,25	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0
216	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
217	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.79	0.94	1.00	0.79	0.91	0.97	0.76	0.91	0.99	0.76	0.93	1.00

### Question 5,12,19,26

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
211	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.1	0.3	0.5
212	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.5	0.7	0.9
213	5,12,19,26	0.9	1.0	1.0				0.5	0.7	0.9	0.5	0.7	0.9
214	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.5	0.7	0.9
215	5,12,19,26	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
216	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9
217	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0
The Average		0.90	1.00	1.00	0.83	0.97	1.00	0.73	0.90	0.99	0.41	0.61	0.80

### Question 6,13,20,27

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
211	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
212	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0
213	6,13,20,27	0.5	0.7	0.9				0.9	1.0	1.0	0.9	1.0	1.0
214	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
215	6,13,20,27	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
216	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
217	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.76	0.91	0.99	0.83	0.97	1.00	0.84	0.97	1.00	0.87	0.99	1.00

### Question 7,14,21,28

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
211	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	
212	7,14,21,28	0.9	1.0	1.0	0.0	0.1	0.3	0.7	0.9	1.0	0.9	1.0	1.0	
213	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
214	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	
215	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
216	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
217	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
The Average		0.87	0.99	1.00	0.57	0.74	0.87	0.73	0.91	1.00	0.84	0.97	1.00	

### 10.2.3-Fuzzy Weight

#### 10.2.3.1- Triangular Fuzzy sets for fuzzy weights

Fuzzy Value			Fuzzy weights
1	Strongly Disagree	SD	(0.0, 0.0, 0.25)
2	Disagree	D	(0.0, 0.25, 0.5)
3	Neutral	N	(0.25, 0.5, 0.75)
4	Agree	A	(0.5, 0.75, 1.0)
5	Strongly Agree	SA	(0.75, 1.0, 1.0)

#### 10.2.3.2 Portuguese Language Average weights according to the statements (N=7).

##### Question 1,8,15,22 (Characteristic) for all sub-Attribute

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)												
		weights			Effectiveness			Efficiency			Satisfaction			Comprehensibility
211	1,8,15,22	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	
212	1,8,15,22	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	
213	1,8,15,22	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0	
214	1,8,15,22	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	
215	1,8,15,22	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	
216	1,8,15,22	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	
217	1,8,15,22	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	
The Average		0.61	0.86	1.00	0.64	0.89	1.00	0.68	0.93	1.00	0.68	0.93	1.00	

##### Question 2,9,16,23

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)												
		weights			Effectiveness			Efficiency			Satisfaction			Comprehensibility
211	2,9,16,23	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	

212	2,9,16,23	0.5	0.8	1.0	0.8	1.0	1.0	0.3	0.5	0.8	0.5	0.8	1.0
213	2,9,16,23	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.0	0.3	0.5
214	2,9,16,23	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.3	0.5	0.8
215	2,9,16,23	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.0	0.3	0.5
216	2,9,16,23	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0
217	2,9,16,23	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0
The Average		0.64	0.89	1.00	0.57	0.82	1.00	0.54	0.79	0.96	0.39	0.64	0.82

### Question 3,10,17,24

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
211	3,10,17,24	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
212	3,10,17,24	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
213	3,10,17,24	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0
214	3,10,17,24	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.5	0.8	1.0
215	3,10,17,24	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0
216	3,10,17,24	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
217	3,10,17,24	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
The Average		0.68	0.93	1.00	0.61	0.86	1.00	0.61	0.86	1.00	0.68	0.93	1.00

### Question 4,11,18,25

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
211	4,11,18,25	0.5	0.8	1.0	0.3	0.5	0.8	0.5	0.8	1.0	0.5	0.8	1.0
212	4,11,18,25	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0
213	4,11,18,25	0.8	1.0	1.0	0.8	1.0	1.0	0.3	0.5	0.8	0.5	0.8	1.0
214	4,11,18,25	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
215	4,11,18,25	0.5	0.8	1.0	0.3	0.5	0.8	0.8	1.0	1.0	0.5	0.8	1.0
216	4,11,18,25	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0
217	4,11,18,25	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
The Average		0.61	0.86	1.00	0.61	0.86	0.93	0.57	0.82	0.96	0.57	0.82	1.00

### Question 5,12,19,26

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
211	5,12,19,26	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.0	0.3	0.5
212	5,12,19,26	0.8	1.0	1.0				0.8	1.0	1.0	0.3	0.5	0.8
213	5,12,19,26	0.8	1.0	1.0				0.3	0.5	0.8	0.3	0.5	0.8
214	5,12,19,26	0.8	1.0	1.0				0.5	0.8	1.0	0.3	0.5	0.8
215	5,12,19,26	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.0	0.3	0.5
216	5,12,19,26	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.3	0.5	0.8
217	5,12,19,26	0.8	1.0	1.0				0.5	0.8	1.0	0.5	0.8	1.0
The Average		0.75	1.00	1.00	0.67	0.92	1.00	0.54	0.79	0.96	0.21	0.46	0.71

**Question 6,13,20,27**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
211	6,13,20,27	0.8	1.0	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
212	6,13,20,27	0.5	0.8	1.0				0.8	1.0	1.0	0.8	1.0	1.0
213	6,13,20,27	0.3	0.5	0.8				0.8	1.0	1.0	0.8	1.0	1.0
214	6,13,20,27	0.8	1.0	1.0				0.8	1.0	1.0	0.5	0.8	1.0
215	6,13,20,27	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0
216	6,13,20,27	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0	0.8	1.0	1.0
217	6,13,20,27	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
<b>The Average</b>		<b>0.57</b>	<b>0.82</b>	<b>0.96</b>	<b>0.63</b>	<b>0.88</b>	<b>1.00</b>	<b>0.68</b>	<b>0.93</b>	<b>1.00</b>	<b>0.71</b>	<b>0.96</b>	<b>1.00</b>

**Question 7,14,21,28**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
211	7,14,21,28	0.8	1.0	1.0	0.3	0.5	0.8	0.5	0.8	1.0	0.8	1.0	1.0
212	7,14,21,28	0.8	1.0	1.0	0.0	0.0	0.3	0.5	0.8	1.0	0.8	1.0	1.0
213	7,14,21,28	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0	0.8	1.0	1.0
214	7,14,21,28	0.8	1.0	1.0	0.3	0.5	0.8	0.5	0.8	1.0	0.5	0.8	1.0
215	7,14,21,28	0.8	1.0	1.0	0.5	0.8	1.0	0.5	0.8	1.0	0.8	1.0	1.0
216	7,14,21,28	0.5	0.8	1.0	0.8	1.0	1.0	0.5	0.8	1.0	0.8	1.0	1.0
217	7,14,21,28	0.8	1.0	1.0				0.5	0.8	1.0	0.5	0.8	1.0
<b>The Average</b>		<b>0.71</b>	<b>0.96</b>	<b>1.00</b>	<b>0.38</b>	<b>0.58</b>	<b>0.79</b>	<b>0.54</b>	<b>0.79</b>	<b>1.00</b>	<b>0.68</b>	<b>0.93</b>	<b>1.00</b>

**10.2.2.2- Portuguese Language Average ratings and weights according to the statements (N=7).**

**10.2.2.2-A Sup-attribute 1 (Effectiveness) Rating and weights for all the characteristics (7) for all users (N=7)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Effectiveness )					
		Ratings(R)			Weights(W)		
<b>For all users 211 to 217</b>	<b>1</b>	<b>0.79</b>	<b>0.94</b>	<b>1.00</b>	<b>0.61</b>	<b>0.86</b>	<b>1.00</b>
	<b>2</b>	<b>0.81</b>	<b>0.96</b>	<b>1.00</b>	<b>0.64</b>	<b>0.89</b>	<b>1.00</b>
	<b>3</b>	<b>0.84</b>	<b>0.97</b>	<b>1.00</b>	<b>0.68</b>	<b>0.93</b>	<b>1.00</b>
	<b>4</b>	<b>0.79</b>	<b>0.94</b>	<b>1.00</b>	<b>0.61</b>	<b>0.86</b>	<b>1.00</b>
	<b>5</b>	<b>0.90</b>	<b>1.00</b>	<b>1.00</b>	<b>0.75</b>	<b>1.00</b>	<b>1.00</b>
	<b>6</b>	<b>0.76</b>	<b>0.91</b>	<b>0.99</b>	<b>0.57</b>	<b>0.82</b>	<b>0.96</b>
	<b>7</b>	<b>0.87</b>	<b>0.99</b>	<b>1.00</b>	<b>0.71</b>	<b>0.96</b>	<b>1.00</b>

**10.2.2.2-B Sup-attribute 1 (Efficiency) Rating and weights for all the characteristics (7) for all users (N=7)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Efficiency )					
		Ratings(R)			Weights(W)		
For all users 211 to 217	8	0.81	0.96	1.00	0.64	0.89	1.00
	9	0.76	0.93	1.00	0.57	0.82	1.00
	10	0.79	0.94	1.00	0.61	0.86	1.00
	11	0.79	0.91	0.97	0.61	0.86	0.93
	12	0.83	0.97	1.00	0.67	0.92	1.00
	13	0.83	0.97	1.00	0.63	0.88	1.00
	14	0.57	0.74	0.87	0.38	0.58	0.79

10.2.2.2-C Sup-attribute 1 (Satisfaction) Rating and weights for all the characteristics (7) for all users (N=7)

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Satisfaction )					
		Ratings(R)			Weights(W)		
For all users 211 to 217	15	0.84	0.97	1.00	0.68	0.93	1.00
	16	0.73	0.90	0.99	0.54	0.79	0.96
	17	0.79	0.94	1.00	0.61	0.86	1.00
	18	0.76	0.91	0.99	0.57	0.82	0.96
	19	0.73	0.90	0.99	0.54	0.79	0.96
	20	0.84	0.97	1.00	0.68	0.93	1.00
	21	0.73	0.91	1.00	0.54	0.79	1.00

10.2.2.2-D Sup-attribute 1 (Comprehensibility) Rating and weights for all the characteristics (7) for all users (N=7)

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Comprehensibility )					
		Ratings(R)			Weights(W)		
For all users 211 to 217	22	0.84	0.97	1.00	0.68	0.93	1.00
	23	0.56	0.73	0.84	0.39	0.64	0.82
	24	0.84	0.97	1.00	0.68	0.93	1.00
	25	0.76	0.93	1.00	0.57	0.82	1.00
	26	0.41	0.61	0.80	0.21	0.46	0.71
	27	0.87	0.99	1.00	0.71	0.96	1.00
	28	0.84	0.97	1.00	0.68	0.93	1.00

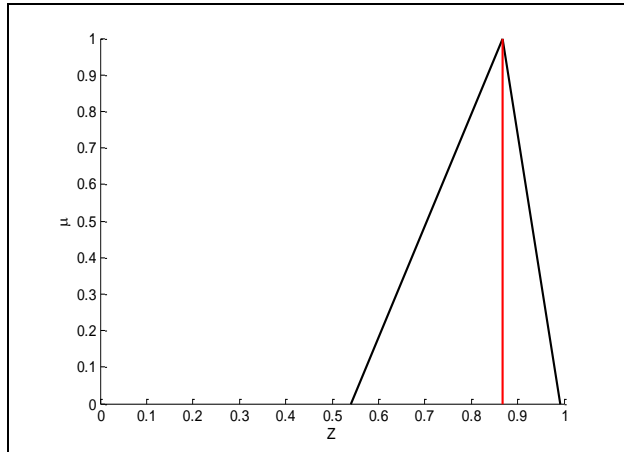
Serial Numbers for users	Sup-attribute	attribute A - Effectiveness								
		Ratings(R)			Weights(W)			R*W		
For all users 211 to 217	1	0.79	0.94	1.00	0.61	0.86	1.00	0.48	0.81	1.00
	2	0.81	0.96	1.00	0.64	0.89	1.00	0.52	0.85	1.00
	3	0.84	0.97	1.00	0.68	0.93	1.00	0.57	0.90	1.00
	4	0.79	0.94	1.00	0.61	0.86	1.00	0.48	0.81	1.00
	5	0.90	1.00	1.00	0.75	1.00	1.00	0.68	1.00	1.00
	6	0.76	0.91	0.99	0.57	0.82	0.96	0.43	0.75	0.95

	7	0.87	0.99	1.00	0.71	0.96	1.00	0.62	0.95	1.00
<b>The Average</b>					0.653	0.903	0.994	0.540	0.867	0.993

Ratings (R), Effectiveness attribute A

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + ..... + R sup-attribute n \* W sup-attribute n)

For Effectiveness: - R attribute A = (0.540, 0.867, 0.993)



Weight (W), Effectiveness attribute A

We attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For Effectiveness: - W sup-attribute 1 = (0.653, 0.903, 0.994)

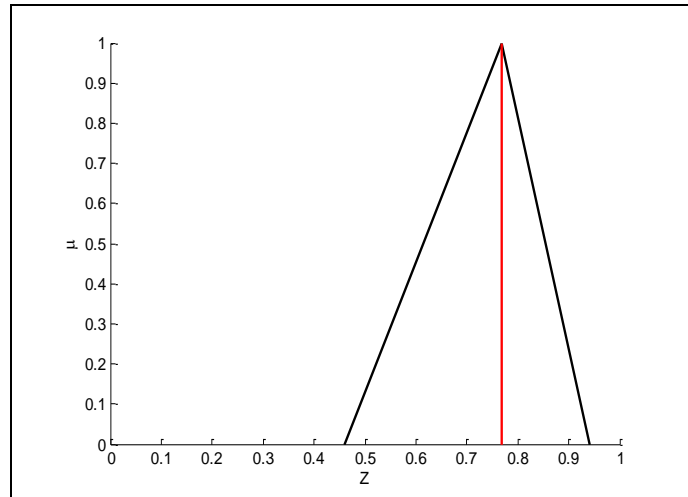
Attribute A ( Effectiveness )					
Ratings(R)			Weights(W)		
<b>0.540</b>	<b>0.867</b>	<b>0.993</b>	<b>0.653</b>	<b>0.903</b>	<b>0.994</b>

Serial Numbers for users	Sup-attribute	Attribute B - Efficiency								
		Ratings(R)			Weights(W)			R*W		
<b>For all users 211 to 217</b>	8	0.81	0.96	1.00	0.64	0.89	1.00	0.52	0.85	1.00
	9	0.76	0.93	1.00	0.57	0.82	1.00	0.43	0.76	1.00
	10	0.79	0.94	1.00	0.61	0.86	1.00	0.48	0.81	1.00
	11	0.79	0.91	0.97	0.61	0.86	0.93	0.48	0.78	0.90
	12	0.83	0.97	1.00	0.67	0.92	1.00	0.56	0.89	1.00
	13	0.83	0.97	1.00	0.63	0.88	1.00	0.52	0.85	1.00
	14	0.57	0.74	0.87	0.38	0.58	0.79	0.22	0.43	0.69
<b>The Average</b>					0.587	0.830	0.960	0.459	0.769	0.941

Ratings (R), **Efficiency** attribute B

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )/n

For **Efficiency**: - R attribute B = (0.459, 0.769,0.941)



Weight (W), **Efficiency** attribute B

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Efficiency**: - W attribute B = (0.587, 0.830,0.960)

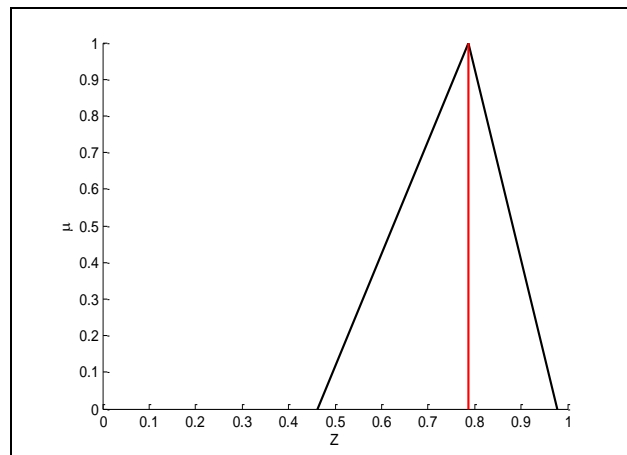
Attribute B ( Efficiency )					
Ratings(R)			Weights(W)		
<b>0.459</b>	<b>0.769</b>	<b>0.941</b>	<b>0.587</b>	<b>0.830</b>	<b>0.960</b>

Serial Numbers for users	Sup-attribute	Attribute C - Satisfaction								
		Ratings(R)			Weights(W)			R*W		
<b>For all users 211 to 217</b>	15	<b>0.84</b>	<b>0.97</b>	<b>1.00</b>	<b>0.68</b>	<b>0.93</b>	<b>1.00</b>	<b>0.57</b>	<b>0.90</b>	<b>1.00</b>
	16	<b>0.73</b>	<b>0.90</b>	<b>0.99</b>	<b>0.54</b>	<b>0.79</b>	<b>0.96</b>	<b>0.39</b>	<b>0.71</b>	<b>0.95</b>
	17	<b>0.79</b>	<b>0.94</b>	<b>1.00</b>	<b>0.61</b>	<b>0.86</b>	<b>1.00</b>	<b>0.48</b>	<b>0.81</b>	<b>1.00</b>
	18	<b>0.76</b>	<b>0.91</b>	<b>0.99</b>	<b>0.57</b>	<b>0.82</b>	<b>0.96</b>	<b>0.43</b>	<b>0.75</b>	<b>0.95</b>
	19	<b>0.73</b>	<b>0.90</b>	<b>0.99</b>	<b>0.54</b>	<b>0.79</b>	<b>0.96</b>	<b>0.39</b>	<b>0.71</b>	<b>0.95</b>
	20	<b>0.84</b>	<b>0.97</b>	<b>1.00</b>	<b>0.68</b>	<b>0.93</b>	<b>1.00</b>	<b>0.57</b>	<b>0.90</b>	<b>1.00</b>
	21	<b>0.73</b>	<b>0.91</b>	<b>1.00</b>	<b>0.54</b>	<b>0.79</b>	<b>1.00</b>	<b>0.39</b>	<b>0.72</b>	<b>1.00</b>
<b>The Average</b>					<b>0.594</b>	<b>0.844</b>	<b>0.983</b>	<b>0.463</b>	<b>0.786</b>	<b>0.979</b>

Ratings (R), **Satisfaction** attribute C

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Satisfaction**: - R attribute C = (0.463, 0.786,0.979)



Weight (W), **Satisfaction** attribute C

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Satisfaction**: - W attribute C = (0.594, 0.844,0.983)

Attribute C ( Satisfaction )					
Ratings(R)			Weights(W)		
<b>0.463</b>	<b>0.786</b>	<b>0.979</b>	<b>0.594</b>	<b>0.844</b>	<b>0.983</b>

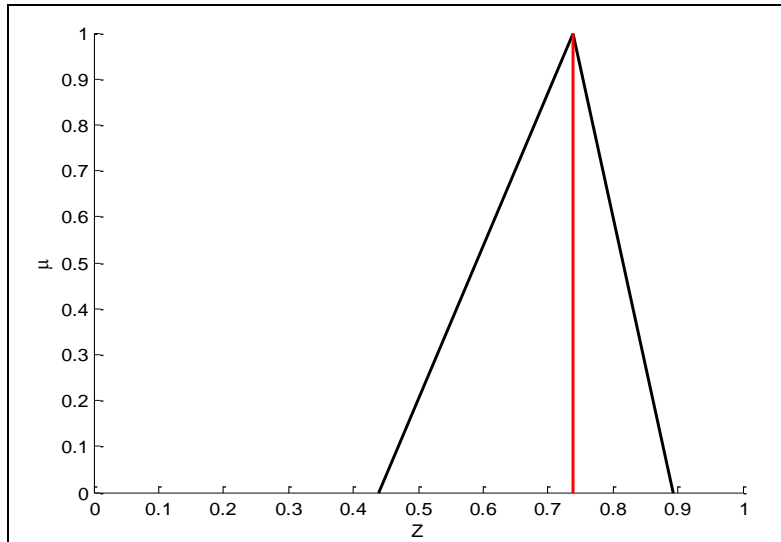
Serial Numbers for users	Sup-attribute	Attribute D - Comprehensibility								
		Ratings(R)			Weights(W)			R*W		
<b>For all users 211 to 217</b>	22	<b>0.84</b>	<b>0.97</b>	<b>1.00</b>	<b>0.68</b>	<b>0.93</b>	<b>1.00</b>	<b>0.57</b>	<b>0.90</b>	<b>1.00</b>
	23	<b>0.56</b>	<b>0.73</b>	<b>0.84</b>	<b>0.39</b>	<b>0.64</b>	<b>0.82</b>	<b>0.22</b>	<b>0.47</b>	<b>0.69</b>
	24	<b>0.84</b>	<b>0.97</b>	<b>1.00</b>	<b>0.68</b>	<b>0.93</b>	<b>1.00</b>	<b>0.57</b>	<b>0.90</b>	<b>1.00</b>
	25	<b>0.76</b>	<b>0.93</b>	<b>1.00</b>	<b>0.57</b>	<b>0.82</b>	<b>1.00</b>	<b>0.43</b>	<b>0.76</b>	<b>1.00</b>
	26	<b>0.41</b>	<b>0.61</b>	<b>0.80</b>	<b>0.21</b>	<b>0.46</b>	<b>0.71</b>	<b>0.09</b>	<b>0.28</b>	<b>0.57</b>
	27	<b>0.87</b>	<b>0.99</b>	<b>1.00</b>	<b>0.71</b>	<b>0.96</b>	<b>1.00</b>	<b>0.62</b>	<b>0.95</b>	<b>1.00</b>
	28	<b>0.84</b>	<b>0.97</b>	<b>1.00</b>	<b>0.68</b>	<b>0.93</b>	<b>1.00</b>	<b>0.57</b>	<b>0.90</b>	<b>1.00</b>
<b>The Average</b>					<b>0.560</b>	<b>0.810</b>	<b>0.933</b>	<b>0.438</b>	<b>0.738</b>	<b>0.894</b>

Ratings (R), **Comprehensibility** attribute D

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Comprehensibility**: - R attribute D = (0.438, 0.738,0.894)





Weight (W), **Comprehensibility** attribute D

$$W \text{ attribute} = W \text{ sup-attribute } 1 + W \text{ sup-attribute } 2 + \dots + W \text{ sup-attribute } n$$

For **Comprehensibility**: - W attribute D = (0.560, 0.810, 0.933)

Attribute D ( Comprehensibility )					
Ratings(R)			Weights(W)		
<b>0.438</b>	<b>0.738</b>	<b>0.894</b>	<b>0.560</b>	<b>0.810</b>	<b>0.933</b>

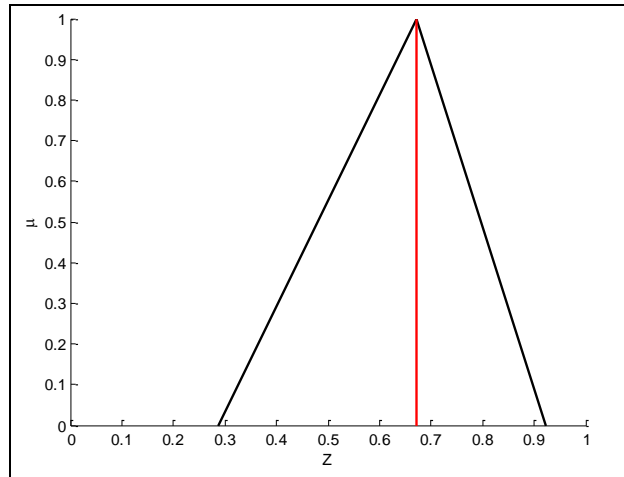
#### 10.2.3.5- Ratings and weights of the Usability

The Variables	Fuzzy Rating (R)			Fuzzy weight (W)			R * W		
	<b>Effectiveness</b>	0.540	0.867	0.993	0.653	0.903	0.994	0.353	0.783
<b>Efficiency</b>	0.459	0.769	0.941	0.587	0.830	0.960	0.269	0.638	0.903
<b>Satisfaction</b>	0.463	0.786	0.979	0.594	0.844	0.983	0.275	0.663	0.962
<b>Comprehensibility</b>	0.438	0.738	0.894	0.560	0.810	0.933	0.245	0.598	0.834
<b>Average</b>				0.599	0.847	0.968	0.286	0.671	0.922

Ratings (R), Usability of Portuguese

$$R \text{ attribute} = (R \text{ sup-attribute } 1 * W \text{ sup-attribute } 1 + R \text{ sup-attribute } 2 * W \text{ sup-attribute } 2 + \dots + R \text{ sup-attribute } n * W \text{ sup-attribute } n)$$

For Usability of Portuguese: - R Usability = (0.286, 0.671, 0.922)



### Weight (w), Usability of Portuguese

$W_{\text{attribute}} = W_{\text{sup-attribute 1}} + W_{\text{sup-attribute 2}} + \dots + W_{\text{sup-attribute}}$

For Usability of Portuguese: -  $W_{\text{Usability}} = (0.599, 0.847, 0.968)$

Usability of Portuguese					
Ratings(R)			Weights(W)		
0.286	0.671	0.922	0.599	0.847	0.968

$R_{\text{usability Portuguese}} = (0.286, 0.671, 0.922) = 0.745$

### 10.3- The Result: (Portuguese Language)

Portuguese Language Application Usability  $Z^* = 0.745$

# 11-Romanian Language

## 11.2.2.2- Romanian Language Average ratings according to the statements (N=25).

Questionnaires “Serial Numbers”	Statement No.	Question 1,8,15,22 (Characteristic) for all Sub-attributes Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
218	1,8,15,22	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1	0.1	0.3	0.5
219	1,8,15,22	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.9	1	1
220	1,8,15,22	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.9	1	1
221	1,8,15,22	0.9	1	1	0.7	0.9	1	0.9	1	1	0.5	0.7	0.9
222	1,8,15,22	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.9	1	1
223	1,8,15,22	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1
224	1,8,15,22	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.9	1	1
225	1,8,15,22	0.9	1	1	0.7	0.9	1	0.9	1	1	0.7	0.9	1
226	1,8,15,22	0.7	0.9	1	0.9	1	1	0.9	1	1	0.7	0.9	1
227	1,8,15,22	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.7	0.9	1
228	1,8,15,22	0.9	1	1	0.9	1	1	0.9	1	1	0.7	0.9	1
229	1,8,15,22	0.9	1	1	0.9	1	1	0.7	0.9	1	0.9	1	1
230	1,8,15,22	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1	0.9	1	1
231	1,8,15,22	0.9	1	1	0.9	1	1	0.9	1	1	0.7	0.9	1
232	1,8,15,22	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1	0.1	0.3	0.5
233	1,8,15,22	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1
234	1,8,15,22	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1
235	1,8,15,22	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1
236	1,8,15,22	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1
237	1,8,15,22	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1
238	1,8,15,22	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1
239	1,8,15,22	0.9	1	1	0.9	1	1	0.9	1	1	0.7	0.9	1
240	1,8,15,22	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1
241	1,8,15,22	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.9	1	1
242	1,8,15,22	0.9	1	1	0.7	0.9	1	0.9	1	1	0.9	1	1
The Average		0.79	0.94	0.99	0.82	0.96	1.00	0.85	0.98	1.00	0.77	0.91	0.96

Questionnaires “Serial Numbers”	Statement No.	Question 2,9,16,23 Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
218	2,9,16,23	0.7	0.9	1	0.9	1	1	0.9	1	1	0.5	0.7	0.9
219	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1	0.7	0.9	1	0.9	1	1
220	2,9,16,23	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1
221	2,9,16,23	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.9	1	1
222	2,9,16,23	0.9	1	1	0.9	1	1	0.9	1	1	0.7	0.9	1
223	2,9,16,23	0.9	1	1	0.7	0.9	1	0.9	1	1	0.1	0.3	0.5
224	2,9,16,23	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1
225	2,9,16,23	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.1	0.3	0.5
226	2,9,16,23	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9
227	2,9,16,23	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.5	0.7	0.9
228	2,9,16,23	0.7	0.9	1	0.9	1	1	0.5	0.7	0.9	0.7	0.9	1
229	2,9,16,23	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1
230	2,9,16,23	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1
231	2,9,16,23	0.7	0.9	1	0.5	0.7	0.9	0.7	0.9	1	0.9	1	1
232	2,9,16,23	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9
233	2,9,16,23	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.9	1	1
234	2,9,16,23	0.9	1	1	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9

235	2,9,16,23	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1
236	2,9,16,23	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.9	1	1
237	2,9,16,23	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.1	0.3	0.5
238	2,9,16,23	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.1	0.3	0.5
239	2,9,16,23	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1
240	2,9,16,23	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1
241	2,9,16,23	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1
242	2,9,16,23	0.7	0.9	1	0.9	1	1	0.9	1	1	0.5	0.7	0.9
The Average		0.75	0.92	1.00	0.79	0.94	0.99	0.78	0.94	1.00	0.63	0.79	0.90

Questionnaires “Serial Numbers”	Statement No.	Question 3,10,17,24 Characteristic for (EFFs, EFFy, SATn, COMP)												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
218	3,10,17,24	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	
219	3,10,17,24	0.9	1	1	0.7	0.9	1	0.9	1	1	0.9	1	1	
220	3,10,17,24	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9	
221	3,10,17,24	0.5	0.7	0.9	0.5	0.7	0.9	0.5	0.7	0.9	0.7	0.9	1	
222	3,10,17,24	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1	
223	3,10,17,24	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	
224	3,10,17,24	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.9	1	1	
225	3,10,17,24	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.7	0.9	1	
226	3,10,17,24	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	
227	3,10,17,24	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1	
228	3,10,17,24	0.9	1	1	0.7	0.9	1	0.9	1	1	0.9	1	1	
229	3,10,17,24	0.9	1	1	0.7	0.9	1	0.9	1	1	0.7	0.9	1	
230	3,10,17,24	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.9	1	1	
231	3,10,17,24	0.5	0.7	0.9	0.5	0.7	0.9	0.7	0.9	1	0.5	0.7	0.9	
232	3,10,17,24	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.9	1	1	
233	3,10,17,24	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1	
234	3,10,17,24	0.9	1	1	0.9	1	1	0.9	1	1	0.7	0.9	1	
235	3,10,17,24	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1	
236	3,10,17,24	0.9	1	1	0.9	1	1	0.9	1	1	0.7	0.9	1	
237	3,10,17,24	0.9	1	1	0.7	0.9	1	0.9	1	1	0.9	1	1	
238	3,10,17,24	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1	
239	3,10,17,24	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.9	1	1	
240	3,10,17,24	0.7	0.9	1	0.9	1	1	0.9	1	1	0.7	0.9	1	
241	3,10,17,24	0.7	0.9	1	0.9	1	1	0.9	1	1	0.7	0.9	1	
242	3,10,17,24	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1	
The Average		0.79	0.93	0.99	0.79	0.94	0.99	0.82	0.96	1.00	0.79	0.94	0.99	

### Question 4,11,18,25

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
218	4,11,18,25	0.9	1	1	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9	
219	4,11,18,25	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	
220	4,11,18,25	0.7	0.9	1	0.9	1	1	0.5	0.7	0.9	0.7	0.9	1	
221	4,11,18,25	0.5	0.7	0.9	0.9	1	1	0.5	0.7	0.9	0.7	0.9	1	
222	4,11,18,25	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.9	1	1	
223	4,11,18,25	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.9	1	1	
224	4,11,18,25	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.9	1	1	

225	4,11,18,25	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1
226	4,11,18,25	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1
227	4,11,18,25	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1
228	4,11,18,25	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1
229	4,11,18,25	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9
230	4,11,18,25	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.7	0.9	1
231	4,11,18,25	0.5	0.7	0.9	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1
232	4,11,18,25	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.9	1	1
233	4,11,18,25	0.9	1	1	0.7	0.9	1	0.9	1	1	0.7	0.9	1
234	4,11,18,25	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1
235	4,11,18,25	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1
236	4,11,18,25	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1
237	4,11,18,25	0.9	1	1	0.9	1	1	0.7	0.9	1	0.9	1	1
238	4,11,18,25	0.9	1	1	0.7	0.9	1	0.9	1	1	0.9	1	1
239	4,11,18,25	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.9	1	1
240	4,11,18,25	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1
241	4,11,18,25	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1
242	4,11,18,25	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.9	1	1
The Average		0.78	0.93	0.99	0.80	0.95	1.00	0.75	0.91	0.99	0.79	0.94	0.99

### Question 5,12,19,26

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
218	5,12,19,26	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1	0.7	0.9	1	
219	5,12,19,26	0.7	0.9	1				0.7	0.9	1	0.5	0.7	0.9	
220	5,12,19,26	0.9	1	1				0.5	0.7	0.9	0.9	1	1	
221	5,12,19,26	0.7	0.9	1				0.7	0.9	1	0.9	1	1	
222	5,12,19,26	0.7	0.9	1				0.9	1	1	0.5	0.7	0.9	
223	5,12,19,26	0.9	1	1	0.9	1	1	0.9	1	1	0.5	0.7	0.9	
224	5,12,19,26	0.7	0.9	1	0.9	1	1	0.9	1	1	0.1	0.3	0.5	
225	5,12,19,26	0.9	1	1				0.7	0.9	1	0.5	0.7	0.9	
226	5,12,19,26	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.5	0.7	0.9	
227	5,12,19,26	0.9	1	1	0.9	1	1	0.7	0.9	1	0.1	0.3	0.5	
228	5,12,19,26	0.9	1	1				0.9	1	1	0.5	0.7	0.9	
229	5,12,19,26	0.9	1	1	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9	
230	5,12,19,26	0.7	0.9	1				0.7	0.9	1	0.7	0.9	1	
231	5,12,19,26	0.5	0.7	0.9				0.5	0.7	0.9	0.7	0.9	1	
232	5,12,19,26	0.9	1	1				0.7	0.9	1	0.5	0.7	0.9	
233	5,12,19,26	0.9	1	1				0.7	0.9	1	0.5	0.7	0.9	
234	5,12,19,26	0.7	0.9	1				0.9	1	1	0.7	0.9	1	
235	5,12,19,26	0.7	0.9	1				0.9	1	1	0.9	1	1	
236	5,12,19,26	0.9	1	1				0.7	0.9	1	0.5	0.7	0.9	
237	5,12,19,26	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.5	0.7	0.9	
238	5,12,19,26	0.9	1	1	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9	
239	5,12,19,26	0.7	0.9	1				0.9	1	1	0.1	0.3	0.5	
240	5,12,19,26	0.7	0.9	1				0.5	0.7	0.9	0.7	0.9	1	
241	5,12,19,26	0.9	1	1				0.7	0.9	1	0.9	1	1	
242	5,12,19,26	0.9	1	1	0.9	1	1	0.9	1	1	0.1	0.3	0.5	
The Average		0.78	0.93	0.99	0.86	0.98	1.00	0.76	0.92	0.99	0.54	0.72	0.87	

### Question 6,13,20,27

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
218	6,13,20,27	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1	
219	6,13,20,27	0.7	0.9	1				0.7	0.9	1	0.9	1	1	
220	6,13,20,27	0.9	1	1				0.5	0.7	0.9	0.9	1	1	
221	6,13,20,27	0.7	0.9	1				0.9	1	1	0.7	0.9	1	
222	6,13,20,27	0.7	0.9	1				0.7	0.9	1	0.7	0.9	1	
223	6,13,20,27	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.9	1	1	
224	6,13,20,27	0.9	1	1				0.7	0.9	1	0.7	0.9	1	
225	6,13,20,27	0.9	1	1				0.7	0.9	1	0.7	0.9	1	
226	6,13,20,27	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1	
227	6,13,20,27	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	
228	6,13,20,27	0.7	0.9	1				0.9	1	1	0.9	1	1	
229	6,13,20,27	0.7	0.9	1				0.9	1	1	0.7	0.9	1	
230	6,13,20,27	0.9	1	1				0.7	0.9	1	0.7	0.9	1	
231	6,13,20,27	0.9	1	1				0.7	0.9	1	0.5	0.7	0.9	
232	6,13,20,27	0.5	0.7	0.9				0.7	0.9	1	0.7	0.9	1	
233	6,13,20,27	0.7	0.9	1				0.9	1	1	0.9	1	1	
234	6,13,20,27	0.9	1	1				0.7	0.9	1	0.7	0.9	1	
235	6,13,20,27	0.9	1	1				0.7	0.9	1	0.7	0.9	1	
236	6,13,20,27	0.9	1	1				0.7	0.9	1	0.9	1	1	
237	6,13,20,27	0.9	1	1	0.9	1	1	0.9	1	1	0.7	0.9	1	
238	6,13,20,27	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1	
239	6,13,20,27	0.7	0.9	1				0.7	0.9	1	0.7	0.9	1	
240	6,13,20,27	0.7	0.9	1				0.7	0.9	1	0.7	0.9	1	
241	6,13,20,27	0.9	1	1				0.7	0.9	1	0.7	0.9	1	
242	6,13,20,27	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	
The Average		0.79	0.94	1.00	0.79	0.94	1.00	0.73	0.91	0.99	0.76	0.92	1.00	

### Question 7,14,21,28

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
218	7,14,21,28	0.9	1	1	0.7	0.9	1	0.9	1	1	0.9	1	1	
219	7,14,21,28	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1	
220	7,14,21,28	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	
221	7,14,21,28	0.7	0.9	1	0.1	0.3	0.5	0.5	0.7	0.9	0.7	0.9	1	
222	7,14,21,28	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1	
223	7,14,21,28	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1	
224	7,14,21,28	0.9	1	1				0.7	0.9	1	0.9	1	1	
225	7,14,21,28	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1	
226	7,14,21,28	0.9	1	1	0.7	0.9	1	0.9	1	1	0.9	1	1	
227	7,14,21,28	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.9	1	1	
228	7,14,21,28	0.9	1	1	0.1	0.3	0.5	0.9	1	1	0.9	1	1	
229	7,14,21,28	0.7	0.9	1				0.9	1	1	0.9	1	1	
230	7,14,21,28	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1	
231	7,14,21,28	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1	

232	7,14,21,28	0.5	0.7	0.9	0.7	0.9	1	0.1	0.3	0.5	0.7	0.9	1
233	7,14,21,28	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1
234	7,14,21,28	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1
235	7,14,21,28	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1
236	7,14,21,28	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1
237	7,14,21,28	0.9	1	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1
238	7,14,21,28	0.9	1	1	0.5	0.7	0.9	0.7	0.9	1	0.9	1	1
239	7,14,21,28	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1
240	7,14,21,28	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1
241	7,14,21,28	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1
242	7,14,21,28	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1
The Average		0.83	0.96	1.00	0.75	0.89	0.95	0.83	0.95	0.98	0.88	0.99	1.00

### 11.2.3-Fuzzy Weight

#### 11.2.3.1- Triangular Fuzzy sets for fuzzy weights

Fuzzy Value			Fuzzy weights
1	Strongly Disagree	SD	(0.0, 0.0, 0.25)
2	Disagree	D	(0.0, 0.25, 0.5)
3	Neutral	N	(0.25, 0.5, 0.75)
4	Agree	A	(0.5, 0.75, 1.0)
5	Strongly Agree	SA	(0.75, 1.0, 1.0)

#### 11.2.3.2 Romanian Language Average weights according to the statements (N=25).

##### Question 1,8,15,22 (Characteristic) for all sub-Attribute

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)												
		weights			Effectiveness			Efficiency			Satisfaction			Comprehensibility
218	1,8,15,22	0.5	0.75	1	0.25	0.5	0.75	0.75	1	1	0	0.25	0.5	
219	1,8,15,22	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.75	1	1	
220	1,8,15,22	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.75	1	1	
221	1,8,15,22	0.75	1	1	0.5	0.75	1	0.75	1	1	0.25	0.5	0.75	
222	1,8,15,22	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.75	1	1	
223	1,8,15,22	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1	
224	1,8,15,22	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.75	1	1	
225	1,8,15,22	0.75	1	1	0.5	0.75	1	0.75	1	1	0.5	0.75	1	
226	1,8,15,22	0.5	0.75	1	0.75	1	1	0.75	1	1	0.5	0.75	1	
227	1,8,15,22	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.5	0.75	1	
228	1,8,15,22	0.75	1	1	0.75	1	1	0.75	1	1	0.5	0.75	1	
229	1,8,15,22	0.75	1	1	0.75	1	1	0.5	0.75	1	0.75	1	1	
230	1,8,15,22	0.25	0.5	0.75	0.75	1	1	0.5	0.75	1	0.75	1	1	
231	1,8,15,22	0.75	1	1	0.75	1	1	0.75	1	1	0.5	0.75	1	
232	1,8,15,22	0.25	0.5	0.75	0.75	1	1	0.5	0.75	1	0	0.25	0.5	
233	1,8,15,22	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1	
234	1,8,15,22	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1	
235	1,8,15,22	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1	
236	1,8,15,22	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1	
237	1,8,15,22	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1	
238	1,8,15,22	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1	

239	1,8,15,22	0.75	1	1	0.75	1	1	0.75	1	1	0.5	0.75	1
240	1,8,15,22	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
241	1,8,15,22	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.75	1	1
242	1,8,15,22	0.75	1	1	0.5	0.75	1	0.75	1	1	0.75	1	1
The Average		0.61	0.86	0.98	0.65	0.90	0.99	0.69	0.94	1.00	0.61	0.86	0.95

### Question 2,9,16,23

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
218	2,9,16,23	0.5	0.75	1	0.75	1	1	0.75	1	1	0.25	0.5	0.75
219	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1	0.5	0.75	1	0.75	1	1
220	2,9,16,23	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
221	2,9,16,23	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.75	1	1
222	2,9,16,23	0.75	1	1	0.75	1	1	0.75	1	1	0.5	0.75	1
223	2,9,16,23	0.75	1	1	0.5	0.75	1	0.75	1	1	0	0.25	0.5
224	2,9,16,23	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.5	0.75	1
225	2,9,16,23	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0	0.25	0.5
226	2,9,16,23	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.25	0.5	0.75
227	2,9,16,23	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.25	0.5	0.75
228	2,9,16,23	0.5	0.75	1	0.75	1	1	0.25	0.5	0.75	0.5	0.75	1
229	2,9,16,23	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1
230	2,9,16,23	0.5	0.75	1	0.25	0.5	0.75	0.75	1	1	0.5	0.75	1
231	2,9,16,23	0.5	0.75	1	0.25	0.5	0.75	0.5	0.75	1	0.75	1	1
232	2,9,16,23	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.25	0.5	0.75
233	2,9,16,23	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.75	1	1
234	2,9,16,23	0.75	1	1	0.75	1	1	0.5	0.75	1	0.25	0.5	0.75
235	2,9,16,23	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
236	2,9,16,23	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.75	1	1
237	2,9,16,23	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0	0.25	0.5
238	2,9,16,23	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0	0.25	0.5
239	2,9,16,23	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1
240	2,9,16,23	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1
241	2,9,16,23	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
242	2,9,16,23	0.5	0.75	1	0.75	1	1	0.75	1	1	0.25	0.5	0.75
The Average		0.56	0.81	0.99	0.61	0.86	0.98	0.60	0.85	0.99	0.45	0.70	0.86

### Question 3,10,17,24

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
218	3,10,17,24	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
219	3,10,17,24	0.75	1	1	0.5	0.75	1	0.75	1	1	0.75	1	1
220	3,10,17,24	0.25	0.5	0.75	0.75	1	1	0.5	0.75	1	0.25	0.5	0.75
221	3,10,17,24	0.25	0.5	0.75	0.25	0.5	0.75	0.25	0.5	0.75	0.5	0.75	1
222	3,10,17,24	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
223	3,10,17,24	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
224	3,10,17,24	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.75	1	1
225	3,10,17,24	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.5	0.75	1
226	3,10,17,24	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
227	3,10,17,24	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
228	3,10,17,24	0.75	1	1	0.5	0.75	1	0.75	1	1	0.75	1	1



229	3,10,17,24	0.75	1	1	0.5	0.75	1	0.75	1	1	0.5	0.75	1
230	3,10,17,24	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.75	1	1
231	3,10,17,24	0.25	0.5	0.75	0.25	0.5	0.75	0.5	0.75	1	0.25	0.5	0.75
232	3,10,17,24	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.75	1	1
233	3,10,17,24	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
234	3,10,17,24	0.75	1	1	0.75	1	1	0.75	1	1	0.5	0.75	1
235	3,10,17,24	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
236	3,10,17,24	0.75	1	1	0.75	1	1	0.75	1	1	0.5	0.75	1
237	3,10,17,24	0.75	1	1	0.5	0.75	1	0.75	1	1	0.75	1	1
238	3,10,17,24	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1
239	3,10,17,24	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.75	1	1
240	3,10,17,24	0.5	0.75	1	0.75	1	1	0.75	1	1	0.5	0.75	1
241	3,10,17,24	0.5	0.75	1	0.75	1	1	0.75	1	1	0.5	0.75	1
242	3,10,17,24	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
The Average		0.61	0.86	0.97	0.61	0.86	0.98	0.65	0.90	0.99	0.61	0.86	0.98

### Question 4,11,18,25

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
218	4,11,18,25	0.75	1	1	0.75	1	1	0.5	0.75	1	0.25	0.5	0.75
219	4,11,18,25	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
220	4,11,18,25	0.5	0.75	1	0.75	1	1	0.25	0.5	0.75	0.5	0.75	1
221	4,11,18,25	0.25	0.5	0.75	0.75	1	1	0.25	0.5	0.75	0.5	0.75	1
222	4,11,18,25	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.75	1	1
223	4,11,18,25	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.75	1	1
224	4,11,18,25	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.75	1	1
225	4,11,18,25	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
226	4,11,18,25	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.5	0.75	1
227	4,11,18,25	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
228	4,11,18,25	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
229	4,11,18,25	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.25	0.5	0.75
230	4,11,18,25	0.25	0.5	0.75	0.75	1	1	0.75	1	1	0.5	0.75	1
231	4,11,18,25	0.25	0.5	0.75	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
232	4,11,18,25	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.75	1	1
233	4,11,18,25	0.75	1	1	0.5	0.75	1	0.75	1	1	0.5	0.75	1
234	4,11,18,25	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.5	0.75	1
235	4,11,18,25	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
236	4,11,18,25	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
237	4,11,18,25	0.75	1	1	0.75	1	1	0.5	0.75	1	0.75	1	1
238	4,11,18,25	0.75	1	1	0.5	0.75	1	0.75	1	1	0.75	1	1
239	4,11,18,25	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.75	1	1
240	4,11,18,25	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
241	4,11,18,25	0.75	1	1	0.5	0.75	1	0.25	0.5	0.75	0.75	1	1
242	4,11,18,25	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.75	1	1
The Average		0.60	0.85	0.97	0.63	0.88	1.00	0.56	0.81	0.97	0.61	0.86	0.98

### Question 5,12,19,26

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		

218	5,12,19,26	0.25	0.5	0.75	0.75	1	1	0.5	0.75	1	0.5	0.75	1
219	5,12,19,26	0.5	0.75	1				0.5	0.75	1	0.25	0.5	0.75
220	5,12,19,26	0.75	1	1				0.25	0.5	0.75	0.75	1	1
221	5,12,19,26	0.5	0.75	1				0.5	0.75	1	0.75	1	1
222	5,12,19,26	0.5	0.75	1				0.75	1	1	0.25	0.5	0.75
223	5,12,19,26	0.75	1	1	0.75	1	1	0.75	1	1	0.25	0.5	0.75
224	5,12,19,26	0.5	0.75	1				0.75	1	1	0	0.25	0.5
225	5,12,19,26	0.75	1	1				0.5	0.75	1	0.25	0.5	0.75
226	5,12,19,26	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.25	0.5	0.75
227	5,12,19,26	0.75	1	1	0.75	1	1	0.5	0.75	1	0	0.25	0.5
228	5,12,19,26	0.75	1	1				0.75	1	1	0.25	0.5	0.75
229	5,12,19,26	0.75	1	1				0.5	0.75	1	0.25	0.5	0.75
230	5,12,19,26	0.5	0.75	1				0.5	0.75	1	0.5	0.75	1
231	5,12,19,26	0.25	0.5	0.75				0.25	0.5	0.75	0.5	0.75	1
232	5,12,19,26	0.75	1	1				0.5	0.75	1	0.25	0.5	0.75
233	5,12,19,26	0.75	1	1				0.5	0.75	1	0.25	0.5	0.75
234	5,12,19,26	0.5	0.75	1				0.75	1	1	0.5	0.75	1
235	5,12,19,26	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1
236	5,12,19,26	0.75	1	1				0.5	0.75	1	0.25	0.5	0.75
237	5,12,19,26	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.25	0.5	0.75
238	5,12,19,26	0.75	1	1	0.75	1	1	0.5	0.75	1	0.25	0.5	0.75
239	5,12,19,26	0.5	0.75	1				0.75	1	1	0	0.25	0.5
240	5,12,19,26	0.5	0.75	1				0.25	0.5	0.75	0.5	0.75	1
241	5,12,19,26	0.75	1	1				0.5	0.75	1	0.75	1	1
242	5,12,19,26	0.75	1	1	0.75	1	1	0.75	1	1	0	0.25	0.5
The Average		0.60	0.85	0.98	0.69	0.94	1.00	0.57	0.82	0.97	0.34	0.59	0.80

Question 6,13,20,27

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
218	6,13,20,27	0.5	0.75	1	0.5	0.75	1	0.25	0.5	0.75	0.75	1	1
219	6,13,20,27	0.5	0.75	1				0.5	0.75	1	0.75	1	1
220	6,13,20,27	0.75	1	1				0.25	0.5	0.75	0.75	1	1
221	6,13,20,27	0.5	0.75	1				0.75	1	1	0.5	0.75	1
222	6,13,20,27	0.5	0.75	1				0.5	0.75	1	0.5	0.75	1
223	6,13,20,27	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.75	1	1
224	6,13,20,27	0.75	1	1				0.5	0.75	1	0.5	0.75	1
225	6,13,20,27	0.75	1	1				0.5	0.75	1	0.5	0.75	1
226	6,13,20,27	0.5	0.75	1	0.75	1	1	0.5	0.75	1	0.5	0.75	1
227	6,13,20,27	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
228	6,13,20,27	0.5	0.75	1				0.75	1	1	0.75	1	1
229	6,13,20,27	0.5	0.75	1				0.75	1	1	0.5	0.75	1
230	6,13,20,27	0.75	1	1				0.5	0.75	1	0.5	0.75	1
231	6,13,20,27	0.75	1	1				0.5	0.75	1	0.25	0.5	0.75
232	6,13,20,27	0.25	0.5	0.75				0.5	0.75	1	0.5	0.75	1
233	6,13,20,27	0.5	0.75	1				0.75	1	1	0.75	1	1
234	6,13,20,27	0.75	1	1				0.5	0.75	1	0.5	0.75	1
235	6,13,20,27	0.75	1	1				0.5	0.75	1	0.5	0.75	1
236	6,13,20,27	0.75	1	1				0.5	0.75	1	0.75	1	1
237	6,13,20,27	0.75	1	1	0.75	1	1	0.75	1	1	0.5	0.75	1
238	6,13,20,27	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
239	6,13,20,27	0.5	0.75	1				0.5	0.75	1	0.5	0.75	1
240	6,13,20,27	0.5	0.75	1				0.5	0.75	1	0.5	0.75	1
241	6,13,20,27	0.75	1	1				0.5	0.75	1	0.5	0.75	1

242	6,13,20,27	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
The Average		0.61	0.86	0.99	0.61	0.86	1.00	0.54	0.79	0.98	0.57	0.82	0.99

### Question 7,14,21,28

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
weights													
218	7,14,21,28	0.75	1	1	0.5	0.75	1	0.75	1	1	0.75	1	1
219	7,14,21,28	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1
220	7,14,21,28	0.75	1	1	0.5	0.75	1	0.5	0.75	1	0.5	0.75	1
221	7,14,21,28	0.5	0.75	1	0	0.25	0.5	0.25	0.5	0.75	0.5	0.75	1
222	7,14,21,28	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
223	7,14,21,28	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1
224	7,14,21,28	0.75	1	1	0.75	1	1	0.5	0.75	1	0.75	1	1
225	7,14,21,28	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
226	7,14,21,28	0.75	1	1	0.5	0.75	1	0.75	1	1	0.75	1	1
227	7,14,21,28	0.5	0.75	1	0.5	0.75	1	0.75	1	1	0.75	1	1
228	7,14,21,28	0.75	1	1	0	0.25	0.5	0.75	1	1	0.75	1	1
229	7,14,21,28	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1
230	7,14,21,28	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
231	7,14,21,28	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
232	7,14,21,28	0.25	0.5	0.75	0.5	0.75	1	0	0.25	0.5	0.5	0.75	1
233	7,14,21,28	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
234	7,14,21,28	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
235	7,14,21,28	0.75	1	1				0.75	1	1	0.75	1	1
236	7,14,21,28	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1
237	7,14,21,28	0.75	1	1	0.25	0.5	0.75	0.75	1	1	0.75	1	1
238	7,14,21,28	0.75	1	1	0.25	0.5	0.75	0.5	0.75	1	0.75	1	1
239	7,14,21,28	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
240	7,14,21,28	0.5	0.75	1	0.75	1	1	0.75	1	1	0.75	1	1
241	7,14,21,28	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
242	7,14,21,28	0.75	1	1	0.75	1	1	0.75	1	1	0.75	1	1
The Average		0.66	0.91	0.99	0.59	0.84	0.94	0.67	0.92	0.97	0.72	0.97	1.00

#### 11.2.2.2- Romanian Language Average ratings and weights according to the statements (N=25).

##### 11.2.2.2-A Sup-attribute 1 (Effectiveness) Rating and weights for all the characteristics (7) for all users (N=25)

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Effectiveness )					
		Ratings(R)			Weights(W)		
For all users 218 to 242	1	0.79	0.94	0.99	0.61	0.86	0.98
	2	0.75	0.92	1.00	0.56	0.81	0.99
	3	0.79	0.93	0.99	0.61	0.86	0.97
	4	0.78	0.93	0.99	0.60	0.85	0.97
	5	0.78	0.93	0.99	0.60	0.85	0.98
	6	0.79	0.94	1.00	0.61	0.86	0.99
	7	0.83	0.96	1.00	0.66	0.91	0.99

**11.2.2.2-B Sup-attribute 1 (Efficiency) Rating and weights for all the characteristics (7) for all users (N=25)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Efficiency )					
		Ratings(R)			Weights(W)		
For all users 218 to 242	8	0.82	0.96	1.00	0.65	0.90	0.99
	9	0.79	0.94	0.99	0.61	0.86	0.98
	10	0.79	0.94	0.99	0.61	0.86	0.98
	11	0.80	0.95	1.00	0.63	0.88	1.00
	12	0.86	0.98	1.00	0.69	0.94	1.00
	13	0.79	0.94	1.00	0.61	0.86	1.00
	14	0.75	0.89	0.95	0.59	0.84	0.94

**11.2.2.2-C Sup-attribute 1 (Satisfaction) Rating and weights for all the characteristics (7) for all users (N=25)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Satisfaction)					
		Ratings(R)			Weights(W)		
For all users 218 to 242	15	0.85	0.98	1.00	0.69	0.94	1.00
	16	0.78	0.94	1.00	0.60	0.85	0.99
	17	0.82	0.96	1.00	0.65	0.90	0.99
	18	0.75	0.91	0.99	0.56	0.81	0.97
	19	0.76	0.92	0.99	0.57	0.82	0.97
	20	0.73	0.91	0.99	0.54	0.79	0.98
	21	0.83	0.95	0.98	0.67	0.92	0.97

**11.2.2.2-D Sup-attribute 1 (Comprehensibility) Rating and weights for all the characteristics (7) for all users (N=25)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Comprehensibility)					
		Ratings(R)			Weights(W)		
For all users 218 to 242	22	0.77	0.91	0.96	0.61	0.86	0.95
	23	0.63	0.79	0.90	0.45	0.70	0.86
	24	0.79	0.94	0.99	0.61	0.86	0.98
	25	0.79	0.94	0.99	0.61	0.86	0.98
	26	0.54	0.72	0.87	0.34	0.59	0.80
	27	0.76	0.92	1.00	0.57	0.82	0.99
	28	0.88	0.99	1.00	0.72	0.97	1.00

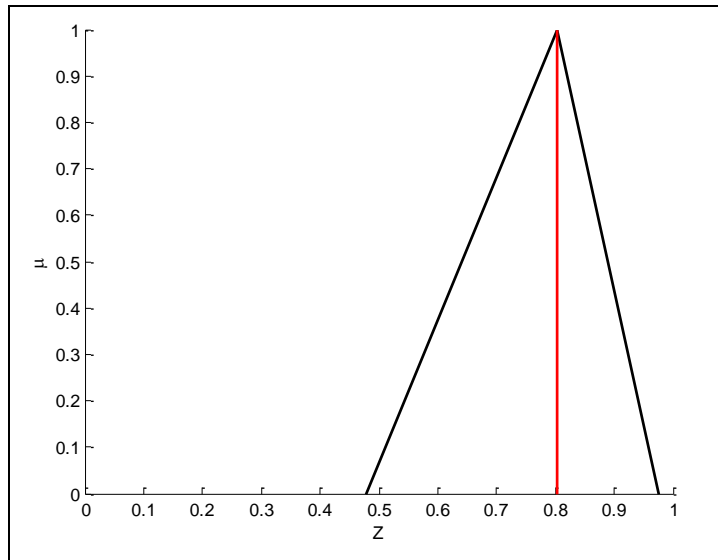
Serial Numbers for users	Sup-attribute	attribute A - Effectiveness								
		Ratings(R)			Weights(W)			R*W		
For all users 218 to 242	1	0.79	0.94	0.99	0.61	0.86	0.98	<b>0.48</b>	<b>0.81</b>	<b>0.97</b>
	2	0.75	0.92	1.00	0.56	0.81	0.99	<b>0.42</b>	<b>0.75</b>	<b>0.99</b>
	3	0.79	0.93	0.99	0.61	0.86	0.97	<b>0.48</b>	<b>0.80</b>	<b>0.96</b>
	4	0.78	0.93	0.99	0.60	0.85	0.97	<b>0.47</b>	<b>0.79</b>	<b>0.96</b>

	5	0.78	0.93	0.99	0.60	0.85	0.98	<b>0.47</b>	<b>0.79</b>	<b>0.97</b>
	6	0.79	0.94	1.00	0.61	0.86	0.99	<b>0.48</b>	<b>0.81</b>	<b>0.99</b>
	7	0.83	0.96	1.00	0.66	0.91	0.99	<b>0.55</b>	<b>0.87</b>	<b>0.99</b>
<b>The Average</b>					<b>0.607</b>	<b>0.857</b>	<b>0.981</b>	0.479	0.802	0.976

Ratings (R), Effectiveness attribute A

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For Effectiveness: - R attribute A = (0.479, 0.802, 0.976)



Weight (W), Effectiveness attribute A

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute /

For Effectiveness: - W sup-attribute 1 = (0.607, 0.857, 0.981)

Attribute A ( Effectiveness )					
Ratings(R)			Weights(W)		
0.479	0.802	0.976	0.607	0.857	0.981

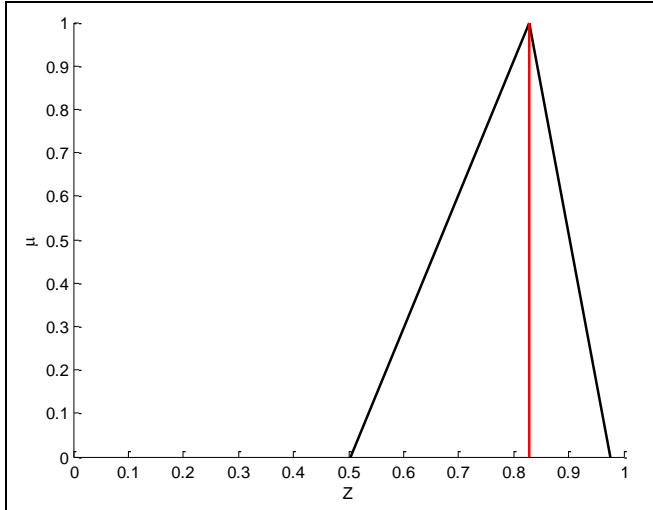
Serial Numbers for users	Sup-attribute	Attribute B - Efficiency								
		Ratings(R)			Weights(W)			R*W		
For all users 218 to 242	8	0.82	0.96	1.00	0.65	0.90	0.99	<b>0.53</b>	<b>0.86</b>	<b>0.99</b>
	9	0.79	0.94	0.99	0.61	0.86	0.98	<b>0.48</b>	<b>0.81</b>	<b>0.97</b>
	10	0.79	0.94	0.99	0.61	0.86	0.98	<b>0.48</b>	<b>0.81</b>	<b>0.97</b>
	11	0.80	0.95	1.00	0.63	0.88	1.00	<b>0.50</b>	<b>0.84</b>	<b>1.00</b>
	12	0.86	0.98	1.00	0.69	0.94	1.00	<b>0.59</b>	<b>0.92</b>	<b>1.00</b>
	13	0.79	0.94	1.00	0.61	0.86	1.00	<b>0.48</b>	<b>0.81</b>	<b>1.00</b>

	14	0.75	0.89	0.95	0.59	0.84	0.94	<b>0.44</b>	<b>0.75</b>	<b>0.89</b>
<b>The Average</b>					<b>0.627</b>	<b>0.877</b>	<b>0.984</b>	<b>0.503</b>	<b>0.828</b>	<b>0.975</b>

Ratings (R), **Efficiency** attribute B

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Efficiency**: - R attribute B = (0.503, 0.828,0.975)



Weight (W), **Efficiency** attribute B

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Efficiency**: - W attribute B = (0.627, 0.877, 0.984)

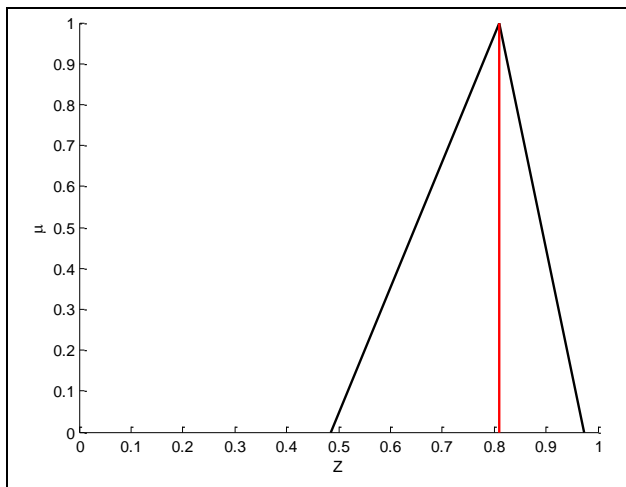
Attribute B ( Efficiency )					
Ratings(R)			Weights(W)		
<b>0.503</b>	<b>0.828</b>	<b>0.975</b>	<b>0.627</b>	<b>0.877</b>	<b>0.984</b>

Serial Numbers for users	Sup-attribute	Attribute C - Satisfaction								
		Ratings(R)			Weights(W)			R*W		
For all users 218 to 242	15	<b>0.85</b>	<b>0.98</b>	<b>1.00</b>	<b>0.69</b>	<b>0.94</b>	<b>1.00</b>	<b>0.59</b>	<b>0.92</b>	<b>1.00</b>
	16	<b>0.78</b>	<b>0.94</b>	<b>1.00</b>	<b>0.60</b>	<b>0.85</b>	<b>0.99</b>	<b>0.47</b>	<b>0.80</b>	<b>0.99</b>
	17	<b>0.82</b>	<b>0.96</b>	<b>1.00</b>	<b>0.65</b>	<b>0.90</b>	<b>0.99</b>	<b>0.53</b>	<b>0.86</b>	<b>0.99</b>
	18	<b>0.75</b>	<b>0.91</b>	<b>0.99</b>	<b>0.56</b>	<b>0.81</b>	<b>0.97</b>	<b>0.42</b>	<b>0.74</b>	<b>0.96</b>
	19	<b>0.76</b>	<b>0.92</b>	<b>0.99</b>	<b>0.57</b>	<b>0.82</b>	<b>0.97</b>	<b>0.43</b>	<b>0.75</b>	<b>0.96</b>
	20	<b>0.73</b>	<b>0.91</b>	<b>0.99</b>	<b>0.54</b>	<b>0.79</b>	<b>0.98</b>	<b>0.39</b>	<b>0.72</b>	<b>0.97</b>
	21	<b>0.83</b>	<b>0.95</b>	<b>0.98</b>	<b>0.67</b>	<b>0.92</b>	<b>0.97</b>	<b>0.56</b>	<b>0.87</b>	<b>0.95</b>
<b>The Average</b>					<b>0.611</b>	<b>0.861</b>	<b>0.981</b>	<b>0.484</b>	<b>0.810</b>	<b>0.974</b>

Ratings (R), **Satisfaction** attribute C

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Satisfaction**: - R attribute C = (0.484, 0.810,0.974)



Weight (W), **Satisfaction** attribute C

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute /

For **Satisfaction**: - W attribute C = (0.611, 0.861,0.981)

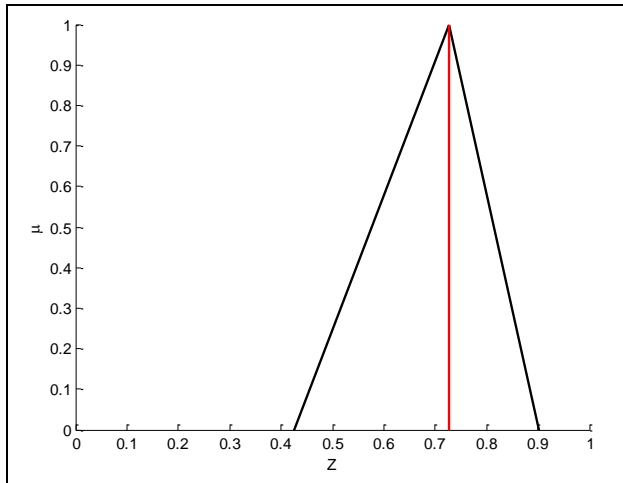
Attribute C ( Satisfaction )					
Ratings(R)			Weights(W)		
<b>0.484</b>	<b>0.810</b>	<b>0.974</b>	<b>0.611</b>	<b>0.861</b>	<b>0.981</b>

Serial Numbers for users	Sup-attribute	Attribute D - Comprehensibility								
		Ratings(R)			Weights(W)			R*W		
For all users 218 to 242	22	<b>0.77</b>	<b>0.91</b>	<b>0.96</b>	<b>0.61</b>	<b>0.86</b>	<b>0.95</b>	<b>0.47</b>	<b>0.78</b>	<b>0.91</b>
	23	<b>0.63</b>	<b>0.79</b>	<b>0.90</b>	0.45	<b>0.70</b>	<b>0.86</b>	<b>0.28</b>	<b>0.55</b>	<b>0.77</b>
	24	0.79	0.94	0.99	<b>0.61</b>	<b>0.86</b>	<b>0.98</b>	<b>0.48</b>	<b>0.81</b>	<b>0.97</b>
	25	<b>0.79</b>	<b>0.94</b>	<b>0.99</b>	<b>0.61</b>	<b>0.86</b>	<b>0.98</b>	<b>0.48</b>	<b>0.81</b>	<b>0.97</b>
	26	<b>0.54</b>	<b>0.72</b>	<b>0.87</b>	<b>0.34</b>	<b>0.59</b>	<b>0.80</b>	<b>0.18</b>	<b>0.42</b>	<b>0.70</b>
	27	<b>0.76</b>	<b>0.92</b>	<b>1.00</b>	<b>0.57</b>	<b>0.82</b>	<b>0.99</b>	<b>0.43</b>	<b>0.75</b>	<b>0.99</b>
The Average					<b>0.559</b>	<b>0.809</b>	<b>0.937</b>	<b>0.424</b>	<b>0.727</b>	<b>0.902</b>

Ratings (R), **Comprehensibility** attribute D

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Comprehensibility**: - R attribute D = (0.424, 0.727,0.902)



Weight (W), **Comprehensibility** attribute D

$W \text{ attribute} = W \text{ sup-attribute } 1 + W \text{ sup-attribute } 2 + \dots + W \text{ sup-attribute}$

For **Comprehensibility**: -  $W \text{ attribute } D = (0.559, 0.809, 0.937)$

Attribute D ( Comprehensibility )					
Ratings(R)			Weights(W)		
<b>0.424</b>	<b>0.727</b>	<b>0.902</b>	<b>0.559</b>	<b>0.809</b>	<b>0.937</b>

### 11.2.3.5- Ratings and weights of the Usability

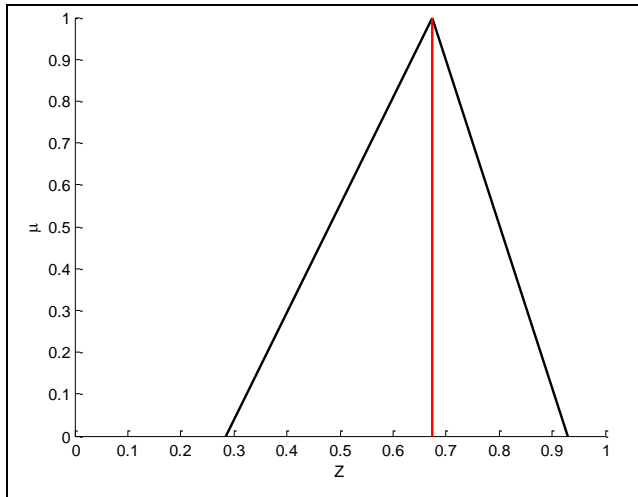
The Variables	Fuzzy Rating (R)			Fuzzy weight (W)			R * W		
<b>Effectiveness</b>	0.479	0.802	0.976	0.607	0.857	0.981	0.291	0.687	0.957
<b>Efficiency</b>	0.503	0.828	0.975	0.627	0.877	0.984	0.315	0.726	0.959
<b>Satisfaction</b>	0.484	0.810	0.974	0.611	0.861	0.981	0.296	0.697	0.955
<b>Comprehensibility</b>	0.424	0.727	0.902	0.559	0.809	0.937	0.237	0.588	0.845
<b>Average</b>				0.601	0.851	0.971	0.285	0.675	0.929

Ratings (R), Usability of Romanian

$R \text{ attribute} = (R \text{ sup-attribute } 1 * W \text{ sup-attribute } 1 + R \text{ sup-attribute } 2 * W \text{ sup-attribute } 2 + \dots + R \text{ sup-attribute } n * W \text{ sup-attribute } n)$

For Usability of Romanian: -  $R \text{ Usability} = (0.285, 0.675, 0.929)$





**Weight (w), Usability of Romanian**

$W \text{ attribute} = W \text{ sup-attribute 1} + W \text{ sup-attribute 2} + \dots + W \text{ sup-attribute}$

For Usability of Romanian: -  $W \text{ Usability} = (0.601, 0.851, 0.971)$

Usability of Romanian					
Ratings(R)			Weights(W)		
0.285	0.675	0.929	0.601	0.851	0.971

**R usability Romanian = (0.285, 0.675, 0.929) = 0.7476**

**11.3- The Result: (Romanian Language)**

**Romanian Language Application Usability  $Z^* = 0.7476$**

# 12-Russian Language

## 12.2.2.2- Russian Language Average ratings according to the statements (N=7).

### Question 1,8,15,22 (Characteristic) for all Sub-attributes

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
243	1,8,15,22	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
244	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
245	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
246	1,8,15,22	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
247	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
248	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
249	1,8,15,22	0.5	0.7	0.9	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0
The Average		0.47	0.67	0.86	0.76	0.93	1.00	0.70	0.89	0.99	0.81	0.96	1.00

### Question 2,9,16,23

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
243	2,9,16,23	0.1	0.3	0.5	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0
244	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9
245	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.1	0.3	0.5
246	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9
247	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
248	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
249	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.61	0.80	0.91	0.79	0.94	1.00	0.81	0.94	0.99	0.61	0.79	0.90

### Question 3,10,17,24

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
243	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
244	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
245	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
246	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
247	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
248	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
249	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
The Average		0.70	0.90	1.00	0.81	0.96	1.00	0.81	0.96	1.00	0.84	0.97	1.00

### Question 4,11,18,25

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
243	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
244	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
245	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
246	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
247	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
248	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
249	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
The Average		0.81	0.96	1.00	0.81	0.96	1.00	0.81	0.96	1.00	0.84	0.97	1.00	

### Question 5,12,19,26

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
243	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
244	5,12,19,26	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.5	0.7	0.9	
245	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9	
246	5,12,19,26	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
247	5,12,19,26	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
248	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
249	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.5	0.7	0.9	
The Average		0.81	0.94	0.99	0.82	0.94	0.98	0.81	0.96	1.00	0.64	0.83	0.96	

### Question 6,13,20,27

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
243	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
244	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0	
245	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
246	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.9	1.0	1.0	
247	6,13,20,27	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
248	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0	
249	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
The Average		0.84	0.97	1.00	0.83	0.97	1.00	0.79	0.94	1.00	0.84	0.97	1.00	

### Question 7,14,21,28

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
243	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
244	7,14,21,28	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0	
245	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
246	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	

247	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
248	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
249	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.90	1.00	1.00	0.73	0.90	0.98	0.90	1.00	1.00	0.84	0.97	1.00

### 12.2.3-Fuzzy Weight

#### 12.2.3.1- Triangular Fuzzy sets for fuzzy weights

Fuzzy Value			Fuzzy weights
1	Strongly Disagree	SD	(0.0, 0.0, 0.25)
2	Disagree	D	(0.0, 0.25, 0.5)
3	Neutral	N	(0.25, 0.5, 0.75)
4	Agree	A	(0.5, 0.75, 1.0)
5	Strongly Agree	SA	(0.75, 1.0, 1.0)

#### 12.2.3.2 Russian Language Average weights according to the statements (N=7).

##### Question 1,8,15,22 (Characteristic) for all sub-Attribute

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
243	1,8,15,22	0.25	0.5	0.75	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
244	1,8,15,22	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
245	1,8,15,22	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
246	1,8,15,22	0.75	1.0	1.0	0.25	0.5	0.75	0.75	1.0	1.0	0.75	1.0	1.0
247	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
248	1,8,15,22	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
249	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
The Average		0.61	0.86	0.93	0.57	0.82	0.96	0.68	0.93	1.00	0.68	0.93	1.00

##### Question 2,9,16,23

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
243	2,9,16,23	0.0	0.25	0.5	0.5	0.75	1.0	0.25	0.5	0.75	0.5	0.75	1.0
244	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1.0	0.75	1.0	1.0	0.25	0.5	0.75
245	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.0	0.25	0.5
246	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.25	0.5	0.75
247	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
248	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
249	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
The Average		0.43	0.68	0.89	0.61	0.86	1.00	0.64	0.89	0.96	0.43	0.68	0.86

##### Question 3,10,17,24

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
243	3,10,17,24	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
244	3,10,17,24	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
245	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
246	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.25	0.5	0.75
247	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
248	3,10,17,24	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
249	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
The Average		0.50	0.75	1.00	0.61	0.86	1.00	0.64	0.89	1.00	0.61	0.86	0.96

### Question 4,11,18,25

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
243	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
244	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
245	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
246	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
247	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
248	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
249	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
The Average		0.68	0.93	1.00	0.64	0.89	1.00	0.68	0.93	1.00	0.68	0.93	1.00

### Question 5,12,19,26

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
243	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
244	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.25	0.5	0.75
245	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.5	0.75
246	5,12,19,26	0.75	1.0	1.0				0.5	0.75	1.0	0.25	0.5	0.75
247	5,12,19,26	0.25	0.5	0.75	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
248	5,12,19,26	0.75	1.0	1.0				0.5	0.75	1.0	0.5	0.75	1.0
249	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.25	0.5	0.75
The Average		0.68	0.93	0.96	0.75	1.00	1.00	0.61	0.86	1.00	0.36	0.61	0.86

### Question 6,13,20,27

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
243	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
244	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
245	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0

246	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.75	1.0	1.0
247	6,13,20,27	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
248	6,13,20,27	0.5	0.75	1.0				0.75	1.0	1.0	0.75	1.0	1.0
249	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.5	0.75	1.0
The Average		0.68	0.93	1.00	0.67	0.92	1.00	0.61	0.86	1.00	0.68	0.93	1.00

### Question 7,14,21,28

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
	<b>weights</b>												
243	7,14,21,28	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
244	7,14,21,28	0.75	1.0	1.0	0.25	0.5	0.75	0.75	1.0	1.0	0.75	1.0	1.0
245	7,14,21,28	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
246	7,14,21,28	0.75	1.0	1.0	0.25	0.5	0.75	0.75	1.0	1.0	0.75	1.0	1.0
247	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
248	7,14,21,28	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
249	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
The Average		0.75	1.00	1.00	0.50	0.75	0.93	0.75	1.00	1.00	0.68	0.93	1.00

12.2.2.2- Russian Language Average ratings and weights according to the statements (N=7).

12.2.2.2-A Sup-attribute 1 (Effectiveness) Rating and weights for all the characteristics (7) for all users (N=7)

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Effectiveness )					
		Ratings(R)			Weights(W)		
For all users 243 to 249	1	0.47	0.67	0.86	0.61	0.86	0.93
	2	0.61	0.80	0.91	0.43	0.68	0.89
	3	0.70	0.90	1.00	0.50	0.75	1.00
	4	0.81	0.96	1.00	0.68	0.93	1.00
	5	0.81	0.94	0.99	0.68	0.93	0.96
	6	0.84	0.97	1.00	0.68	0.93	1.00
	7	0.90	1.00	1.00	0.75	1.00	1.00

12.2.2.2-B Sup-attribute 1 (Efficiency) Rating and weights for all the characteristics (7) for all users (N=7)

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Efficiency )					
		Ratings(R)			Weights(W)		
For all users 243 to 249	8	0.76	0.93	1.00	0.57	0.82	0.96
	9	0.79	0.94	1.00	0.61	0.86	1.00
	10	0.81	0.96	1.00	0.61	0.86	1.00
	11	0.81	0.96	1.00	0.64	0.89	1.00
	12	0.82	0.94	0.98	0.75	1.00	1.00
	13	0.83	0.97	1.00	0.67	0.92	1.00
	14	0.73	0.90	0.98	0.50	0.75	0.93

**12.2.2.2-C Sup-attribute 1 (Satisfaction) Rating and weights for all the characteristics (7) for all users (N=7)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Satisfaction)					
		Ratings(R)			Weights(W)		
For all users 243 to 249	15	0.70	0.89	0.99	0.68	0.93	1.00
	16	0.81	0.94	0.99	0.64	0.89	0.96
	17	0.81	0.96	1.00	0.64	0.89	1.00
	18	0.81	0.96	1.00	0.68	0.93	1.00
	19	0.81	0.96	1.00	0.61	0.86	1.00
	20	0.79	0.94	1.00	0.61	0.86	1.00
	21	0.90	1.00	1.00	0.75	1.00	1.00

**12.2.2.2-D Sup-attribute 1 (Comprehensibility) Rating and weights for all the characteristics (7) for all users (N=7)**

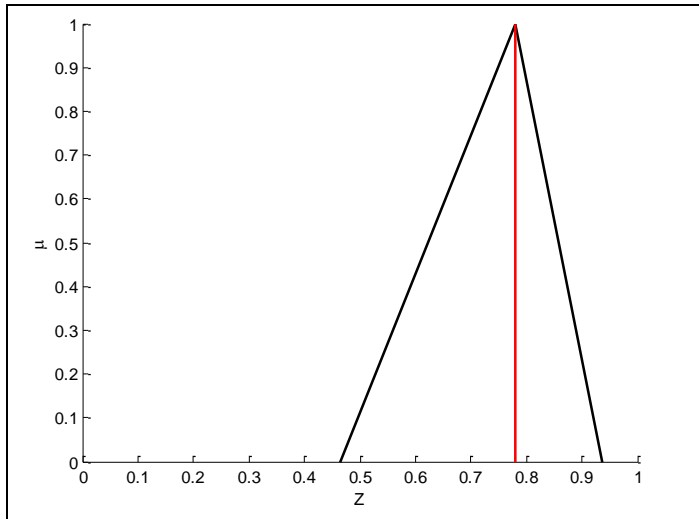
Serial Numbers for users	Characteristic	Sup-attribute 1 ( Comprehensibility)					
		Ratings(R)			Weights(W)		
For all users 243 to 249	22	0.81	0.96	1.00	0.68	0.93	1.00
	23	0.61	0.79	0.90	0.43	0.68	0.86
	24	0.84	0.97	1.00	0.61	0.86	0.96
	25	0.84	0.97	1.00	0.68	0.93	1.00
	26	0.64	0.83	0.96	0.36	0.61	0.86
	27	0.84	0.97	1.00	0.68	0.93	1.00
	28	0.84	0.97	1.00	0.68	0.93	1.00

Serial Numbers for users	Sup-attribute	attribute A - Effectiveness								
		Ratings(R)			Weights(W)			R*W		
For all users 243 to 249	1	0.47	0.67	0.86	0.61	0.86	0.93	0.29	0.58	0.80
	2	0.61	0.80	0.91	0.43	0.68	0.89	0.26	0.54	0.81
	3	0.70	0.90	1.00	0.50	0.75	1.00	0.35	0.68	1.00
	4	0.81	0.96	1.00	0.68	0.93	1.00	0.55	0.89	1.00
	5	0.81	0.94	0.99	0.68	0.93	0.96	0.55	0.87	0.95
	6	0.84	0.97	1.00	0.68	0.93	1.00	0.57	0.90	1.00
	7	0.90	1.00	1.00	0.75	1.00	1.00	0.68	1.00	1.00
<b>The Average</b>					<b>0.619</b>	<b>0.869</b>	<b>0.969</b>	<b>0.464</b>	<b>0.781</b>	<b>0.937</b>

Ratings (R), Effectiveness attribute A

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For Effectiveness: - R attribute A = (0.464, 0.781, 0.937)



Weight (W), Effectiveness attribute A

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For Effectiveness: - W sup-attribute 1 = (0.619, 0.869, 0.969)

Attribute A ( Effectiveness )					
Ratings(R)			Weights(W)		
<b>0.464</b>	<b>0.781</b>	<b>0.937</b>	<b>0.619</b>	<b>0.869</b>	<b>0.969</b>

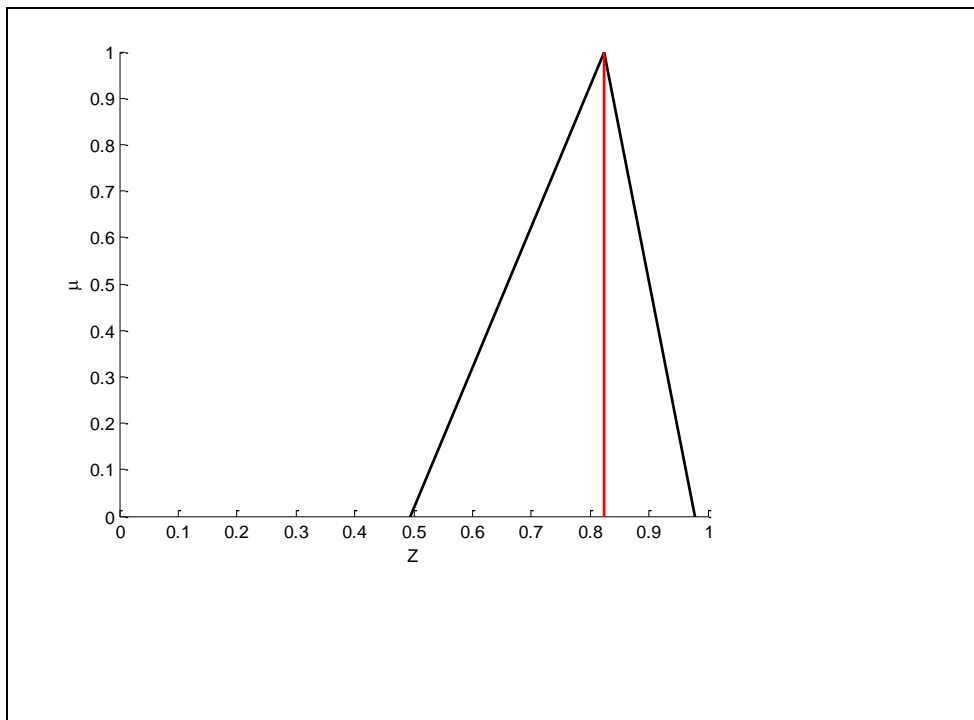
Serial Numbers for users	Sup-attribute	Attribute B - Efficiency								
		Ratings(R)			Weights(W)			R*W		
For all users 243 to 249	8	0.76	0.93	1.00	0.57	0.82	0.96	0.43	0.76	0.96
	9	0.79	0.94	1.00	0.61	0.86	1.00	0.48	0.81	1.00
	10	0.81	0.96	1.00	0.61	0.86	1.00	0.49	0.83	1.00
	11	0.81	0.96	1.00	0.64	0.89	1.00	0.52	0.85	1.00
	12	0.82	0.94	0.98	0.75	1.00	1.00	0.62	0.94	0.98
	13	0.83	0.97	1.00	0.67	0.92	1.00	0.56	0.89	1.00
	14	0.73	0.90	0.98	0.50	0.75	0.93	0.37	0.68	0.91
<b>The Average</b>					<b>0.621</b>	<b>0.871</b>	<b>0.984</b>	<b>0.495</b>	<b>0.823</b>	<b>0.979</b>

Ratings (R), Efficiency attribute B

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + ..... + R sup-attribute n \* W sup-attribute n )



For **Efficiency**: - R attribute B = (0.495, 0.823,0.979)



Weight (W), **Efficiency** attribute B

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute /

For **Efficiency**: - W attribute B = (0.621, 0.871,0.984)

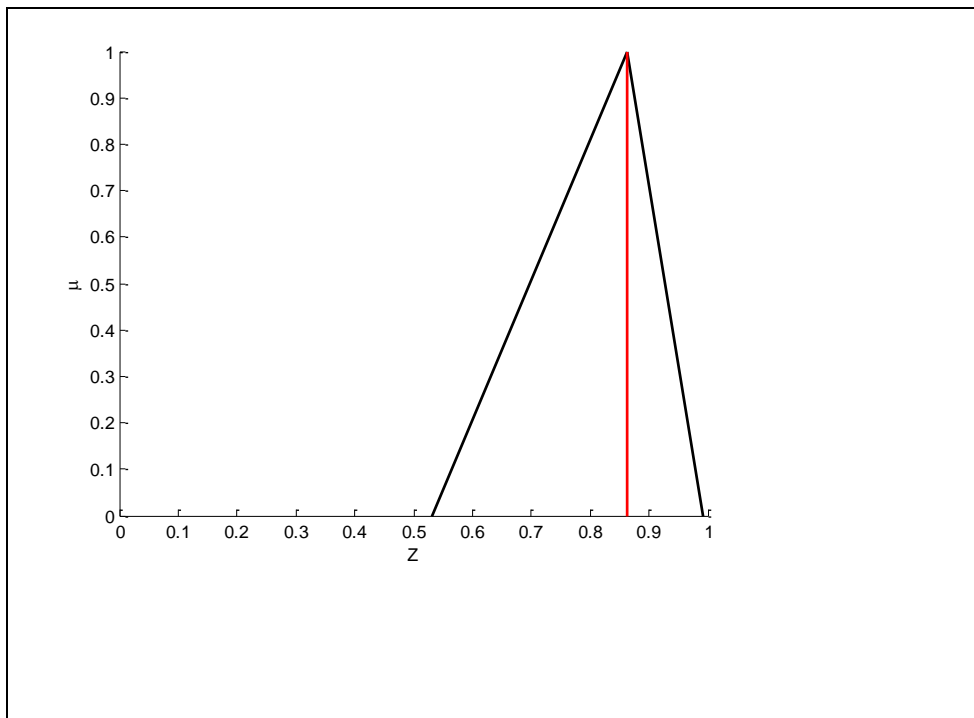
Attribute B ( Efficiency )					
Ratings(R)			Weights(W)		
<b>0.495</b>	<b>0.823</b>	<b>0.979</b>	<b>0.621</b>	<b>0.871</b>	<b>0.984</b>

Serial Numbers for users	Sup-attribute	Attribute C - Satisfaction								
		Ratings(R)			Weights(W)			R*W		
For all users 243 to 249	15	0.70	0.89	0.99	0.68	0.93	1.00	0.48	0.83	0.99
	16	0.81	0.94	0.99	0.64	0.89	0.96	0.52	0.84	0.95
	17	0.81	0.96	1.00	0.64	0.89	1.00	0.52	0.85	1.00
	18	0.81	0.96	1.00	0.68	0.93	1.00	0.55	0.89	1.00
	19	0.81	0.96	1.00	0.61	0.86	1.00	0.49	0.83	1.00
	20	0.79	0.94	1.00	0.61	0.86	1.00	0.48	0.81	1.00
	21	0.90	1.00	1.00	0.75	1.00	1.00	0.68	1.00	1.00
<b>The Average</b>					<b>0.659</b>	<b>0.909</b>	<b>0.994</b>	<b>0.531</b>	<b>0.864</b>	<b>0.991</b>

Ratings (R), **Satisfaction** attribute C

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Satisfaction**: - R attribute C = (0.531, 0.864,0.991)



Weight (W), **Satisfaction** attribute C

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute / n

For **Satisfaction**: - W attribute C = (0.659, 0.909,0.994)

Attribute C ( Satisfaction )					
Ratings(R)			Weights(W)		
<b>0.531</b>	<b>0.864</b>	<b>0.991</b>	<b>0.659</b>	<b>0.909</b>	<b>0.994</b>

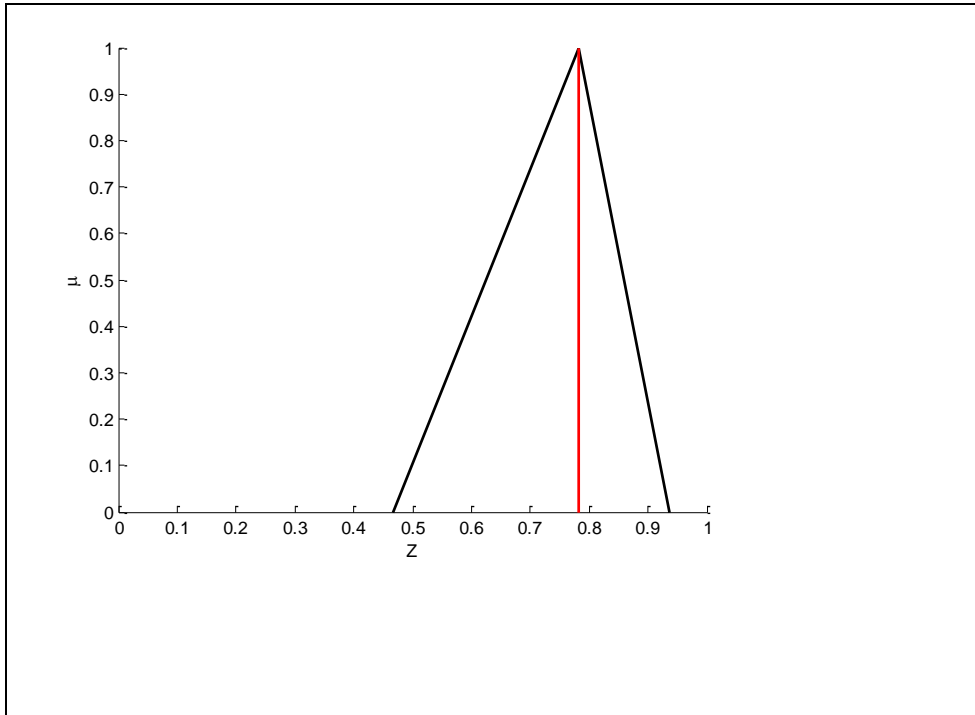
Serial Numbers for users	Sup-attribute	Attribute D - Comprehensibility								
		Ratings(R)			Weights(W)			R*W		
For all users 243 to 249	22	0.81	0.96	1.00	0.68	0.93	1.00	0.55	0.89	1.00
	23	0.61	0.79	0.90	0.43	0.68	0.86	0.26	0.54	0.77
	24	0.84	0.97	1.00	0.61	0.86	0.96	0.51	0.83	0.96
	25	0.84	0.97	1.00	0.68	0.93	1.00	0.57	0.90	1.00
	26	0.64	0.83	0.96	0.36	0.61	0.86	0.23	0.51	0.83
	27	0.84	0.97	1.00	0.68	0.93	1.00	0.57	0.90	1.00

	28	0.84	0.97	1.00	0.68	0.93	1.00	0.57	0.90	1.00
<b>The Average</b>					<b>0.589</b>	<b>0.839</b>	<b>0.954</b>	<b>0.467</b>	<b>0.782</b>	<b>0.937</b>

**Ratings (R), Comprehensibility attribute D**

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )/n

For **Comprehensibility**: - R attribute D = (0.467, 0.782,0.937)



**Weight (W), Comprehensibility attribute D**

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute / n

For **Comprehensibility**: - W attribute D = (0.589, 0.839,0.954)

Attribute D ( Comprehensibility )					
Ratings(R)			Weights(W)		
<b>0.467</b>	<b>0.782</b>	<b>0.937</b>	<b>0.589</b>	<b>0.839</b>	<b>0.954</b>

**12.2.3.5- Ratings and weights of the Usability**

The Variables	Fuzzy Rating (R)			Fuzzy weight (W)			R * W		
<b>Effectiveness</b>	0.464	0.781	0.937	0.619	0.869	0.969	0.287	0.679	0.908
<b>Efficiency</b>	0.495	0.823	0.979	0.621	0.871	0.984	0.307	0.717	0.963
<b>Satisfaction</b>	0.531	0.864	0.991	0.659	0.909	0.994	0.350	0.785	0.985

<b>Comprehensibility</b>	<b>0.467</b>	<b>0.782</b>	<b>0.937</b>	<b>0.589</b>	<b>0.839</b>	<b>0.954</b>	<b>0.275</b>	<b>0.656</b>	<b>0.894</b>
<b>Average</b>				<b>0.622</b>	<b>0.872</b>	<b>0.975</b>	<b>0.305</b>	<b>0.709</b>	<b>0.938</b>

### Ratings (R), Usability of Russian

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )/n

For Usability of Russian: - R Usability = (0.305, 0.709,0.938)



### Weight (w), Usability of Russian

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For Usability of Russian: - W Usability = (0.622, 0.872,0.975)

Usability of Russian					
Ratings(R)			Weights(W)		
<b>0.305</b>	<b>0.709</b>	<b>0.938</b>	<b>0.622</b>	<b>0.872</b>	<b>0.975</b>

**R usability Russian =(0.305, 0.709, 0.938) = 0.7873**

### 12.3- The Result: (Russian Language)

**Russian Language Application Usability = Z\* = 0.7873**

# 13-Spanish Language

## 13.2.2.2- Spanish Language Average ratings according to the statements (N=20).

### Question 1,8,15,22 (Characteristic) for all Sub-attributes

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
250	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5	0.7	0.9	1.0
251	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5	0.7	0.9	1.0
252	1,8,15,22	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0
253	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
254	1,8,15,22	0.5	0.7	0.9	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0
255	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
256	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
257	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
258	1,8,15,22	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
259	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
260	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
261	1,8,15,22	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
262	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
263	1,8,15,22	0.1	0.3	0.5	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
264	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
265	1,8,15,22	0.1	0.3	0.5	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
266	1,8,15,22	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
267	1,8,15,22	0.7	0.9	1.0	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1.0	1.0
268	1,8,15,22	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
269	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.34	0.51	0.68	0.75	0.91	0.99	0.70	0.87	0.95	0.74	0.91	0.98

### Question 2,9,16,23

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
250	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9
251	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9
252	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9
253	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
254	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
255	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
256	2,9,16,23	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
257	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
258	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
259	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
260	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
261	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
262	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
263	2,9,16,23	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.0	0.1	0.3

264	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5
265	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.0	0.1	0.3
266	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
267	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.0	0.1	0.3
268	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
269	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
The Average		0.63	0.82	0.95	0.74	0.92	1.00	0.78	0.94	1.00	0.32	0.46	0.62

**Question 3,10,17,24**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
250	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
251	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
252	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
253	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	
254	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
255	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
256	3,10,17,24	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
257	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
258	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
259	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
260	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
261	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
262	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
263	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	
264	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
265	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
266	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
267	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
268	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	
269	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
The Average		0.77	0.93	1.00	0.74	0.92	1.00	0.77	0.94	1.00	0.74	0.91	0.99	

**Question 4,11,18,25**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
250	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.1	0.3	0.5	0.7	0.9	1.0	
251	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0	
252	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
253	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
254	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
255	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
256	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
257	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
258	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
259	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
260	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
261	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
262	4,11,18,25	0.9	1.0	1.0	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	
263	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
264	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	

265	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
266	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
267	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
268	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9
269	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9
The Average		0.80	0.95	1.00	0.77	0.92	0.98	0.69	0.88	0.97	0.75	0.92	0.99

**Question 5,12,19,26**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
250	5,12,19,26	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
251	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
252	5,12,19,26	0.9	1.0	1.0				0.5	0.7	0.9	0.9	1.0	1.0
253	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0
254	5,12,19,26	0.5	0.7	0.9				0.5	0.7	0.9	0.9	1.0	1.0
255	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
256	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.5	0.7	0.9
257	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
258	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
259	5,12,19,26	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
260	5,12,19,26	0.7	0.9	1.0				0.9	1.0	1.0	0.7	0.9	1.0
261	5,12,19,26	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5
262	5,12,19,26	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.1	0.3	0.5
263	5,12,19,26	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.1	0.3	0.5
264	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
265	5,12,19,26	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
266	5,12,19,26	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
267	5,12,19,26	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5
268	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.5	0.7	0.9
269	5,12,19,26	0.7	0.9	1.0				0.9	1.0	1.0	0.5	0.7	0.9
The Average		0.75	0.92	1.00	0.75	0.93	1.00	0.72	0.89	0.98	0.52	0.71	0.84

**Question 6,13,20,27**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
250	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
251	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0
252	6,13,20,27	0.5	0.7	0.9				0.9	1.0	1.0	0.7	0.9	1.0
253	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.9	1.0	1.0
254	6,13,20,27	0.5	0.7	0.9				0.5	0.7	0.9	0.7	0.9	1.0
255	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
256	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
257	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
258	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
259	6,13,20,27	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
260	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.7	0.9	1.0
261	6,13,20,27	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
262	6,13,20,27	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
263	6,13,20,27	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
264	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0

265	6,13,20,27	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
266	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
267	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
268	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
269	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
The Average		0.77	0.93	0.99	0.78	0.94	1.00	0.74	0.92	1.00	0.75	0.93	1.00

### Question 7,14,21,28

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
250	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	
251	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	
252	7,14,21,28	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	
253	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	
254	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.1	0.3	0.5	0.9	1.0	1.0	
255	7,14,21,28	0.7	0.9	1.0	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	
256	7,14,21,28	0.7	0.9	1.0	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	
257	7,14,21,28	0.7	0.9	1.0	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	
258	7,14,21,28	0.7	0.9	1.0	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	
259	7,14,21,28	0.7	0.9	1.0	0.1	0.3	0.5	0.9	1.0	1.0	0.7	0.9	1.0	
260	7,14,21,28	0.7	0.9	1.0	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	
261	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
262	7,14,21,28	0.7	0.9	1.0	0.0	0.1	0.3	0.9	1.0	1.0	0.7	0.9	1.0	
263	7,14,21,28	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
264	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	
265	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
266	7,14,21,28	0.9	1.0	1.0	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0	
267	7,14,21,28	0.9	1.0	1.0	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0	
268	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
269	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
The Average		0.74	0.91	0.99	0.44	0.60	0.74	0.81	0.94	0.98	0.81	0.95	1.00	

### 13.2.3-Fuzzy Weight

#### 13.2.3.1- Triangular Fuzzy sets for fuzzy weights

Fuzzy Value			Fuzzy weights
1	Strongly Disagree	SD	(0.0, 0.0, 0.25)
2	Disagree	D	(0.0, 0.25, 0.5)
3	Neutral	N	(0.25, 0.5, 0.75)
4	Agree	A	(0.5, 0.75, 1.0)
5	Strongly Agree	SA	(0.75, 1.0, 1.0)

#### 13.2.3.2 Spanish Language Average weights according to the statements (N=20).

#### Question 1,8,15,22 (Characteristic) for all sub-Attribute

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)



weights		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
250	1,8,15,22	0.25	0.5	0.75	0.75	1.0	1.0	0.25	0.5	0.75	0.75	1.0	1.0
251	1,8,15,22	0.25	0.5	0.75	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
252	1,8,15,22	0.25	0.5	0.75	0.25	0.5	0.75	0.75	1.0	1.0	0.75	1.0	1.0
253	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
254	1,8,15,22	0.25	0.5	0.75	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0
255	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
256	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
257	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
258	1,8,15,22	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
259	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
260	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
261	1,8,15,22	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
262	1,8,15,22	0.25	0.5	0.75	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
263	1,8,15,22	0.0	0.25	0.5	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
264	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
265	1,8,15,22	0.0	0.25	0.5	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
266	1,8,15,22	0.0	0.25	0.5	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
267	1,8,15,22	0.5	0.75	1.0	0.25	0.5	0.75	0.25	0.5	0.75	0.75	1.0	1.0
268	1,8,15,22	0.25	0.5	0.75	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
269	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
The Average		0.18	0.36	0.61	0.55	0.80	0.96	0.58	0.83	0.98	0.59	0.84	0.98

**Question 2,9,16,23**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		weights		Effectiveness			Efficiency			Satisfaction			Comprehensibility
250	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75
251	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.5	0.75
252	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75
253	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
254	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
255	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
256	2,9,16,23	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
257	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
258	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
259	2,9,16,23	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
260	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
261	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
262	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
263	2,9,16,23	0.5	0.75	1.0	0.25	0.5	0.75	0.75	1.0	1.0	0.0	0.0	0.25
264	2,9,16,23	0.25	0.5	0.75	0.5	0.75	1.0	0.75	1.0	1.0	0.0	0.25	0.5
265	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.0	0.0	0.25
266	2,9,16,23	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
267	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.0	0.0	0.25
268	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
269	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
The Average		0.43	0.68	0.90	0.55	0.80	0.99	0.60	0.85	1.00	0.21	0.35	0.58

### Question 3,10,17,24

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
weights													
250	3,10,17,24	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
251	3,10,17,24	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
252	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
253	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75
254	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
255	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
256	3,10,17,24	0.25	0.5	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
257	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
258	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
259	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
260	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
261	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
262	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
263	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75
264	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
265	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
266	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
267	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
268	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75
269	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
The Average		0.59	0.84	0.99	0.55	0.80	1.00	0.59	0.84	1.00	0.55	0.80	0.96

### Question 4,11,18,25

Questionnaires “Serial Numbers”	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
weights													
250	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.0	0.25	0.5	0.5	0.75	1.0
251	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.5	0.75	0.5	0.75	1.0
252	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
253	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
254	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
255	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
256	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
257	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
258	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
259	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
260	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
261	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
262	4,11,18,25	0.75	1.0	1.0	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0
263	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
264	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
265	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
266	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
267	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
268	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.5	0.75

269	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.25	0.5	0.75
The Average		0.63	0.88	1.00	0.60	0.85	0.98	0.50	0.75	0.96	0.56	0.81	0.98

### Question 5,12,19,26

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
weights													
250	5,12,19,26	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
251	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
252	5,12,19,26	0.75	1.0	1.0				0.25	0.5	0.75	0.75	1.0	1.0
253	5,12,19,26	0.75	1.0	1.0				0.5	0.75	1.0	0.5	0.75	1.0
254	5,12,19,26	0.25	0.5	0.75				0.25	0.5	0.75	0.75	1.0	1.0
255	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
256	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.25	0.5	0.75
257	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
258	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
259	5,12,19,26	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
260	5,12,19,26	0.5	0.75	1.0				0.75	1.0	1.0	0.5	0.75	1.0
261	5,12,19,26	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.0	0.25	0.5
262	5,12,19,26	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75	0.0	0.25	0.5
263	5,12,19,26	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75	0.0	0.25	0.5
264	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.5	0.75	1.0
265	5,12,19,26	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
266	5,12,19,26	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
267	5,12,19,26	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.5
268	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.25	0.5	0.75
269	5,12,19,26	0.5	0.75	1.0				0.75	1.0	1.0	0.25	0.5	0.75
The Average		0.56	0.81	0.99	0.56	0.81	1.00	0.53	0.78	0.95	0.35	0.60	0.81

### Question 6,13,20,27

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
weights													
250	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
251	6,13,20,27	0.5	0.75	1.0				0.75	1.0	1.0	0.75	1.0	1.0
252	6,13,20,27	0.25	0.5	0.75				0.75	1.0	1.0	0.5	0.75	1.0
253	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.75	1.0	1.0
254	6,13,20,27	0.25	0.5	0.75				0.25	0.5	0.75	0.5	0.75	1.0
255	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
256	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
257	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
258	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
259	6,13,20,27	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
260	6,13,20,27	0.5	0.75	1.0				0.75	1.0	1.0	0.5	0.75	1.0
261	6,13,20,27	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
262	6,13,20,27	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
263	6,13,20,27	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
264	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.5	0.75	1.0
265	6,13,20,27	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
266	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
267	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0

268	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
269	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.5	0.75	1.0
The Average		0.59	0.84	0.98	0.59	0.84	1.00	0.55	0.80	0.99	0.56	0.81	1.00

### Question 7,14,21,28

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
	<b>weights</b>												
250	7,14,21,28	0.75	1.0	1.0	0.25	0.5	0.75	0.75	1.0	1.0	0.75	1.0	1.0
251	7,14,21,28	0.5	0.75	1.0	0.25	0.5	0.75	0.75	1.0	1.0	0.75	1.0	1.0
252	7,14,21,28	0.25	0.5	0.75	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.5	0.75
253	7,14,21,28	0.75	1.0	1.0	0.25	0.5	0.75	0.75	1.0	1.0	0.75	1.0	1.0
254	7,14,21,28	0.5	0.75	1.0	0.25	0.5	0.75	0.0	0.25	0.5	0.75	1.0	1.0
255	7,14,21,28	0.5	0.75	1.0	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0
256	7,14,21,28	0.5	0.75	1.0	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0
257	7,14,21,28	0.5	0.75	1.0	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0
258	7,14,21,28	0.5	0.75	1.0	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0
259	7,14,21,28	0.5	0.75	1.0	0.0	0.25	0.5	0.75	1.0	1.0	0.5	0.75	1.0
260	7,14,21,28	0.5	0.75	1.0	0.0	0.25	0.5	0.5	0.75	1.0	0.5	0.75	1.0
261	7,14,21,28	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
262	7,14,21,28	0.5	0.75	1.0	0.0	0.0	0.25	0.75	1.0	1.0	0.5	0.75	1.0
263	7,14,21,28	0.25	0.5	0.75	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
264	7,14,21,28	0.75	1.0	1.0	0.25	0.5	0.75	0.75	1.0	1.0	0.75	1.0	1.0
265	7,14,21,28	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
266	7,14,21,28	0.75	1.0	1.0	0.0	0.25	0.5	0.75	1.0	1.0	0.75	1.0	1.0
267	7,14,21,28	0.75	1.0	1.0	0.0	0.25	0.5	0.75	1.0	1.0	0.75	1.0	1.0
268	7,14,21,28	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
269	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
The Average		0.55	0.80	0.98	0.29	0.53	0.70	0.65	0.90	0.98	0.64	0.89	0.99

### 13.2.2.2- Spanish Language Average ratings and weights according to the statements (N=20).

#### 13.2.2.2-A Sup-attribute 1 (Effectiveness) Rating and weights for all the characteristics (7) for all users (N=20)

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Effectiveness )					
		Ratings(R)			Weights(W)		
For all users 250 to 269	1	0.34	0.51	0.68	0.18	0.36	0.61
	2	0.63	0.82	0.95	0.43	0.68	0.90
	3	0.77	0.93	1.00	0.59	0.84	0.99
	4	0.80	0.95	1.00	0.63	0.88	1.00
	5	0.75	0.92	1.00	0.56	0.81	0.99
	6	0.77	0.93	0.99	0.59	0.84	0.98
	7	0.74	0.91	0.99	0.55	0.80	0.98

#### 13.2.2.2-B Sup-attribute 1 (Efficiency) Rating and weights for all the characteristics (7) for all users (N=20)

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Efficiency )					
		Ratings(R)			Weights(W)		
For all users 250 to 269	8	0.75	0.91	0.99	0.55	0.80	0.96
	9	0.74	0.92	1.00	0.55	0.80	0.99
	10	0.74	0.92	1.00	0.55	0.80	1.00
	11	0.77	0.92	0.98	0.60	0.85	0.98
	12	0.75	0.93	1.00	0.56	0.81	1.00
	13	0.78	0.94	1.00	0.59	0.84	1.00
	14	0.44	0.60	0.74	0.29	0.53	0.70

**13.2.2.2-C Sup-attribute 1 (Satisfaction) Rating and weights for all the characteristics (7) for all users (N=20)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Satisfaction )					
		Ratings(R)			Weights(W)		
For all users 250 to 269	15	0.70	0.87	0.95	0.58	0.83	0.98
	16	0.78	0.94	1.00	0.60	0.85	1.00
	17	0.77	0.94	1.00	0.59	0.84	1.00
	18	0.69	0.88	0.97	0.50	0.75	0.96
	19	0.72	0.89	0.98	0.53	0.78	0.95
	20	0.74	0.92	1.00	0.55	0.80	0.99
	21	0.81	0.94	0.98	0.65	0.90	0.98

**13.2.2.2-D Sup-attribute 1 (Comprehensibility) Rating and weights for all the characteristics (7) for all users (N=20)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Comprehensibility )					
		Ratings(R)			Weights(W)		
For all users 250 to 269	22	0.74	0.91	0.98	0.59	0.84	0.98
	23	0.32	0.46	0.62	0.21	0.35	0.58
	24	0.74	0.91	0.99	0.55	0.80	0.96
	25	0.75	0.92	0.99	0.56	0.81	0.98
	26	0.52	0.71	0.84	0.35	0.60	0.81
	27	0.75	0.93	1.00	0.56	0.81	1.00
	28	0.81	0.95	1.00	0.64	0.89	0.99

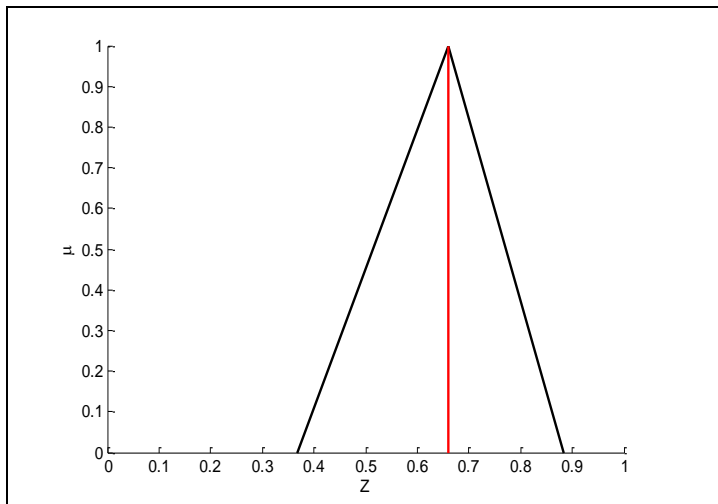
Serial Numbers for users	Sup-attribute	attribute A - Effectiveness								
		Ratings(R)			Weights(W)			R*W		
For all users 250 to 269	1	0.34	0.51	0.68	0.18	0.36	0.61	0.06	0.18	0.41
	2	0.63	0.82	0.95	0.43	0.68	0.90	0.27	0.56	0.86
	3	0.77	0.93	1.00	0.59	0.84	0.99	0.45	0.78	0.99
	4	0.80	0.95	1.00	0.63	0.88	1.00	0.50	0.84	1.00
	5	0.75	0.92	1.00	0.56	0.81	0.99	0.42	0.75	0.99
	6	0.77	0.93	0.99	0.59	0.84	0.98	0.45	0.78	0.97

	7	0.74	0.91	0.99	0.55	0.80	0.98	0.41	0.73	0.97
<b>The Average</b>					0.504	0.744	0.921	0.367	0.659	0.884

Ratings (R), Effectiveness attribute A

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For Effectiveness: - R attribute A = (0.367, 0.659, 0.884)



Weight (W), Effectiveness attribute A

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For Effectiveness: - W sup-attribute 1 = (0.504, 0.744, 0.921)

Attribute A ( Effectiveness )					
Ratings(R)			Weights(W)		
<b>0.367</b>	<b>0.659</b>	<b>0.884</b>	<b>0.504</b>	<b>0.744</b>	<b>0.921</b>

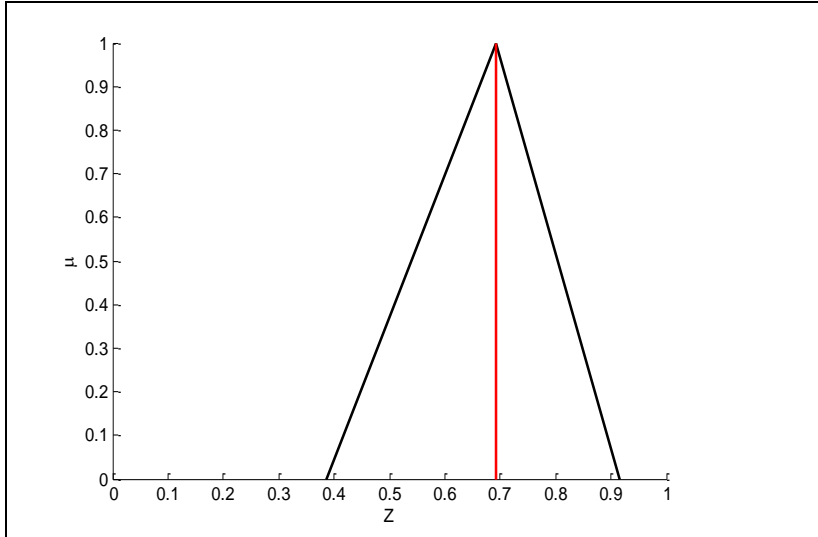
Serial Numbers for users	Sup-attribute	Attribute B - Efficiency								
		Ratings(R)			Weights(W)			R*W		
For all users 250 to 269	8	0.75	0.91	0.99	0.55	0.80	0.96	0.41	0.73	0.95
	9	0.74	0.92	1.00	0.55	0.80	0.99	0.41	0.74	0.99
	10	0.74	0.92	1.00	0.55	0.80	1.00	0.41	0.74	1.00
	11	0.77	0.92	0.98	0.60	0.85	0.98	0.46	0.78	0.96
	12	0.75	0.93	1.00	0.56	0.81	1.00	0.42	0.75	1.00
	13	0.78	0.94	1.00	0.59	0.84	1.00	0.46	0.79	1.00

	14	0.44	0.60	0.74	0.29	0.53	0.70	0.13	0.32	0.52
<b>The Average</b>					0.527	0.776	0.947	0.385	0.692	0.917

Ratings (R), **Efficiency** attribute B

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Efficiency**: - R attribute B = (0.385, 0.692,0.917)



Weight (W), **Efficiency** attribute B

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute / n

For **Efficiency**: - W attribute B = (0.527, 0.776,0.947)

Attribute B ( Efficiency )					
Ratings(R)			Weights(W)		
<b>0.385</b>	<b>0.692</b>	<b>0.917</b>	<b>0.527</b>	<b>0.776</b>	<b>0.947</b>

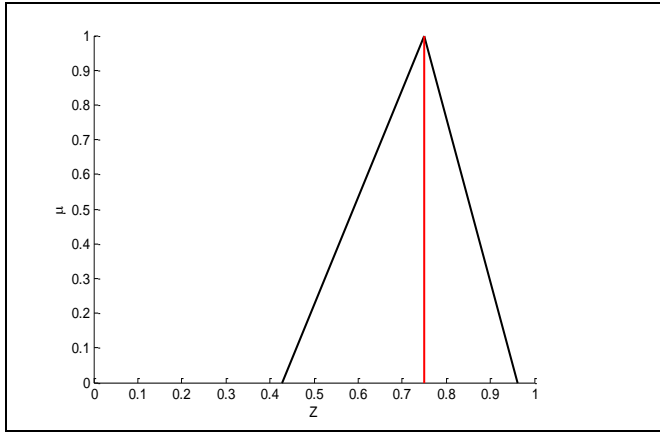
Serial Numbers for users	Sup-attribute	Attribute C - Satisfaction								
		Ratings(R)			Weights(W)			R*W		
For all users 250 to 269	15	0.70	0.87	0.95	0.58	0.83	0.98	0.41	0.72	0.93
	16	0.78	0.94	1.00	0.60	0.85	1.00	0.47	0.80	1.00
	17	0.77	0.94	1.00	0.59	0.84	1.00	0.45	0.79	1.00
	18	0.69	0.88	0.97	0.50	0.75	0.96	0.35	0.66	0.93
	19	0.72	0.89	0.98	0.53	0.78	0.95	0.38	0.69	0.93
	20	0.74	0.92	1.00	0.55	0.80	0.99	0.41	0.74	0.99
	21	0.81	0.94	0.98	0.65	0.90	0.98	0.53	0.85	0.96

<b>The Average</b>				0.571	0.821	0.980	0.427	0.750	0.963
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Ratings (R), **Satisfaction** attribute C

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Satisfaction**: - R attribute C = (0.427, 0.750,0.963)



Weight (W), **Satisfaction** attribute C

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Satisfaction**: - W attribute C = (0.571, 0.821,0.980)

Attribute C ( Satisfaction )					
Ratings(R)			Weights(W)		
<b>0.427</b>	<b>0.750</b>	<b>0.963</b>	<b>0.571</b>	<b>0.821</b>	<b>0.980</b>

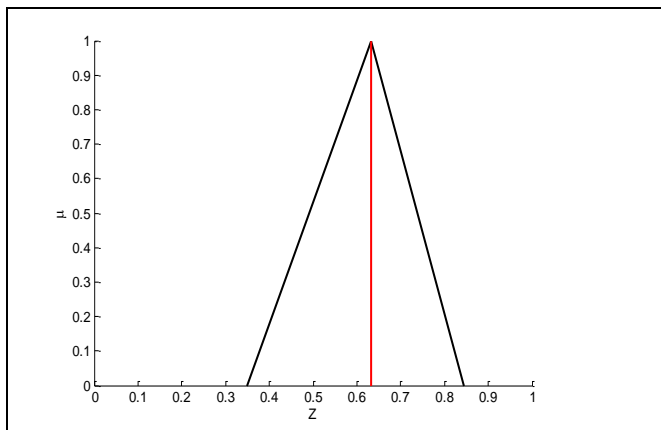
Serial Numbers for users	Sup-attribute	Attribute D - Comprehensibility								
		Ratings(R)			Weights(W)			R*W		
For all users 250 to 269	22	0.74	0.91	0.98	0.59	0.84	0.98	0.44	0.76	0.96
	23	0.32	0.46	0.62	0.21	0.35	0.58	0.07	0.16	0.36
	24	0.74	0.91	0.99	0.55	0.80	0.96	0.41	0.73	0.95
	25	0.75	0.92	0.99	0.56	0.81	0.98	0.42	0.75	0.97
	26	0.52	0.71	0.84	0.35	0.60	0.81	0.18	0.43	0.68
	27	0.75	0.93	1.00	0.56	0.81	1.00	0.42	0.75	1.00
	28	0.81	0.95	1.00	0.64	0.89	0.99	0.52	0.85	0.99
<b>The Average</b>					0.494	0.729	0.900	0.350	0.632	0.844

Ratings (R), **Comprehensibility** attribute D

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )



For **Comprehensibility**: - R attribute D = (0.350, 0.632,0.844)



Weight (W), **Comprehensibility** attribute D

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Comprehensibility**: - W attribute D = (0.494, 0.729,0.900)

Attribute D ( Comprehensibility )					
Ratings(R)			Weights(W)		
<b>0.350</b>	<b>0.632</b>	<b>0.844</b>	<b>0.494</b>	<b>0.729</b>	<b>0.900</b>

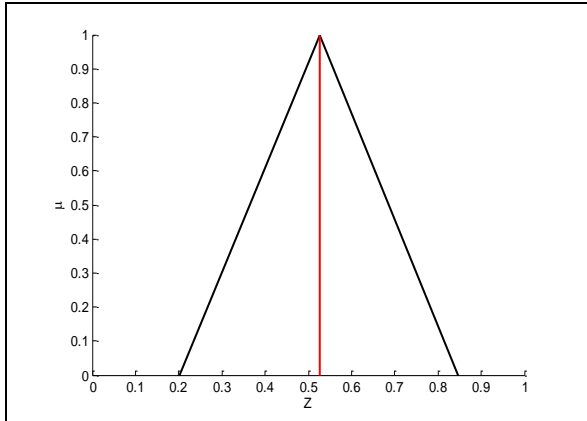
### 3.2.3.5- Ratings and weights of the Usability

The Variables	Fuzzy Rating (R)			Fuzzy weight (W)			R * W		
	<b>Effectiveness</b>	<b>0.367</b>	<b>0.659</b>	<b>0.884</b>	<b>0.504</b>	<b>0.744</b>	<b>0.921</b>	<b>0.185</b>	<b>0.490</b>
<b>Efficiency</b>	<b>0.385</b>	<b>0.692</b>	<b>0.917</b>	<b>0.527</b>	<b>0.776</b>	<b>0.947</b>	<b>0.203</b>	<b>0.537</b>	<b>0.868</b>
<b>Satisfaction</b>	<b>0.427</b>	<b>0.750</b>	<b>0.963</b>	<b>0.571</b>	<b>0.821</b>	<b>0.980</b>	<b>0.244</b>	<b>0.616</b>	<b>0.944</b>
<b>Comprehensibility</b>	<b>0.350</b>	<b>0.632</b>	<b>0.844</b>	<b>0.494</b>	<b>0.729</b>	<b>0.900</b>	<b>0.173</b>	<b>0.461</b>	<b>0.760</b>
<b>Average</b>				<b>0.524</b>	<b>0.768</b>	<b>0.937</b>	<b>0.201</b>	<b>0.526</b>	<b>0.846</b>

Ratings (R), Usability of Spanish

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )/n

For **Usability of Spanish**: - R Usability = (0.201, 0.526,0.846)



### Weight (w), Usability of Spanish

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For Usability of Spanish: - W Usability = (0.524, 0.768, 0.937)

Usability of Spanish					
Ratings(R)			Weights(W)		
0.201	0.526	0.846	0.524	0.768	0.937

**R usability Spanish = (0.201, 0.526, 0.846) = 0.5721**

### 13.3- The Result: (Spanish Language)

**Spanish Language Application Usability =  $Z^*$  = 0.5721**

# 14 Swedish Language

## 14.2.2.2- Swedish Language Average ratings according to the statements (N=6).

### Question 1,8,15,22 (Characteristic) for all Sub-attributes

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
Ratings		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
270	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
271	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
272	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
273	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
274	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
275	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.77	0.93	1.00	0.83	0.97	1.00	0.90	1.00	1.00	0.87	0.98	1.00

### Question 2,9,16,23

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
Ratings		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
270	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9
271	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
272	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
273	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
274	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
275	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
The Average		0.83	0.97	1.00	0.80	0.95	1.00	0.83	0.97	1.00	0.70	0.88	0.98

### Question 3,10,17,24

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
Ratings		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
270	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
271	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
272	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
273	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
274	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
275	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.83	0.97	1.00	0.83	0.97	1.00	0.83	0.97	1.00	0.83	0.97	1.00

### Question 4,11,18,25

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
Ratings		Effectiveness			Efficiency			Satisfaction			Comprehensibility		

270	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
271	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
272	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
273	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
274	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
275	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.80	0.95	1.00	0.83	0.97	1.00	0.83	0.97	1.00	0.83	0.97	1.00

### Question 5,12,19,26

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
270	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.1	0.3	0.5
271	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
272	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
273	5,12,19,26	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9
274	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.9	1.0	1.0
275	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0
The Average		0.90	1.00	1.00	0.80	0.95	1.00	0.83	0.97	1.00	0.63	0.80	0.90

### Question 6,13,20,27

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
270	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
271	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.9	1.0	1.0
272	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.7	0.9	1.0
273	6,13,20,27	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
274	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.9	1.0	1.0
275	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
The Average		0.77	0.93	1.00	0.90	1.00	1.00	0.77	0.93	1.00	0.77	0.93	1.00

### Question 7,14,21,28

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
270	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0
271	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
272	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
273	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
274	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
275	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
The Average		0.83	0.97	1.00	0.80	0.93	0.98	0.87	0.98	1.00	0.87	0.98	1.00

## 14.2.3-Fuzzy Weight

### 14.2.3.1- Triangular Fuzzy sets for fuzzy weights

Fuzzy Value			Fuzzy weights
1	Strongly Disagree	SD	(0.0, 0.0, 0.25)
2	Disagree	D	(0.0, 0.25, 0.5)
3	Neutral	N	(0.25, 0.5, 0.75)
4	Agree	A	(0.5, 0.75, 1.0)
5	Strongly Agree	SA	(0.75, 1.0, 1.0)

#### 14.2.3.2 Swedish Language Average weights according to the statements (N=6).

##### Question 1,8,15,22 (Characteristic) for all sub-Attribute

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
	<b>weights</b>												
270	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
271	1,8,15,22	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
272	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
273	1,8,15,22	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
274	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
275	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
The Average		0.58	0.83	1.00	0.67	0.92	1.00	0.75	1.00	1.00	0.71	0.96	1.00

##### Question 2,9,16,23

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
	<b>weights</b>												
270	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.5	0.75
271	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
272	2,9,16,23	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
273	2,9,16,23	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
274	2,9,16,23	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
275	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
The Average		0.67	0.92	1.00	0.63	0.88	1.00	0.67	0.92	1.00	0.50	0.75	0.96

##### Question 3,10,17,24

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
	<b>weights</b>												
270	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
271	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
272	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
273	3,10,17,24	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
274	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
275	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
The Average		0.67	0.92	1.00	0.67	0.92	1.00	0.67	0.92	1.00	0.67	0.92	1.00

**Question 4,11,18,25**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
270	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
271	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
272	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
273	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
274	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
275	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
<b>The Average</b>		0.63	0.88	1.00	0.67	0.92	1.00	0.67	0.92	1.00	0.67	0.92	1.00

**Question 5,12,19,26**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
270	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.0	0.25	0.5
271	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
272	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.5	0.75	1.0
273	5,12,19,26	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.5	0.75
274	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.75	1.0	1.0
275	5,12,19,26	0.75	1.0	1.0				0.5	0.75	1.0	0.5	0.75	1.0
<b>The Average</b>		0.75	1.00	1.00	0.63	0.88	1.00	0.67	0.92	1.00	0.46	0.71	0.88

**Question 6,13,20,27**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
270	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
271	6,13,20,27	0.5	0.75	1.0				0.75	1.0	1.0	0.75	1.0	1.0
272	6,13,20,27	0.5	0.75	1.0				0.75	1.0	1.0	0.5	0.75	1.0
273	6,13,20,27	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
274	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.75	1.0	1.0
275	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
<b>The Average</b>		0.58	0.83	1.00	0.75	1.00	1.00	0.58	0.83	1.00	0.58	0.83	1.00

**Question 7,14,21,28**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
270	7,14,21,28	0.75	1.0	1.0	0.25	0.5	0.75	0.5	0.75	1.0	0.75	1.0	1.0
271	7,14,21,28	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
272	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
273	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
274	7,14,21,28	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0

275	7,14,21,28	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
The Average		0.67	0.92	1.00	0.63	0.88	0.96	0.71	0.96	1.00	0.71	0.96	1.00

**14.2.2.2- Swedish Language Average ratings and weights according to the statements (N=6).**

**14.2.2.2-A Sup-attribute 1 (Effectiveness) Rating and weights for all the characteristics (7) for all users (N=6)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Effectiveness )					
		Ratings(R)			Weights(W)		
For all users 270 to 275	1	0.77	0.93	1.00	0.58	0.83	1.00
	2	0.83	0.97	1.00	0.67	0.92	1.00
	3	0.83	0.97	1.00	0.67	0.92	1.00
	4	0.80	0.95	1.00	0.63	0.88	1.00
	5	0.90	1.00	1.00	0.75	1.00	1.00
	6	0.77	0.93	1.00	0.58	0.83	1.00
	7	0.83	0.97	1.00	0.67	0.92	1.00

**14.2.2.2-B Sup-attribute 1 (Efficiency) Rating and weights for all the characteristics (7) for all users (N=6)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Efficiency )					
		Ratings(R)			Weights(W)		
For all users 270 to 275	8	0.83	0.97	1.00	0.67	0.92	1.00
	9	0.80	0.95	1.00	0.63	0.88	1.00
	10	0.83	0.97	1.00	0.67	0.92	1.00
	11	0.83	0.97	1.00	0.67	0.92	1.00
	12	0.80	0.95	1.00	0.63	0.88	1.00
	13	0.90	1.00	1.00	0.75	1.00	1.00
	14	0.80	0.93	0.98	0.63	0.88	0.96

**14.2.2.2-C Sup-attribute 1 (Satisfaction) Rating and weights for all the characteristics (7) for all users (N=6)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Satisfaction )					
		Ratings(R)			Weights(W)		
For all users 270 to 275	15	0.90	1.00	1.00	0.75	1.00	1.00
	16	0.83	0.97	1.00	0.67	0.92	1.00
	17	0.83	0.97	1.00	0.67	0.92	1.00
	18	0.83	0.97	1.00	0.67	0.92	1.00
	19	0.83	0.97	1.00	0.67	0.92	1.00
	20	0.77	0.93	1.00	0.58	0.83	1.00
	21	0.87	0.98	1.00	0.71	0.96	1.00

**14.2.2.2-D Sup-attribute 1 (Comprehensibility) Rating and weights for all the characteristics (7) for all users (N=6)**

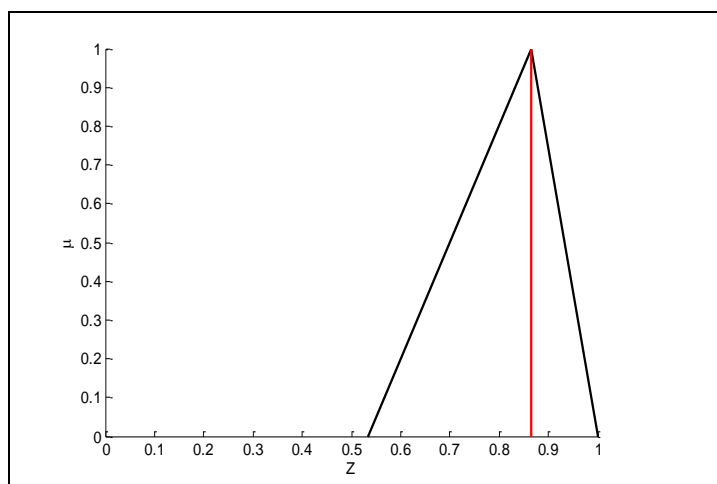
Serial Numbers for users	Characteristic	Sup-attribute 1 ( Comprehensibility)					
		Ratings(R)			Weights(W)		
For all users 270 to 275	22	0.87	0.98	1.00	0.71	0.96	1.00
	23	0.70	0.88	0.98	0.50	0.75	0.96
	24	0.83	0.97	1.00	0.67	0.92	1.00
	25	0.83	0.97	1.00	0.67	0.92	1.00
	26	0.63	0.80	0.90	0.46	0.71	0.88
	27	0.77	0.93	1.00	0.58	0.83	1.00
	28	0.87	0.98	1.00	0.71	0.96	1.00

Serial Numbers for users	Sup-attribute	attribute A - Effectiveness								
		Ratings(R)			Weights(W)			R*W		
For all users 270 to 275	1	0.77	0.93	1.00	0.58	0.83	1.00	0.45	0.77	1.00
	2	0.83	0.97	1.00	0.67	0.92	1.00	0.56	0.89	1.00
	3	0.83	0.97	1.00	0.67	0.92	1.00	0.56	0.89	1.00
	4	0.80	0.95	1.00	0.63	0.88	1.00	0.50	0.84	1.00
	5	0.90	1.00	1.00	0.75	1.00	1.00	0.68	1.00	1.00
	6	0.77	0.93	1.00	0.58	0.83	1.00	0.45	0.77	1.00
	7	0.83	0.97	1.00	0.67	0.92	1.00	0.56	0.89	1.00
The Average					0.650	0.900	1.000	0.534	0.865	1.000

Ratings (R), Effectiveness attribute A

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + ..... + R sup-attribute n \* W sup-attribute n )

For Effectiveness: - R attribute A = (0.534, 0.865, 1)



Weight (W), Effectiveness attribute A

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For Effectiveness: - W sup-attribute 1 = (0.650, 0.900, 1)



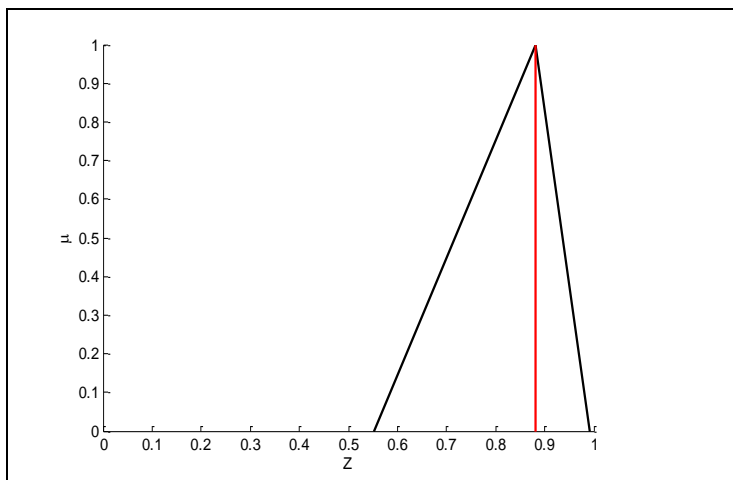
Attribute A ( Effectiveness )					
Ratings(R)			Weights(W)		
<b>0.534</b>	<b>0.865</b>	<b>1.000</b>	<b>0.650</b>	<b>0.900</b>	<b>1.000</b>

Serial Numbers for users	Sup-attribute	Attribute B - Efficiency								
		Ratings(R)			Weights(W)			R*W		
<b>For all users 270 to 275</b>	8	<b>0.83</b>	<b>0.97</b>	<b>1.00</b>	<b>0.67</b>	<b>0.92</b>	<b>1.00</b>	<b>0.56</b>	<b>0.89</b>	<b>1.00</b>
	9	<b>0.80</b>	<b>0.95</b>	<b>1.00</b>	<b>0.63</b>	<b>0.88</b>	<b>1.00</b>	<b>0.50</b>	<b>0.84</b>	<b>1.00</b>
	10	<b>0.83</b>	<b>0.97</b>	<b>1.00</b>	<b>0.67</b>	<b>0.92</b>	<b>1.00</b>	<b>0.56</b>	<b>0.89</b>	<b>1.00</b>
	11	<b>0.83</b>	<b>0.97</b>	<b>1.00</b>	<b>0.67</b>	<b>0.92</b>	<b>1.00</b>	<b>0.56</b>	<b>0.89</b>	<b>1.00</b>
	12	<b>0.80</b>	<b>0.95</b>	<b>1.00</b>	<b>0.63</b>	<b>0.88</b>	<b>1.00</b>	<b>0.50</b>	<b>0.84</b>	<b>1.00</b>
	13	<b>0.90</b>	<b>1.00</b>	<b>1.00</b>	<b>0.75</b>	<b>1.00</b>	<b>1.00</b>	<b>0.68</b>	<b>1.00</b>	<b>1.00</b>
	14	<b>0.80</b>	<b>0.93</b>	<b>0.98</b>	<b>0.63</b>	<b>0.88</b>	<b>0.96</b>	<b>0.50</b>	<b>0.82</b>	<b>0.94</b>
<b>The Average</b>					<b>0.664</b>	<b>0.914</b>	<b>0.994</b>	<b>0.551</b>	<b>0.881</b>	<b>0.992</b>

Ratings (R), **Efficiency** attribute B

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + ..... + R sup-attribute n \* W sup-attribute n )

For **Efficiency**: - R attribute B = (0.551, 0.881,0.992)



Weight (W), **Efficiency** attribute B

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute / n

For **Efficiency**: - W attribute B = (0.664, 0.914,0.994)

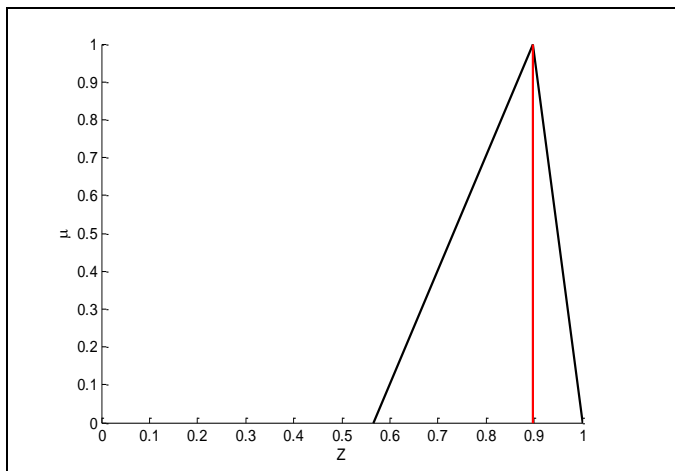
Attribute B ( Efficiency )					
Ratings(R)			Weights(W)		
<b>0.551</b>	<b>0.881</b>	<b>0.992</b>	<b>0.664</b>	<b>0.914</b>	<b>0.994</b>

Serial Numbers for users	Sup-attribute	Attribute C - Satisfaction								
		Ratings(R)			Weights(W)			R*W		
<b>For all users 270 to 275</b>	15	0.90	1.00	1.00	0.75	1.00	1.00	0.68	1.00	1.00
	16	0.83	0.97	1.00	0.67	0.92	1.00	0.56	0.89	1.00
	17	0.83	0.97	1.00	0.67	0.92	1.00	0.56	0.89	1.00
	18	0.83	0.97	1.00	0.67	0.92	1.00	0.56	0.89	1.00
	19	0.83	0.97	1.00	0.67	0.92	1.00	0.56	0.89	1.00
	20	0.77	0.93	1.00	0.58	0.83	1.00	0.45	0.77	1.00
	21	0.87	0.98	1.00	0.71	0.96	1.00	0.62	0.94	1.00
<b>The Average</b>					0.674	0.924	1.000	0.566	0.897	1.000

Ratings (R), Satisfaction attribute C

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + ..... + R sup-attribute n \* W sup-attribute n )/n

For Satisfaction: - R attribute C = (0.566, 0.897,1)



Weight (W), Satisfaction attribute C

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute /

For Satisfaction: - W attribute C = (0.674, 0.924,1)

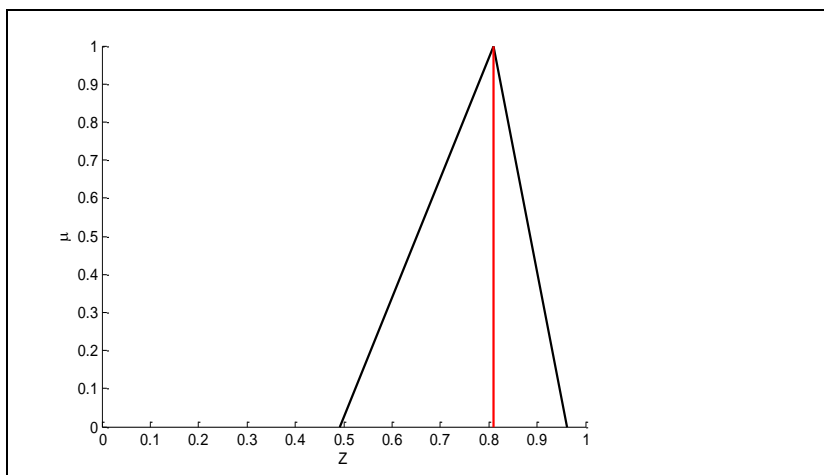
Attribute C ( Satisfaction )					
Ratings(R)			Weights(W)		
0.566	0.897	1.000	0.674	0.924	1.000

Serial Numbers for users	Sup-attribute	Attribute D - Comprehensibility								
		Ratings(R)			Weights(W)			R*W		
For all users 270 to 275	22	0.87	0.98	1.00	0.71	0.96	1.00	0.62	0.94	1.00
	23	0.70	0.88	0.98	0.50	0.75	0.96	0.35	0.66	0.94
	24	0.83	0.97	1.00	0.67	0.92	1.00	0.56	0.89	1.00
	25	0.83	0.97	1.00	0.67	0.92	1.00	0.56	0.89	1.00
	26	0.63	0.80	0.90	0.46	0.71	0.88	0.29	0.57	0.79
	27	0.77	0.93	1.00	0.58	0.83	1.00	0.45	0.77	1.00
	28	0.87	0.98	1.00	0.71	0.96	1.00	0.62	0.94	1.00
The Average					0.614	0.864	0.977	0.491	0.809	0.962

Ratings (R), **Comprehensibility** attribute D

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )/n

For **Comprehensibility**: - R attribute D = (0.491, 0.809,0.962)



Weight (W), **Comprehensibility** attribute D

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Comprehensibility**: - W attribute D = (0.614, 0.864,0.977)

Attribute D ( Comprehensibility )					
Ratings(R)			Weights(W)		
0.491	0.809	0.962	0.614	0.864	0.977

14.2.3.5- Ratings and weights of the Usability

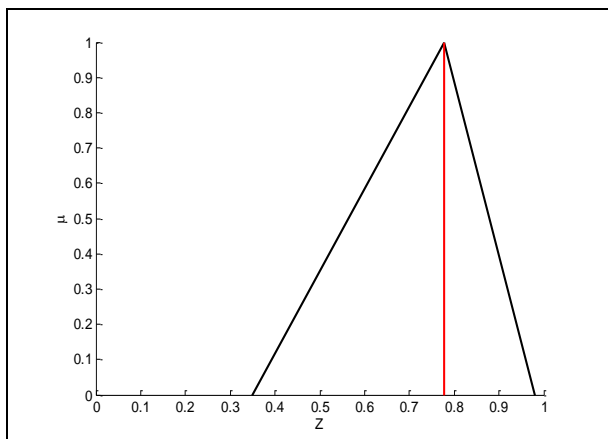
The Variables	Fuzzy Rating (R)			Fuzzy weight (W)			R * W		
Effectiveness	0.534	0.865	1.000	0.650	0.900	1.000	0.347	0.779	1.000

<b>Efficiency</b>	0.551	0.881	0.992	0.664	0.914	0.994	0.366	0.805	0.986
<b>Satisfaction</b>	0.566	0.897	1.000	0.674	0.924	1.000	0.381	0.829	1.000
<b>Comprehensibility</b>	0.491	0.809	0.962	0.614	0.864	0.977	0.301	0.699	0.940
<b>Average</b>				0.651	0.901	0.993	0.349	0.778	0.981

### Ratings (R), Usability of Swedish

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For Usability of Swedish: - R Usability = (0.349, 0.778,0.981)



### Weight (W), Usability of Swedish

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For Usability of Swedish: - W Usability = (0.651, 0.901,0.993)

Usability of Swedish					
Ratings(R)			Weights(W)		
<b>0.349</b>	<b>0.778</b>	<b>0.981</b>	<b>0.651</b>	<b>0.901</b>	<b>0.993</b>

**R usability Swedish =(0.349, 0.778, 0.981) = 0.8713**

### 14.3- The Result: (Swedish Language)

**Swedish Language Application Usability  $Z^*$  = 0.8713**

# 15-Turkish Language

## 15.2.2.2- Turkish Language Average ratings according to the statements (N=20).

### Question 1,8,15,22 (Characteristic) for all Sub-attributes

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
276	1,8,15,22	0.1	0.3	0.5	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
277	1,8,15,22	0.5	0.7	0.9	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0
278	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5	0.7	0.9	1.0
279	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
280	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
281	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
282	1,8,15,22	0.1	0.3	0.5	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0
283	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9
284	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0
285	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
286	1,8,15,22	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
287	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
288	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
289	1,8,15,22	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
290	1,8,15,22	0.5	0.7	0.9	0.9	1.0	1.0	0.5	0.7	0.9	0.5	0.7	0.9
291	1,8,15,22	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0
292	1,8,15,22	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
293	1,8,15,22	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
294	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
295	1,8,15,22	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
The Average		0.44	0.61	0.77	0.75		0.99	0.73	0.88	0.96	0.77	0.93	0.99

### Question 2,9,16,23

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
276	2,9,16,23	0.1	0.3	0.5	0.9	1.0	1.0	0.5	0.7	0.9	0.5	0.7	0.9
277	2,9,16,23	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0
278	2,9,16,23	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0
279	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5	0.0	0.1	0.3
280	2,9,16,23	0.7	0.9	1.0	0.5	0.7	0.9	0.0	0.1	0.3	0.0	0.1	0.3
281	2,9,16,23	0.9	1.0	1.0	0.7	0.9	1.0	0.1	0.3	0.5	0.9	1.0	1.0
282	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
283	2,9,16,23	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
284	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.5	0.7	0.9
285	2,9,16,23	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0

286	2,9,16,23	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0	0.1	0.3	0.5
287	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
288	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
289	2,9,16,23	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9
290	2,9,16,23	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0
291	2,9,16,23	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
292	2,9,16,23	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
293	2,9,16,23	0.5	0.7	0.9	0.9	1.0	1.0	0.1	0.3	0.5	0.1	0.3	0.5
294	2,9,16,23	0.1	0.3	0.5	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5
295	2,9,16,23	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	0.0	0.1	0.3
The Average		0.54	0.73	0.87	0.73	0.90	0.98	0.61	0.78	0.88	0.41	0.56	0.70

**Question 3,10,17,24**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
276	3,10,17,24	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0
277	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0
278	3,10,17,24	0.5	0.7	0.9	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0
279	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
280	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0
281	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5
282	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
283	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
284	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
285	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
286	3,10,17,24	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
287	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
288	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
289	3,10,17,24	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
290	3,10,17,24	0.5	0.7	0.9	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0
291	3,10,17,24	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1.0	1.0	0.5	0.7	0.9
292	3,10,17,24	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
293	3,10,17,24	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0
294	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
295	3,10,17,24	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
The Average		0.67	0.86	0.98	0.71	0.89	0.99	0.78	0.93	0.99	0.73	0.90	0.97

**Question 4,11,18,25**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP)											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
276	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5	0.7	0.9	1.0
277	4,11,18,25	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0
278	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0
279	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.1	0.3	0.5
280	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0
281	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0
282	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
283	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
284	4,11,18,25	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0
285	4,11,18,25	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0
286	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0

287	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
288	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0
289	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.9	1.0	1.0
290	4,11,18,25	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
291	4,11,18,25	0.5	0.7	0.9	0.1	0.3	0.5	0.5	0.7	0.9	0.5	0.7	0.9
292	4,11,18,25	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0
293	4,11,18,25	0.7	0.9	1.0	0.9	1.0	1.0	0.1	0.3	0.5	0.9	1.0	1.0
294	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0
295	4,11,18,25	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
The Average		0.73	0.90	0.99	0.70	0.88	0.97	0.62	0.80	0.92	0.76	0.91	0.97

**Question 5,12,19,26**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
276	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	
277	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
278	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.5	0.7	0.9	
279	5,12,19,26	0.5	0.7	0.9	0.9	1.0	1.0	0.7	0.9	1.0	0.1	0.3	0.5	
280	5,12,19,26	0.0	0.1	0.3	0.7	0.9	1.0	0.7	0.9	1.0	0.1	0.3	0.5	
281	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	
282	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.9	1.0	1.0	
283	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
284	5,12,19,26	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
285	5,12,19,26	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
286	5,12,19,26	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	
287	5,12,19,26	0.7	0.9	1.0				0.5	0.7	0.9	0.1	0.3	0.5	
288	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
289	5,12,19,26	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.5	0.7	0.9	
290	5,12,19,26	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0	
291	5,12,19,26	0.5	0.7	0.9				0.5	0.7	0.9	0.9	1.0	1.0	
292	5,12,19,26	0.5	0.7	0.9				0.9	1.0	1.0	0.7	0.9	1.0	
293	5,12,19,26	0.7	0.9	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.1	0.3	0.5	
294	5,12,19,26	0.7	0.9	1.0				0.7	0.9	1.0	0.9	1.0	1.0	
295	5,12,19,26	0.7	0.9	1.0			0.3	0.7	0.9	1.0	0.7	0.9	1.0	
The Average		0.71	0.87	0.95	0.88	0.99	0.92	0.74	0.91	0.99	0.56	0.75	0.88	

**Question 6,13,20,27**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
276	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	
277	6,13,20,27	0.9	1.0	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
278	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.7	0.9	1.0	
279	6,13,20,27	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.5	0.7	0.9	
280	6,13,20,27	0.7	0.9	1.0	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0	
281	6,13,20,27	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.7	0.9	1.0	
282	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
283	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0	
284	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.5	0.7	0.9	
285	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	
286	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	

287	6,13,20,27	0.7	0.9	1.0				0.5	0.7	0.9	0.9	1.0	1.0
288	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
289	6,13,20,27	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0
290	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
291	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.5	0.7	0.9
292	6,13,20,27	0.7	0.9	1.0				0.9	1.0	1.0	0.5	0.7	0.9
293	6,13,20,27	0.9	1.0	1.0	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0
294	6,13,20,27	0.9	1.0	1.0				0.9	1.0	1.0	0.7	0.9	1.0
295	6,13,20,27	0.7	0.9	1.0				0.7	0.9	1.0	0.7	0.9	1.0
The Average		0.79	0.95	1.00	0.80	0.95	1.00	0.73	0.90	0.99	0.71	0.89	0.98

### Question 7,14,21,28

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMp )												
		Ratings			Effectiveness			Efficiency			Satisfaction			Comprehensibility
276	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	
277	7,14,21,28	0.9	1.0	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
278	7,14,21,28	0.7	0.9	1.0	0.1	0.3	0.5	0.7	0.9	1.0	0.9	1.0	1.0	
279	7,14,21,28	0.9	1.0	1.0	0.1	0.3	0.5	0.5	0.7	0.9	0.9	1.0	1.0	
280	7,14,21,28	0.9	1.0	1.0	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0	
281	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
282	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.7	0.9	1.0	
283	7,14,21,28	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.7	0.9	1.0	
284	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.7	0.9	1.0	0.9	1.0	1.0	
285	7,14,21,28	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
286	7,14,21,28	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
287	7,14,21,28	0.7	0.9	1.0	0.1	0.3	0.5	0.5	0.7	0.9	0.9	1.0	1.0	
288	7,14,21,28	0.7	0.9	1.0	0.1	0.3	0.5	0.7	0.9	1.0	0.7	0.9	1.0	
289	7,14,21,28	0.7	0.9	1.0	0.7	0.9	1.0	0.9	1.0	1.0	0.9	1.0	1.0	
290	7,14,21,28	0.7	0.9	1.0	0.1	0.3	0.5	0.5	0.7	0.9	0.9	1.0	1.0	
291	7,14,21,28	0.5	0.7	0.9	0.1	0.3	0.5	0.9	1.0	1.0	0.9	1.0	1.0	
292	7,14,21,28	0.9	1.0	1.0	0.5	0.7	0.9	0.9	1.0	1.0	0.9	1.0	1.0	
293	7,14,21,28	0.7	0.9	1.0	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1.0	1.0	
294	7,14,21,28	0.7	0.9	1.0	0.0	0.1	0.3	0.7	0.9	1.0	0.9	1.0	1.0	
295	7,14,21,28	0.7	0.9	1.0	0.0	0.1		0.7	0.9	1.0	0.7	0.9	1.0	
The Average		0.76	0.93	1.00	0.40	0.58	0.75	0.75	0.91	0.98	0.85	0.98	1.00	

### 15.2.3-Fuzzy Weight

#### 15.2.3.1- Triangular Fuzzy sets for fuzzy weights

Fuzzy Value			Fuzzy weights
1	Strongly Disagree	SD	(0.0, 0.0, 0.25)
2	Disagree	D	(0.0, 0.25, 0.5)
3	Neutral	N	(0.25, 0.5, 0.75)
4	Agree	A	(0.5, 0.75, 1.0)
5	Strongly Agree	SA	(0.75, 1.0, 1.0)

#### 15.2.3.2 Turkish Language Average weights according to the statements (N=20).

Question 1,8,15,22 (Characteristic) for all sub-Attribute



Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
276	1,8,15,22	0.0	0.25	0.50	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
277	1,8,15,22	0.25	0.50	0.75	0.75	1.0	1.0	0.25	0.50	0.75	0.75	1.0	1.0
278	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.0	0.25	0.50	0.5	0.75	1.0
279	1,8,15,22	0.25	0.50	0.75	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
280	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
281	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
282	1,8,15,22	0.0	0.25	0.50	0.25	0.50	0.75	0.5	0.75	1.0	0.5	0.75	1.0
283	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.50	0.75
284	1,8,15,22	0.25	0.50	0.75	0.5	0.75	1.0	0.25	0.50	0.75	0.75	1.0	1.0
285	1,8,15,22	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
286	1,8,15,22	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
287	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
288	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
289	1,8,15,22	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
290	1,8,15,22	0.25	0.50	0.75	0.75	1.0	1.0	0.25	0.50	0.75	0.25	0.50	0.75
291	1,8,15,22	0.25	0.50	0.75	0.25	0.50	0.75	0.75	1.0	1.0	0.5	0.75	1.0
292	1,8,15,22	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
293	1,8,15,22	0.25	0.50	0.75	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
294	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
295	1,8,15,22	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
<b>The Average</b>		<b>0.26</b>	<b>0.45</b>	<b>0.69</b>	<b>0.56</b>	<b>0.81</b>	<b>0.98</b>	<b>0.55</b>	<b>0.80</b>	<b>0.94</b>	<b>0.59</b>	<b>0.84</b>	<b>0.98</b>

**Question 2,9,16,23**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
276	2,9,16,23	0.0	0.25	0.50	0.75	1.0	1.0	0.25	0.50	0.75	0.25	0.50	0.75
277	2,9,16,23	0.5	0.75	1.0	0.25	0.50	0.75	0.75	1.0	1.0	0.75	1.0	1.0
278	2,9,16,23	0.5	0.75	1.0	0.25	0.50	0.75	0.75	1.0	1.0	0.5	0.75	1.0
279	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.0	0.25	0.50	0.0	0.0	0.25
280	2,9,16,23	0.5	0.75	1.0	0.25	0.50	0.75	0.0	0.0	0.25	0.0	0.0	0.25
281	2,9,16,23	0.75	1.0	1.0	0.5	0.75	1.0	0.0	0.25	0.50	0.75	1.0	1.0
282	2,9,16,23	0.25	0.50	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
283	2,9,16,23	0.0	0.25	0.50	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
284	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.25	0.50	0.75	0.25	0.50	0.75
285	2,9,16,23	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
286	2,9,16,23	0.25	0.50	0.75	0.75	1.0	1.0	0.5	0.75	1.0	0.0	0.25	0.50
287	2,9,16,23	0.25	0.50	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
288	2,9,16,23	0.25	0.50	0.75	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
289	2,9,16,23	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.50	0.75
290	2,9,16,23	0.5	0.75	1.0	0.25	0.50	0.75	0.75	1.0	1.0	0.75	1.0	1.0
291	2,9,16,23	0.25	0.50	0.75	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
292	2,9,16,23	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
293	2,9,16,23	0.25	0.50	0.75	0.75	1.0	1.0	0.0	0.25	0.50	0.0	0.25	0.50
294	2,9,16,23	0.0	0.25	0.50	0.5	0.75	1.0	0.75	1.0	1.0	0.0	0.25	0.50
295	2,9,16,23	0.0	0.25	0.50	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.0	0.25
<b>The Average</b>		<b>0.35</b>	<b>0.60</b>	<b>0.83</b>	<b>0.54</b>	<b>0.79</b>	<b>0.95</b>	<b>0.44</b>	<b>0.68</b>	<b>0.86</b>	<b>0.29</b>	<b>0.46</b>	<b>0.66</b>

**Question 3,10,17,24**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
276	3,10,17,24	0.25	0.50	0.75	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
277	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.50	0.75	0.5	0.75	1.0
278	3,10,17,24	0.25	0.50	0.75	0.25	0.50	0.75	0.5	0.75	1.0	0.5	0.75	1.0
279	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
280	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.50	0.75	0.75	1.0	1.0
281	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.0	0.25	0.50
282	3,10,17,24	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
283	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
284	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
285	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
286	3,10,17,24	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
287	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
288	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
289	3,10,17,24	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
290	3,10,17,24	0.25	0.50	0.75	0.25	0.50	0.75	0.5	0.75	1.0	0.75	1.0	1.0
291	3,10,17,24	0.25	0.50	0.75	0.25	0.50	0.75	0.75	1.0	1.0	0.25	0.50	0.75
292	3,10,17,24	0.25	0.50	0.75	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
293	3,10,17,24	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
294	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
295	3,10,17,24	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
<b>The Average</b>		<b>0.46</b>	<b>0.71</b>	<b>0.94</b>	<b>0.51</b>	<b>0.76</b>	<b>0.96</b>	<b>0.60</b>	<b>0.85</b>	<b>0.98</b>	<b>0.55</b>	<b>0.80</b>	<b>0.96</b>

**Question 4,11,18,25**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
276	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.50	0.5	0.75	1.0
277	4,11,18,25	0.75	1.0	1.0	0.25	0.50	0.75	0.75	1.0	1.0	0.75	1.0	1.0
278	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.50	0.75	0.5	0.75	1.0
279	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.25	0.50	0.75	0.0	0.25	0.50
280	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
281	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.50	0.75	0.75	1.0	1.0
282	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
283	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
284	4,11,18,25	0.25	0.50	0.75	0.25	0.50	0.75	0.75	1.0	1.0	0.5	0.75	1.0
285	4,11,18,25	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.50	0.75	0.75	1.0	1.0
286	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.25	0.50	0.75	0.75	1.0	1.0
287	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
288	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0
289	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.50	0.75	0.75	1.0	1.0
290	4,11,18,25	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
291	4,11,18,25	0.25	0.50	0.75	0.0	0.25	0.50	0.25	0.50	0.75	0.25	0.50	0.75
292	4,11,18,25	0.25	0.50	0.75	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
293	4,11,18,25	0.5	0.75	1.0	0.75	1.0	1.0	0.0	0.25	0.50	0.75	1.0	1.0
294	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
295	4,11,18,25	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
<b>The Average</b>		<b>0.54</b>	<b>0.79</b>	<b>0.96</b>	<b>0.51</b>	<b>0.76</b>	<b>0.95</b>	<b>0.43</b>	<b>0.68</b>	<b>0.86</b>	<b>0.59</b>	<b>0.84</b>	<b>0.96</b>

**Question 5,12,19,26**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
276	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.50	0.75
277	5,12,19,26	0.75	1.0	1.0				0.5	0.75	1.0	0.5	0.75	1.0
278	5,12,19,26	0.75	1.0	1.0				0.5	0.75	1.0	0.25	0.50	0.75
279	5,12,19,26	0.25	0.50	0.75	0.75	1.0	1.0	0.5	0.75	1.0	0.0	0.25	0.50
280	5,12,19,26	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0	0.0	0.25	0.50
281	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.50	0.75
282	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.75	1.0	1.0
283	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
284	5,12,19,26	0.75	1.0	1.0				0.5	0.75	1.0	0.5	0.75	1.0
285	5,12,19,26	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
286	5,12,19,26	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.50	0.75
287	5,12,19,26	0.5	0.75	1.0				0.25	0.50	0.75	0.0	0.25	0.50
288	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
289	5,12,19,26	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.25	0.50	0.75
290	5,12,19,26	0.75	1.0	1.0				0.75	1.0	1.0	0.5	0.75	1.0
291	5,12,19,26	0.25	0.50	0.75				0.25	0.50	0.75	0.75	1.0	1.0
292	5,12,19,26	0.25	0.50	0.75				0.75	1.0	1.0	0.5	0.75	1.0
293	5,12,19,26	0.5	0.75	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.0	0.25	0.50
294	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.75	1.0	1.0
295	5,12,19,26	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
<b>The Average</b>		<b>0.53</b>	<b>0.76</b>	<b>0.93</b>	<b>0.72</b>	<b>0.97</b>	<b>1.00</b>	<b>0.55</b>	<b>0.80</b>	<b>0.98</b>	<b>0.38</b>	<b>0.63</b>	<b>0.84</b>

**Question 6,13,20,27**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
<b>weights</b>													
276	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.25	0.50	0.75	0.75	1.0	1.0
277	6,13,20,27	0.75	1.0	1.0				0.5	0.75	1.0	0.5	0.75	1.0
278	6,13,20,27	0.5	0.75	1.0				0.75	1.0	1.0	0.5	0.75	1.0
279	6,13,20,27	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.25	0.50	0.75
280	6,13,20,27	0.5	0.75	1.0	0.5	0.75	1.0	0.25	0.50	0.75	0.5	0.75	1.0
281	6,13,20,27	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.5	0.75	1.0
282	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
283	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
284	6,13,20,27	0.5	0.75	1.0				0.75	1.0	1.0	0.25	0.50	0.75
285	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
286	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0
287	6,13,20,27	0.5	0.75	1.0				0.25	0.50	0.75	0.75	1.0	1.0
288	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
289	6,13,20,27	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0
290	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
291	6,13,20,27	0.5	0.75	1.0				0.75	1.0	1.0	0.25	0.50	0.75
292	6,13,20,27	0.5	0.75	1.0				0.75	1.0	1.0	0.25	0.50	0.75
293	6,13,20,27	0.75	1.0	1.0	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0
294	6,13,20,27	0.75	1.0	1.0				0.75	1.0	1.0	0.5	0.75	1.0
295	6,13,20,27	0.5	0.75	1.0				0.5	0.75	1.0	0.5	0.75	1.0
<b>The Average</b>		<b>0.61</b>	<b>0.86</b>	<b>1.00</b>	<b>0.63</b>	<b>0.88</b>	<b>1.00</b>	<b>0.54</b>	<b>0.79</b>	<b>0.96</b>	<b>0.51</b>	<b>0.76</b>	<b>0.95</b>

**Question 7,14,21,28**

Questionnaires "Serial Numbers"	Statement No.	Characteristic for (EFFs, EFFy, SATn, COMP )											
		Effectiveness			Efficiency			Satisfaction			Comprehensibility		
	<b>weights</b>												
276	7,14,21,28	0.75	1.0	1.0	0.25	0.50	0.75	0.5	0.75	1.0	0.5	0.75	1.0
277	7,14,21,28	0.75	1.0	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
278	7,14,21,28	0.5	0.75	1.0	0.0	0.25	0.50	0.5	0.75	1.0	0.75	1.0	1.0
279	7,14,21,28	0.75	1.0	1.0	0.0	0.25	0.50	0.25	0.50	0.75	0.75	1.0	1.0
280	7,14,21,28	0.75	1.0	1.0	0.0	0.25	0.50	0.75	1.0	1.0	0.75	1.0	1.0
281	7,14,21,28	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
282	7,14,21,28	0.5	0.75	1.0	0.25	0.50	0.75	0.5	0.75	1.0	0.5	0.75	1.0
283	7,14,21,28	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.5	0.75	1.0
284	7,14,21,28	0.75	1.0	1.0	0.25	0.50	0.75	0.5	0.75	1.0	0.75	1.0	1.0
285	7,14,21,28	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
286	7,14,21,28	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0	0.75	1.0	1.0
287	7,14,21,28	0.5	0.75	1.0	0.0	0.25	0.50	0.25	0.50	0.75	0.75	1.0	1.0
288	7,14,21,28	0.5	0.75	1.0	0.0	0.25	0.50	0.5	0.75	1.0	0.5	0.75	1.0
289	7,14,21,28	0.5	0.75	1.0	0.5	0.75	1.0	0.75	1.0	1.0	0.75	1.0	1.0
290	7,14,21,28	0.5	0.75	1.0	0.0	0.25	0.50	0.25	0.50	0.75	0.75	1.0	1.0
291	7,14,21,28	0.25	0.50	0.75	0.0	0.25	0.50	0.75	1.0	1.0	0.75	1.0	1.0
292	7,14,21,28	0.75	1.0	1.0	0.25	0.50	0.75	0.75	1.0	1.0	0.75	1.0	1.0
293	7,14,21,28	0.5	0.75	1.0	0.25	0.50	0.75	0.25	0.50	0.75	0.75	1.0	1.0
294	7,14,21,28	0.5	0.75	1.0	0.0	0.0	0.25	0.5	0.75	1.0	0.75	1.0	1.0
295	7,14,21,28	0.5	0.75	1.0	0.0	0.0	0.25	0.5	0.75	1.0	0.5	0.75	1.0
<b>The Average</b>		<b>0.85</b>	<b>0.83</b>	<b>0.99</b>	<b>0.25</b>	<b>0.48</b>	<b>0.69</b>	<b>0.56</b>	<b>0.81</b>	<b>0.95</b>	<b>0.66</b>	<b>0.94</b>	<b>1.00</b>

**15.2.2.2- Turkish Language Average ratings and weights according to the statements (N=20).**

**15.2.2.2-A Sup-attribute 1 (Effectiveness) Rating and weights for all the characteristics (7) for all users (N=20)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Effectiveness )					
		Ratings(R)			Weights(W)		
<b>For all users 276 to 295</b>	<b>1</b>	<b>0.42</b>	<b>0.59</b>	<b>0.75</b>	<b>0.26</b>	<b>0.45</b>	<b>0.69</b>
	<b>2</b>	<b>0.54</b>	<b>0.73</b>	<b>0.87</b>	<b>0.35</b>	<b>0.60</b>	<b>0.83</b>
	<b>3</b>	<b>0.67</b>	<b>0.86</b>	<b>0.98</b>	<b>0.46</b>	<b>0.71</b>	<b>0.94</b>
	<b>4</b>	<b>0.73</b>	<b>0.90</b>	<b>0.99</b>	<b>0.54</b>	<b>0.79</b>	<b>0.96</b>
	<b>5</b>	<b>0.71</b>	<b>0.87</b>	<b>0.95</b>	<b>0.54</b>	<b>0.78</b>	<b>0.94</b>
	<b>6</b>	<b>0.79</b>	<b>0.95</b>	<b>1.00</b>	<b>0.61</b>	<b>0.86</b>	<b>1.00</b>
	<b>7</b>	<b>0.76</b>	<b>0.93</b>	<b>1.00</b>	<b>0.58</b>	<b>0.83</b>	<b>0.99</b>

**15.2.2.2-B Sup-attribute 1 (Efficiency) Rating and weights for all the characteristics (7) for all users (N=20)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Efficiency )					
		Ratings(R)			Weights(W)		
<b>For all users</b>	<b>8</b>	<b>0.75</b>	<b>0.92</b>	<b>0.99</b>	<b>0.56</b>	<b>0.81</b>	<b>0.98</b>

<b>276 to 295</b>	<b>9</b>	<b>0.73</b>	<b>0.90</b>	<b>0.98</b>	<b>0.54</b>	<b>0.79</b>	<b>0.95</b>
	<b>10</b>	<b>0.71</b>	<b>0.89</b>	<b>0.99</b>	<b>0.51</b>	<b>0.76</b>	<b>0.96</b>
	<b>11</b>	<b>0.70</b>	<b>0.88</b>	<b>0.97</b>	<b>0.51</b>	<b>0.76</b>	<b>0.95</b>
	<b>12</b>	<b>0.88</b>	<b>0.99</b>	<b>0.92</b>	<b>0.72</b>	<b>0.97</b>	<b>1.00</b>
	<b>13</b>	<b>0.80</b>	<b>0.95</b>	<b>1.00</b>	<b>0.63</b>	<b>0.88</b>	<b>1.00</b>
	<b>14</b>	<b>0.40</b>	<b>0.58</b>	<b>0.75</b>	<b>0.25</b>	<b>0.48</b>	<b>0.69</b>

**15.2.2.2-C Sup-attribute 1 (Satisfaction) Rating and weights for all the characteristics (7) for all users (N=20)**

Serial Numbers for users	Characteristic	Sup-attribute 1 ( Satisfaction)					
		Ratings(R)			Weights(W)		
<b>For all users 276 to 295</b>	<b>15</b>	<b>0.73</b>	<b>0.88</b>	<b>0.96</b>	<b>0.55</b>	<b>0.80</b>	<b>0.94</b>
	<b>16</b>	<b>0.61</b>	<b>0.78</b>	<b>0.88</b>	<b>0.44</b>	<b>0.68</b>	<b>0.86</b>
	<b>17</b>	<b>0.78</b>	<b>0.93</b>	<b>0.99</b>	<b>0.60</b>	<b>0.85</b>	<b>0.98</b>
	<b>18</b>	<b>0.62</b>	<b>0.80</b>	<b>0.92</b>	<b>0.43</b>	<b>0.68</b>	<b>0.86</b>
	<b>19</b>	<b>0.74</b>	<b>0.91</b>	<b>0.99</b>	<b>0.55</b>	<b>0.80</b>	<b>0.98</b>
	<b>20</b>	<b>0.73</b>	<b>0.90</b>	<b>0.99</b>	<b>0.54</b>	<b>0.79</b>	<b>0.96</b>
	<b>21</b>	<b>0.75</b>	<b>0.91</b>	<b>0.98</b>	<b>0.56</b>	<b>0.81</b>	<b>0.95</b>

**15.2.2.2-D Sup-attribute 1 (Comprehensibility) Rating and weights for all the characteristics (7) for all users (N=20)**

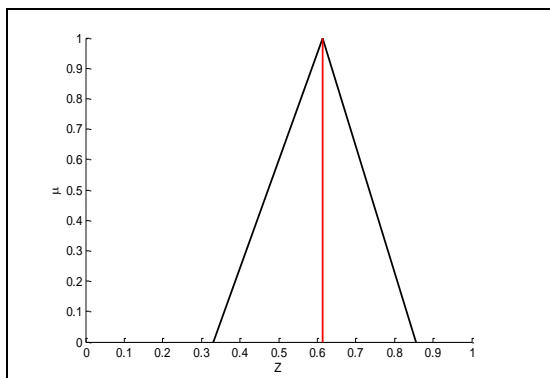
Serial Numbers for users	Characteristic	Sup-attribute 1 ( Comprehensibility)					
		Ratings(R)			Weights(W)		
<b>For all users 276 to 295</b>	<b>22</b>	<b>0.77</b>	<b>0.93</b>	<b>0.99</b>	<b>0.59</b>	<b>0.84</b>	<b>0.98</b>
	<b>23</b>	<b>0.41</b>	<b>0.56</b>	<b>0.70</b>	<b>0.29</b>	<b>0.46</b>	<b>0.66</b>
	<b>24</b>	<b>0.73</b>	<b>0.7</b>	<b>0.97</b>	<b>0.55</b>	<b>0.80</b>	<b>0.96</b>
	<b>25</b>	<b>0.76</b>	<b>0.91</b>	<b>0.97</b>	<b>0.59</b>	<b>0.84</b>	<b>0.96</b>
	<b>26</b>	<b>0.56</b>	<b>0.75</b>	<b>0.88</b>	<b>0.38</b>	<b>0.63</b>	<b>0.84</b>
	<b>27</b>	<b>0.71</b>	<b>0.89</b>	<b>0.98</b>	<b>0.51</b>	<b>0.76</b>	<b>0.95</b>
	<b>28</b>	<b>0.85</b>	<b>0.98</b>	<b>1.00</b>	<b>0.69</b>	<b>0.94</b>	<b>1.00</b>

Serial Numbers for users	Sup-attribute	attribute A - Effectiveness								
		Ratings(R)			Weights(W)			R*W		
<b>For all users 276 to 295</b>	1	<b>0.42</b>	<b>0.59</b>	<b>0.75</b>	<b>0.26</b>	<b>0.45</b>	<b>0.69</b>	<b>0.11</b>	<b>0.27</b>	<b>0.52</b>
	2	<b>0.54</b>	<b>0.73</b>	<b>0.87</b>	<b>0.35</b>	<b>0.60</b>	<b>0.83</b>	<b>0.19</b>	<b>0.44</b>	<b>0.72</b>
	3	<b>0.67</b>	<b>0.86</b>	<b>0.98</b>	<b>0.46</b>	<b>0.71</b>	<b>0.94</b>	<b>0.31</b>	<b>0.61</b>	<b>0.92</b>
	4	<b>0.73</b>	<b>0.90</b>	<b>0.99</b>	<b>0.54</b>	<b>0.79</b>	<b>0.96</b>	<b>0.39</b>	<b>0.71</b>	<b>0.95</b>
	5	<b>0.71</b>	<b>0.87</b>	<b>0.95</b>	<b>0.54</b>	<b>0.78</b>	<b>0.94</b>	<b>0.38</b>	<b>0.68</b>	<b>0.89</b>
	6	<b>0.79</b>	<b>0.95</b>	<b>1.00</b>	<b>0.61</b>	<b>0.86</b>	<b>1.00</b>	<b>0.48</b>	<b>0.82</b>	<b>1.00</b>
	7	<b>0.76</b>	<b>0.93</b>	<b>1.00</b>	<b>0.58</b>	<b>0.83</b>	<b>0.99</b>	<b>0.44</b>	<b>0.77</b>	<b>0.99</b>
<b>The Average</b>					<b>0.477</b>	<b>0.717</b>	<b>0.907</b>	<b>0.330</b>	<b>0.613</b>	<b>0.856</b>

Ratings (R), Effectiveness attribute A

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For Effectiveness: - R attribute A = (0.330, 0.613, 0.856)



Weight (W), Effectiveness attribute A

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For Effectiveness: - W sup-attribute 1 = (0.477, 0.717, 0.907)

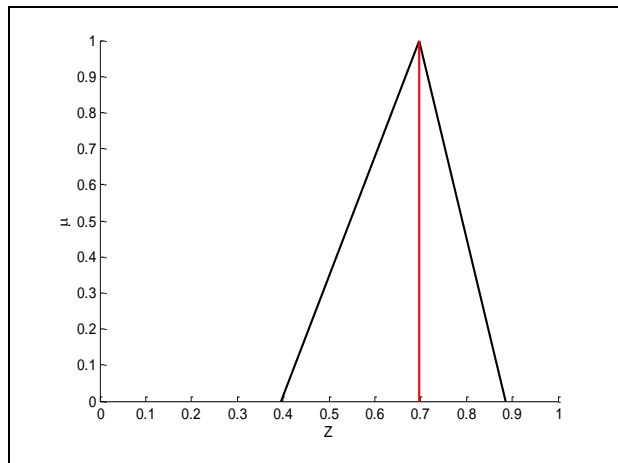
Attribute A ( Effectiveness )					
Ratings(R)			Weights(W)		
<b>0.330</b>	<b>0.613</b>	<b>0.856</b>	<b>0.477</b>	<b>0.717</b>	<b>0.907</b>

Serial Numbers for users	Sup-attribute	Attribute B - Efficiency								
		Ratings(R)			Weights(W)			R*W		
For all users 276 to 295	8	0.75	0.92	0.99	0.56	0.81	0.98	0.42	0.75	0.97
	9	0.73	0.90	0.98	0.54	0.79	0.95	0.39	0.71	0.93
	10	0.71	0.89	0.99	0.51	0.76	0.96	0.36	0.68	0.95
	11	0.70	0.88	0.97	0.51	0.76	0.95	0.36	0.67	0.92
	12	0.88	0.99	0.92	0.72	0.97	1.00	0.63	0.96	0.92
	13	0.80	0.95	1.00	0.63	0.88	1.00	0.50	0.84	1.00
	14	0.40	0.58	0.75	0.25	0.48	0.69	0.10	0.28	0.52
The Average					0.531	0.779	0.933	0.396	0.697	0.887

Ratings (R), **Efficiency** attribute B

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Efficiency**: - R attribute B = (0.396, 0.697,0.887)



Weight (W), **Efficiency** attribute B

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Efficiency**: - W attribute B = (0.531, 0.779,0.933)

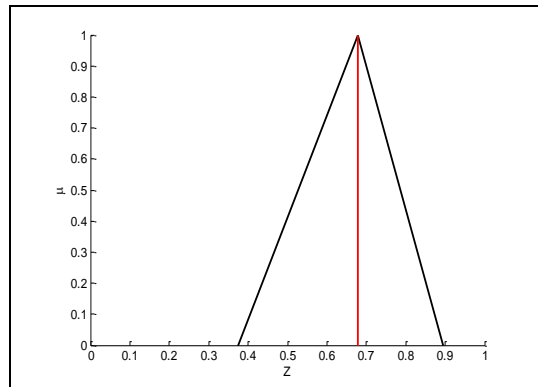
Attribute B ( Efficiency )					
Ratings(R)			Weights(W)		
0.396	0.697	0.887	0.531	0.779	0.933

Serial Numbers for users	Sup-attribute	Attribute C - Satisfaction								
		Ratings(R)			Weights(W)			R*W		
<b>For all users 276 to 295</b>	15	<b>0.73</b>	<b>0.88</b>	<b>0.96</b>	<b>0.55</b>	<b>0.80</b>	<b>0.94</b>	<b>0.40</b>	<b>0.70</b>	<b>0.90</b>
	16	<b>0.61</b>	<b>0.78</b>	<b>0.88</b>	<b>0.44</b>	<b>0.68</b>	<b>0.86</b>	<b>0.27</b>	<b>0.53</b>	<b>0.76</b>
	17	<b>0.78</b>	<b>0.93</b>	<b>0.99</b>	<b>0.60</b>	<b>0.85</b>	<b>0.98</b>	<b>0.47</b>	<b>0.79</b>	<b>0.97</b>
	18	<b>0.62</b>	<b>0.80</b>	<b>0.92</b>	<b>0.43</b>	<b>0.68</b>	<b>0.86</b>	<b>0.27</b>	<b>0.54</b>	<b>0.79</b>
	19	<b>0.74</b>	<b>0.91</b>	<b>0.99</b>	<b>0.55</b>	<b>0.80</b>	<b>0.98</b>	<b>0.41</b>	<b>0.73</b>	<b>0.97</b>
	20	<b>0.73</b>	<b>0.90</b>	<b>0.99</b>	<b>0.54</b>	<b>0.79</b>	<b>0.96</b>	<b>0.39</b>	<b>0.71</b>	<b>0.95</b>
<b>The Average</b>					<b>0.524</b>	<b>0.773</b>	<b>0.933</b>	<b>0.375</b>	<b>0.678</b>	<b>0.896</b>

Ratings (R), **Satisfaction** attribute C

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute n )

For **Satisfaction**: - R attribute C = (0.375, 0.678, 0.896)



Weight (W), **Satisfaction** attribute C

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Satisfaction**: - W attribute C = (0.524, 0.773, 0.933)

Attribute C ( Satisfaction )					
Ratings(R)			Weights(W)		
<b>0.375</b>	<b>0.678</b>	<b>0.896</b>	<b>0.524</b>	<b>0.773</b>	<b>0.933</b>

Serial Numbers for users	Sup-attribute	Attribute D - Comprehensibility								
		Ratings(R)			Weights(W)			R*W		
<b>For all</b>	22	<b>0.77</b>	<b>0.93</b>	<b>0.99</b>	<b>0.59</b>	<b>0.84</b>	<b>0.98</b>	<b>0.45</b>	<b>0.78</b>	<b>0.97</b>

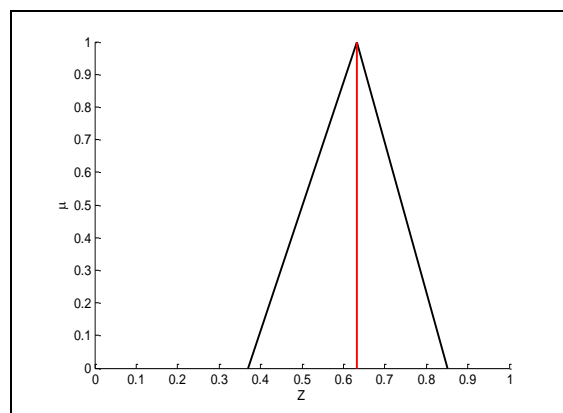


<b>users 276 to 295</b>	23	<b>0.41</b>	<b>0.56</b>	<b>0.70</b>	<b>0.29</b>	<b>0.46</b>	<b>0.66</b>	<b>0.12</b>	<b>0.26</b>	<b>0.46</b>
	24	<b>0.73</b>	<b>0.7</b>	<b>0.97</b>	<b>0.55</b>	<b>0.80</b>	<b>0.96</b>	<b>0.40</b>	<b>0.56</b>	<b>0.93</b>
	25	<b>0.76</b>	<b>0.91</b>	<b>0.97</b>	<b>0.59</b>	<b>0.84</b>	<b>0.96</b>	<b>0.45</b>	<b>0.76</b>	<b>0.93</b>
	26	<b>0.56</b>	<b>0.75</b>	<b>0.88</b>	<b>0.38</b>	<b>0.63</b>	<b>0.84</b>	<b>0.21</b>	<b>0.47</b>	<b>0.74</b>
	27	<b>0.71</b>	<b>0.89</b>	<b>0.98</b>	<b>0.51</b>	<b>0.76</b>	<b>0.95</b>	<b>0.36</b>	<b>0.68</b>	<b>0.93</b>
	28	<b>0.85</b>	<b>0.98</b>	<b>1.00</b>	<b>0.69</b>	<b>0.94</b>	<b>1.00</b>	<b>0.59</b>	<b>0.92</b>	<b>1.00</b>
<b>The Average</b>					<b>0.514</b>	<b>0.753</b>	<b>0.907</b>	<b>0.369</b>	<b>0.633</b>	<b>0.852</b>

Ratings (R), **Comprehensibility** attribute D

R attribute = (R sup-attribute 1 \* W sup-attribute 1 + R sup-attribute 2 \* W sup-attribute 2 + .....+ R sup-attribute n \* W sup-attribute

For **Comprehensibility**: - R attribute D = (0.369, 0.633,0.852)



Weight (W), **Comprehensibility** attribute D

W attribute = W sup-attribute 1 + W sup-attribute 2 + ..... + W sup-attribute

For **Comprehensibility**: - W attribute D = (0.514, 0.753,0.907)

Attribute D ( Comprehensibility )					
Ratings(R)			Weights(W)		
<b>0.369</b>	<b>0.633</b>	<b>0.852</b>	<b>0.514</b>	<b>0.753</b>	<b>0.907</b>

15.2.3.5- Ratings and weights of the Usability

The Variables	Fuzzy Rating (R)			Fuzzy weight (W)			R * W		
<b>Effectiveness</b>	<b>0.330</b>	<b>0.613</b>	<b>0.856</b>	<b>0.477</b>	<b>0.717</b>	<b>0.907</b>	<b>0.157</b>	<b>0.440</b>	<b>0.776</b>
<b>Efficiency</b>	<b>0.396</b>	<b>0.697</b>	<b>0.887</b>	<b>0.531</b>	<b>0.779</b>	<b>0.933</b>	<b>0.210</b>	<b>0.543</b>	<b>0.828</b>
<b>Satisfaction</b>	<b>0.375</b>	<b>0.678</b>	<b>0.896</b>	<b>0.524</b>	<b>0.773</b>	<b>0.933</b>	<b>0.197</b>	<b>0.524</b>	<b>0.836</b>
<b>Comprehensibility</b>	<b>0.369</b>	<b>0.633</b>	<b>0.852</b>	<b>0.514</b>	<b>0.753</b>	<b>0.907</b>	<b>0.190</b>	<b>0.477</b>	<b>0.773</b>
<b>Average</b>				<b>0.512</b>	<b>0.756</b>	<b>0.920</b>	<b>0.188</b>	<b>0.496</b>	<b>0.803</b>

Ratings (R), Usability of Turkish

$$R \text{ attribute} = (R \text{ sup-attribute } 1 * W \text{ sup-attribute } 1 + R \text{ sup-attribute } 2 * W \text{ sup-attribute } 2 + \dots + R \text{ sup-attribute } n * W \text{ sup-attribute } n) / n$$

For Usability of Turkish: - R Usability = (0.188, 0.496, 0.803)

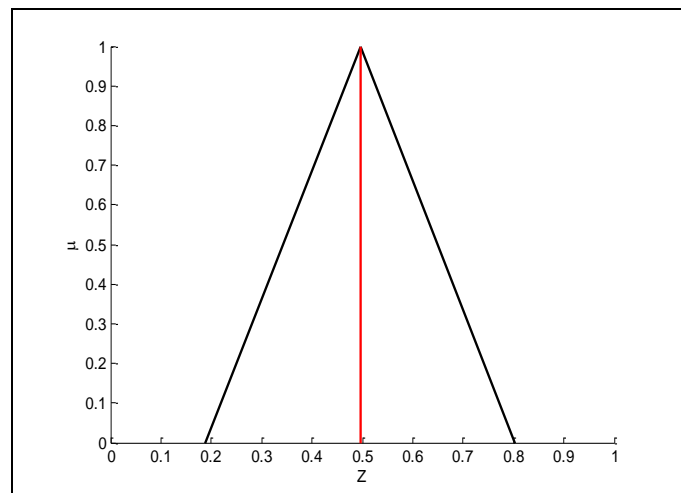
Weight (W), Usability of Turkish

$$W \text{ attribute} = W \text{ sup-attribute } 1 + W \text{ sup-attribute } 2 + \dots + W \text{ sup-attribute } n$$

For Usability of Turkish: - W Usability = (0.512, 0.756, 0.920)

Usability of Turkish					
Ratings(R)			Weights(W)		
0.188	0.496	0.803	0.512	0.756	0.920

**R usability Turkish = (0.188, 0.496, 0.803)**



**R = 0.539**

### 15.3- The Result: (Turkish Language)

**Turkish Language Application Usability  $Z^* = 0.539$**