# IMPROVING LIBRARY PERFORMANCE IN SYRIAN PRIVATE ACADEMIC LIBRARIES BASED ON END-USERS' EXPECTATIONS AND REQUIREMENTS

## CASE STUDY

## THE LIBRARY OF ARAB INTERNATIONAL UNIVERSITY

by

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# Copyright statement

# Abstract

In spite of improving the library performance (LP) of academic libraries (ALs) is based on a set of standards and criteria, improving the SPALs is relied on the vision of the ALs' decision-makers; and subjected by a number of barriers that hinder improvement. This research aims to improve the LP of the Arab International University (AIU) in Syria. The focus is made to achieve improvement based on the end-users' expectations and requirements (EUERs). Thus, identifying the EUERs is aimed in this research also. Data was collected by adopting a mixed methods approach, embraced to a single case study (LAIU). Primary quantitative data was collected by distributing two questionnaires to the end-users (undergraduates & academics). A printed-format questionnaire was designed for the undergraduates, while the academics' questionnaire was designed using Smart-survey. The aim of these questionnaires was to understand the end-users' perspectives, expectations, and their requirements of the LAIU. 11 semi-structured interviews were conducted with 8 librarians and 3 administrators to identify the situation of the LAIU, and understand the library staffs' perspectives about the EUERs and end-users' ISB. SOWT analysis was used to address the strengths, weakness, and threats facing the library, and their suggestions to improve the LP. Furthermore, the analysis of the secondary statistics collected from the LAIU and related websites took place in this study to support the primary data collected. A total of 228 undergraduates, and 30 academics have participated in this study. The data collected from the questionnaires were analysed using PASW software; version 18.0, while the collected data of the interviews was analysed thematically using NVivo 10.0 software. To maximise the outputs of the research and understand the holistic situation of the LAIU, the tools of the SSM were implemented. This assists in identifying the problematic areas of the situation. A number of challenges and barriers have been discovered relating to four categories: EUERs, end-users' information-seeking behaviour, end-users' satisfaction, and the LP. The analysis showed that although the EUERs are academic in the first place, there are differences regarding their demographic variables. It presented

that end-users are not strongly satisfied with their LP. Furthermore, the findings reflected the need to improve the LP. They addressed the end-users' behavior during their journey in seeking information. Based on the use of the rich picture, these barriers have been classified into internal and external barriers. The focus was limited to investigate internal barriers. Additionally, the implementation of the SSM's tools helps in developing the root definitions and related conceptual models that led to improving the situation of the LAIU. This study contributes to establish an appropriate and vital strategy to improve the LP based on a set of recommendation driven from the implementation of the SSM's tools. It contributes to generate the S-diamond model addressing the requirements of improvement. It develops a model of the end-users' ISB in the SPALs. Furthermore, this study reflects a theoretical significance by providing unique findings discovering the relationships between the themes under the investigation (EUERs, LP, end-users' ISB, and EUS).

Academic Publications

1. Kenan, T., Elzawi, A., Pislaru, C. & Restoum, M. (2015). "*A Study on the Impact of ICT on Collaborative Learning Processes in Libyan Higher Education*". International Journal of Learning, Teaching and Educational Research, 10 (1), pp. 172-190.
2. Kenan, T., Pislaru, C. Elzawi, A. & Restoum, M. (2013). "*Improving the Effectiveness of Collaborative Learning Processes in Libyan Higher Education*". ICITST-2013, London Conference -2013. 9- 12 Dec. 2013. Published In: Internet Technology And Secured Transactions (ICITST), 2013 8th International Conference . Page (S): 411 – 416.
3. Restoum, M and Wade, S (2014) "*The End-Users' Requirements of The Library of Arab International University" (LAIU).* In: 6th International Conference on Qualitative and Quantitative Methods in Libraries, 27th - 30th May 2014, Istanbul, Turkey.
4. Restoum, M and Wade, S (2013) "The Impact of Providing Information resources on End-users' Satisfaction Case study: the Library of Arab International University in Syria". In: Proceedings of the 10th Northumbria International Conference on Performance Measurement in Libraries and Information Services. PM10 2013 . University of York, York, UK.
5. Restoum, M and Wade, S (2013) "*The impact of library performance on students' satisfaction"*. In: 5th International Conference on Qualitative and Quantitative Methods in Libraries QQML 2013, 4th-7th June 2013, Rome, Italy

**Posters**

1. Restoum, M and Wade, and Wilkinson, J (2009) *Developing Virtual Reference Services to support E-learning: Analysis of users' requirement.* School of Computing and Engineering Researchers' Conference, University of Huddersfield, UK.
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# List of abbreviations

| | |
|---|---|
| **AU** | Acquisition unit |
| **ALs** | Academic Libraries |
| **AIU** | Arab International University |
| **LAIU** | Library of Arab International University |
| **CAS** | Current Awareness Service |
| **e-/IRs** | Electronic/Information Resources |
| **EP** | Educational Process |
| **ESM** | Emotional Satisfaction Model |
| **EU** | End-users |
| **EUEs** | End-users' Expectations |
| **EURs** | End-users' Requirements |
| **EUERs** | End-users' expectations and requirements |
| **EUS** | End-users Satisfaction |
| **ICT** | Information and Communication Technology |
| **IRD** | Information Resources Department |
| **ISB** | Information-seeking Behaviour |
| **LISs** | Library Information Services |
| **LP** | Library Performance |
| **LS** | Library staff |
| **MoHE** | Ministry of Higher Education |
| **MSM** | Material Satisfaction Model |
| **SALs** | Syrian Academic Libraries |
| **RSs** | Reference Services |
| **SCNs** | Social and Communication Networks |
| **SDIS** | Selective Dissemination of Information Service |
| **SHES** | Higher Education System |
| **SGUs** | Syrian Governmental Universities |
| **SGALs** | Syrian Governmental Academic libraries |
| **SPALs** | Syrian Private Academic Libraries |
| **SPUs** | Syrian Private Universities |
| **SSM** | Soft System Methodology |
| **VTC** | Vocational Training Center |
| **VRSs** | Virtual Reference Services |

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# Chapter 1

# Introduction

## 1.1 Background to the Study

Academic libraries (ALs) are often considered the "heart" of academic institutions. They have been attached to academic institutions to serve students, academics, and other potential users regarding their educational purposes and demands. Obviously, the role of ALs and academic librarians has extended due to the change of ALs' environment, the adoption of ICT, and changes in the education system (Booth, 2009; Brophy, 2007; Campbell, 2006; Goodwin, 2007; Jordan, 1998; K. Smith, 2002). Thus, The importance of the ALs' role in supporting educational process (EP) has been increased gradually.

However, these changes have had a positive impact on ALs; they have been made more complex and challengeable. ALs find themselves facing a number of challenges, especially with the availability and variety of information on Internet (Alfrih, 2010; Crump et al., 2012; Jadhav, 2011; Rehman, 2012; Restoum & Wade, 2013a; Sidera-Sideri, 2013). Thus, ALs have considered the need to provide high-quality services and are shifting to be a customer-services centre, adopting a vital mechanism to meet their EUERs.

Based on these changes, end-users expectations and requirements (EUERs), in return, have changed due to a range of internal and external factors (Bazillion & Braun, 2001; Budd, 2005; Feather & Sturges, 1997; Stueart & Moran, 2007; Vicente, 2004). Accordingly, end-users have fresh insight and further demands of their ALs. Technicians become an essential element of the library staff who should be involved in ALs to solve ICT problems and cope with technical issues (Covey, 2004). Interestingly, ALs have considered "a learning-centre" seeking to provide a set of e-/library information services (e-/LISs) and e-/information resources (e-/IRs) that are related to the teaching and learning process (Alassaf, 2011; Campbell, 2006; Sidera-Sideri, 2013; Torras & Stre, 2009).

A number of attempts have been articulated to identify EUERs and measure to what extent met EUERs has become an important indicator to evaluate the LP (Brophy, 2006; Kassim, 2009; Nitecki & Hernon, 2000). Finding out to what extent the LP has an impact on EUERs is considered crucial to improve performance. Furthermore, EUERs can be affected by information-seeking behaviour (ISB) of end-users, although it is a complex task; since it is subjective, not stabled, and related to the end-users' feelings and thoughts (Caregnato, 2000; Weiler, 2005).

With the change of the ALs' environment and the shift to electronic format, end-users' satisfaction (EUS) has become an essential aspect reflecting the level of the LP and the response to EUERs. Indeed, discovering the relationships between these aspects, and investigating to what extent each aspect affects others is significant to improve the provision and delivery of ALs.

## 1.2 Definition of the Research Scope

This research is articulated to improve the LP in Syrian private academic libraries (SPALs) based on understanding EUERs, in order to support them in their Educational Process (EP). It is necessary here to clarify several terminologies. In this study, LP refers to what extent the library has succeeded in achieving the task for which it was established (Prytherch, 2000). Educational Process (EP) is the process of the educations that aims to develop the learners' skills and knowledge through their journey of education. ALs has been considered a crucial part of the EP (Hall. 1998). The term "SPALs" can be defined as academic libraries attached to Syrian Private Universities which are operated by a number of partnerships. Although they are not operated by the government, the government controls them. The establishment of SPUs in 2003 was due to a number of reasons, such the growth of the students' number enrolled in governmental universities, the decrease of the EP quality, and the inability of ALs to meet the EUERs (Al-Samir, 2009; Al-Fattal, 2010).

Certainly, the end-users' term is defined in Harrod's Librarians' Glossary (2000, p. 262) as "those who actually make use of products and services, as distinct from intermediaries". In this study, the term "end-users" is used to refer to undergraduates and academics who benefit from the library information, services and functions. This emphasis is confined on investigating end-users of the library of Arab International University (LAIU) in Syria. In addition, the library staff (librarians and administrators)

constitute an important part of this study regarding collecting significant data to understand the real situation of the LAIU. In LAIU, the term “administrators” is used to refer to the library technicians who are responsible for solving ICT issues that are related to the library’s technical information facilities.

Understanding EUERs is a challenging task because they are always changing and sometimes ambiguous for both the end-users and/or the library staffs. Applegate (1993) uses the term “Users’ Expectations” to refer to the anticipation of users regarding the LP. Furthermore, he defines “Users’ Requirements” as the tangible needs of ALs. Hence, providing appropriate information, services, and other features is crucial to meet these expectations and requirements. In the LAIU context, LAIU provides a set of e-/LIS, which refers to the facilities provided by the library to obtain and use information in both formats; on-site and electronic (Prytherch, 2000, p.450). Additionally, it offers a range of e-/IRs including all information resources for both electronic and printed collections which can be used by end-users. According to the International Encyclopedia of Information and Library science (1997, p. 190-191), e-/IRs comprise generated data from local activities, textual information, multimedia, and information technology. More details are provided through the analysis (chapter 5 & 6) and appendix 2.

## 1.3 Statement of the Problem

One of the most important goals of ALs is to understand and meet EUERs. The Ministry of Higher Education (MoHE) in Syria was aware of the importance of meeting EUERs in enhancing EUS. Thus, a number of SPALs have been established at the same time of the foundation of SPUs due to several reasons (section 2.1.5). Since 2003, 17 SPUs have been founded. Appendix 3 provides a list of the SPUs established until 2009. Critically, establishing new SPALs was not sufficient to meet EUERs and provide a high LP (Ahmed, 2010; Alassaf, 2011; Al-Samir, 2009; Restoum and Wade, 2013a). Several challenges and difficulties have been articulated (sections 2.3.3). These challenges and difficulties are related to a lack of financial, technical, professional, and managerial issues.

Despite SPALs seeking to meet their EUERs, understanding EUERs is a challenging task, and it is more problematic with the inability of end-users to determine their demands. The literature addresses the fact that EUERs is changed and affected by other

variables such as their level of satisfaction, their feelings and moods, and the level of the LP (Alassaf, 2011; Applegate, 1993; Balatsoukas & Demian, 2010; Casey, 2004; Feeney, 2004; Kassim, 2009; Kassim & Zakaria, 2006; Restoum & Wade, 2013a, 2014; Sidera-Sideri, 2013). Thus, investigating the relationships between EUERs and other affected aspects is crucial to increase the response to EUERs. Definitely, it is important to question: "What do end-users exactly expect and require from their SPALs?". A number of studies confirm that EUERs are academic. They confirm to the role of ALs in enhancing students' attainments and supporting the EP (Alfrih, 2010; Banwell et al., 2004; Crump et al., 2012; Sidera-Sideri, 2013; Simons et al., 2000). Thus, if the EUERs of LAIU are academics the question arises "are all their requirements just an academy? What are their expectations of their SPALs to support the EP?".

Understanding EUERs is the core to provide appropriate information and services, satisfying end-users and meeting their expectations and requirements. Thus, understanding EUERs should be taken into account to improve the LP. Hence, this research attempts to dig deeply in understanding EUERs in the LAIU from different stakeholders perspectives (undergraduates, academics, librarians, and administrators), and the relationships with other aspects. It seeks to identify the challenges and barriers facing it to improve their performance. Identifying these challenges and barriers is based on using Soft System Methodology (SSM) to investigate the real holistic situation of LAIU. Insuring the service quality and improving the LP cannot be guaranteed without understanding EUERs.

## 1.4 Research Questions

The main questions that have been raised in this study are:

1. **What are the exact EUERs from the LAIU?**
2. **How can LAIU improve its performance to increase the response to EUERs?**

    QA. What precisely does LAIU offer to meet its EUERs?

    QB. How do end-users interact with their library and offered services?

    QC. Are there any differences of EUERs among end-users' groups?

    QD. What are the main challenges and barriers facing LAIU, affecting the response of EUERs?

QE. Are the library staff and academics aware of the importance of the library's role in supporting EP?

QF. Are the end-users satisfied with the current LP?

## 1.5 Research Aims and Objectives

The present research focuses on investigating the real situation of LAIU, and understanding different stakeholders' perspectives about this situation. The investigation endeavours to contribute to the improvement of the LP based on EUERs. Hence, this research aims:

- To contribute to identifying EUERs of SPALs;
- To improve the performance of SPALs based on the determined EUERs.

These aims will be achieved through the following objectives:

1. To understand what exactly end-users require and expect from their library;
2. To discover what is required from the library to support end-users in the EP;
3. To identify how end-users interact with their library and what are their ISB;
4. To discover the differences of EUERs regarding the end-users' groups;
5. To investigate the EUS with the existing LP;
6. To discover the complex situation of the LAIU and identify problematic areas to be considered;
7. To define the strategy of the changes needed to drive improvement;
8. To establish the requirements of improvement;

## 1.6 Significance of the Study

The significance of this study stems from being the first study of Syria focusing on improving SPALs based on EUERs. Critically, there is no single study that has been conducted in Syria concentrating on identifying and understanding EUERs of SPALs, and the role of the SPALs in supporting the EP. Thus, it is believed that the findings of this study will assist SPALs in determining their EUERs, increasing the EUS, and understanding of the end-users' ISB through their journey of using such libraries.

The findings of this study are useful to provide a clearer understanding of the main EUERs and their relationships with other aspects. It is beneficial to increase the awareness of the importance of SPALs in supporting the EP. Additionally, this study

provides a deep insight into the challenges and barriers facing SPALs, and recommendations to promote the performance of SPAL. Moreover, it will be important for MoHE and private universities in Syria to shed light on the challenges and obstacles facing SPALs in order to work on overcoming these obstacles. It provides a distinct strategy for them to illuminate the path towards improvement. This study can be considered a guide for all SPALs and other PALs in Arab countries who are suffering from the same challenges and obstacles. It enables the library staff of Syrian and other Arab PALs to understand what end-users require and expect from their library. It highlights the changes occurring in EUERs due to the change of the library environment and the education system.

## 1.7 Outlines of Chapters

This research is structured into 10 chapters. Each chapter is headed with a brief introductory section, and is concluded with a brief summary, as follows:

**Chapter One**: Introduction. This chapter provides a brief background of the research topic. It defines the research scope and identifies the research problem. Furthermore, it demonstrates the research questions, aims and objectives, and the significance of the study.

**Chapter Two**: Research Background literature. This chapter is divided into five parts discussing different areas of theoretical framework, as follows:

**Part 1**: Research Background. It depicts an overview of Syria and the factors affected in the education sector. It sheds light on SGUs and SPUs. It presents information about SALs in general, and SPALs particularly in relation to their features, operations and challenges.

**Part 2**: End-Users' Expectations and Requirements in ALs. This part provides an overview of EUERs. It discusses the changes occurring in EUERs, and discusses the aspects of the EUERs.

**Part 3:** The Assessment and Challenges. This section focuses on discussing the assessment of LP, and on addressing main challenges and barriers facing ALs regarding the functions and the users.

**Part 4**: End-users' Information-seeking Behaviour. This chapter presents an overview of the ISB, the main models and processes, and the relationship between the ISBs and demographic variables.

**Part 5**: End-users' Satisfaction. This part provides an overview of EUS. Two models of EUS (material and emotional satisfaction models) are discussed. This is used to show the relationship between it and other variables (EUERs, ISB, library performance, and demographic variables).

**Chapter Three**: Methodology. This chapter is divided into 3 parts. First part discusses the background of the research methodology. Second part demonstrates the research methodology and methods used to formulate the research step-by-step; in relation to making the decision to select the research methodology, the research philosophy, the adopted approaches, and the research strategy regarding the processes of designing, piloting, and sampling, distributing and conducting the research methods. Trustworthiness is taken into consideration to add more value to the research. While third part illustrates the ethical issues related to this research.

**Chapter Four**: Analysis of End-Users' Questionnaires. This chapter presents and interprets the findings of both end-users' questionnaires; undergraduates and academics. The findings contain investigations of their interaction with the LAIU, determining their requirements, evaluating their satisfaction, determining their ISB, measuring the LP regarding their perspectives, and identifying the main problems facing them through their use. Furthermore, academic questionnaires include discovering the awareness of the academics toward e- LISs and identify their roles in supporting and motivating their students.

**Chapter Five:** Analysis of Library Staff's Interviews. In this chapter, the analysis and interpretation of face-to-face semi-structured interviews is provided. The interviews are conducted with the library staff (librarians and administrators). This chapter investigates the library staff's perspectives in relation to EUERs, end-users' ISB, EUS, and LP. Furthermore, the influence of social media on the LAIU, and the role of LAIU in supporting EP is investigated. Finally, a SWOT analysis is implemented to understand the real situation of the LAIU to find an appropriate approach to develop it based on the library staffs' perspectives.

**Chapter Six**: Finding out Problematic Situation of the LAIU. In this chapter, the tools of SSM are used to figure out the problematic situation of the LAIU seeking to improve the situation. This chapter identifies the problematic situation of the LAIU, presenting the challenges and barriers facing the LAIU. It provides an analysis of culture to understand the role and the power of each stakeholder and actor. A rich picture is built in order to ascertain and summarise the primary relationships and activities figuratively, and to explore the complexity of the situation.

**Chapter Seven**: Modelling. This chapter provides a proposed model aiming to improve the situation of the LAIU, based on the stakeholders' perspectives. In this chapter, root definitions are developed to address the transformation process of the relevant activities. Furthermore, conceptual models are built to express the activities and relationships of root definitions. The comparison of conceptual models with the real world is presented to create a discussion addressing how to achieve improvement. A strategic plan is generated suggesting changes to improve the LP.

**Chapter Eight**: The improvement of the LAIU's performance. This chapter discusses the main findings articulated in this study. It develops a strategic plan including set of recommendations to implement the change and improve the situation. It identifies the requirements of the LP improvement embodied in the S-diamond model.

**Chapter Nine:** Relationships between Themes. This chapter discovers the main themes of this study (EUS, end-users' ISB, and LP), and the relationships between them and the EUERs.

**Chapter Ten**: Conclusion. This chapter answers the research questions and achieving the objectives of this study. It evaluates the study. It presents the contribution to knowledge, the limitations of this study, and future work.

# Chapter 2
# Research Background & Literature

This chapter provides an overview of the research context. It provides abundant information covering related areas to the theoretical framework. It is divided into five parts, discussing the main themes (Research background, EUERs, the assessment of LP and challenges facing ALs, end-users ISB, and EUS).

## 2.1 Research Background

### 2.1.1 Introduction

This part provides an overview of Syria. The factors affecting the education sector are outlined. For a better understanding of the Syrian Higher Education System (SHES), the research highlights two common modes of the SHES, which are the Syrian Governmental Universities (SGUs), and Syrian Private Universities (SPUs). The following sections cover Syrian Academic Libraries (SALs) in general, and Syrian Private Academic libraries (SPALs), particularly in relation to their features, operations and challenges.

### 2.1.2 Overview of Syria

The Syrian context is complex; thus, the researcher suggests that it is essential to provide background information about the Syrian context. Syria is located on the Mediterranean Sea between Turkey in the North and Jordan and Lebanon in the South, while Iraq is located to the East of Syria. It comprises a total area of 185,180 km². It is a lower middle-income country, reliant on agriculture. The Syrian population has grown dramatically. It is approximately 24 million (Syrian Central Bureau of Statistics 2009).

Syria is considered a Muslim Arab Middle Eastern country; however, it comprises minorities of multiple religions. The Syrian population comprises several Islamic branches, alongside a number of Christian branches that have integrated. Damascus, the capital of Syria, is the most ancient capital in the world. It was the land of a number of civilisations. In addition, it was an ancient trading route. This integration has influenced Syria in several fields: socially, educationally, politically, and economically (CREDO reference, 2011).

Furthermore, a strong impact on peoples' life has been considered a result of the Ottoman Empire (Turkish occupation) in the sixteenth century for 400 years, and the French mandate for 26 years in the twentieth century (1920-1946). Consequently, these political fluctuations have influenced the educational sector. For example, the mosque schools and academies were instituted, in the early twelfth century, to educate and "preserve the orthodoxy of Islam" (Potter, 1961: P. 35). Later on, in the nineteenth and the early twentieth century, the philosophy of education was changed due to the Arab leaders' interest in the education sector. In the first-half of the twentieth century, Western ideas entered the educational sector as a result of the impact of the French mandate (Potter, 1961); while after independence, the Ministry of Higher Education (MoHE) and its directorates have become responsible for "making policies, setting goals, supervising, and financing" (Al-Fattal, 2010: P. 4). Thus, the educational system became based on the centralism of administration.

Interestingly, Syria introduced a new era, due to the establishment of the Internet in 1997. The Internet has been provided by a Governmental Internet service provider (the Syrian Telecommunications Establishment). It was limited due to the high costs of installation, subscription, and hourly access fees. Later, with the prevalence of Internet cafés and private Internet service providers, Internet access has dramatically increased (ESCWA, 2009; Library of Congress – Federal Research Division, 2005). According to ITU (2011), the total number of Internet users' growth in Arab countries, between 2009-2010, was 18%. Qatar came in the first place with a growth of 77%, and in Syria, it raised by 53% to be ranked as the second highest in Arabic countries (cited by ESCWA, 2011). Table 2.1 presents the increase rate of Internet users in Arabic countries region (2009-2010).

**Table 2. 1.** ***Increase rate of Internet users in Arabic countries region (2009-2010) (ESCWA, 2011, p.19)***

| Rank | Country or territory | Internet users 2009 | Internet users 2010 | Growth rate (*percentage*) |
|---|---|---|---|---|
| 1 | Qatar | 687 039 | 1 213 567 | 77 |
| 2 | Syrian Arab Republic | 2 767 417 | 4 224 995 | 53 |
| 3 | Jordan | 1 566 654 | 2 351 146 | 50 |
| 4 | Lebanon | 993 847 | 1 310 555 | 32 |
| 5 | Iraq | 1 382 608 | 1 773 609 | 28 |
| 6 | Oman | 1 396 753 | 1 741 804 | 25 |
| 7 | Palestine | 1 266 856 | 1 512 273 | 19 |
| 8 | United Arab Emirates | 5 204 111 | 5 859 118 | 13 |
| 9 | Yemen | 2 323 490 | 2 609 698 | 12 |
| 10 | Egypt | 19 355 094 | 21 691 776 | 12 |
| 11 | Bahrain | 619 876 | 694 009 | 12 |
| 12 | Saudi Arabia | 10 187 460 | 11 253 715 | 10 |
| 13 | Kuwait | 975 166 | 1 046 800 | 7 |
| 14 | The Sudan | .. | .. | .. |
| | **Total/average** | **48 726 370** | **57 283 067** | **18** |

Moreover, ITU (2011) demonstrates that the total growth of fixed broadband Internet subscribers (2008-2010) in Arab countries increased by 60%. The highest rank was for Syria with 508%. Table 2.2 reveals the increase rate of fixed broadband Internet subscribers in Arab Countries (2008-2010).

**Table 2. 2.** ***Increase rate of fixed broadband Internet subscribers in Arab Countries (2008-2010) (ESCWA, 2011, p. 20)***

| Rank | Country or territory | Fixed broadband subscribers 2008 | Fixed broadband subscribers 2010 | Growth rate (*percentage*) |
|---|---|---|---|---|
| 1 | Syrian Arab Republic | 11 055 | 67 235 | 508 |
| 2 | The Sudan | 44 625 | 164 500 | 269 |
| 3 | Yemen | 26 000 | 79 245 | 205 |
| 4 | Bahrain | 76 595 | 154 047 | 101 |
| 5 | Egypt | 769 744 | 1 476 546 | 92 |
| 6 | Oman | 32 447 | 52 630 | 62 |
| 7 | Qatar | 104 235 | 161 306 | 55 |
| 8 | Palestine | 73 000[a/] | 107 000[a/] | 47 |
| 9 | Jordan | 137 148 | 196 900 | 44 |
| 10 | Iraq | 54 | 77 | 43 |
| 11 | Saudi Arabia | 1 048 098 | 1 496 607 | 43 |
| 12 | United Arab Emirates | 557 577 | 786 818 | 41 |
| 13 | Kuwait | 40 000 | 46 000 | 15 |
| 14 | Lebanon | 195 000 | 200 000 | 3 |
| | **Total/average** | **3 115 578** | **4 988 911** | **60** |

With the improvement of the ICT's tools and applications, social media became an essential component of peoples' lives. The use of social networking in Syria, especially Facebook, has radically increased using Arabic characters. Sharing information, photos, and videos has been highly reported. Figure 2.1 shows the increase of Facebook users in Arab Countries (January- May 2013), according to Dubai School of Government (2013) and ESCWA (2013).

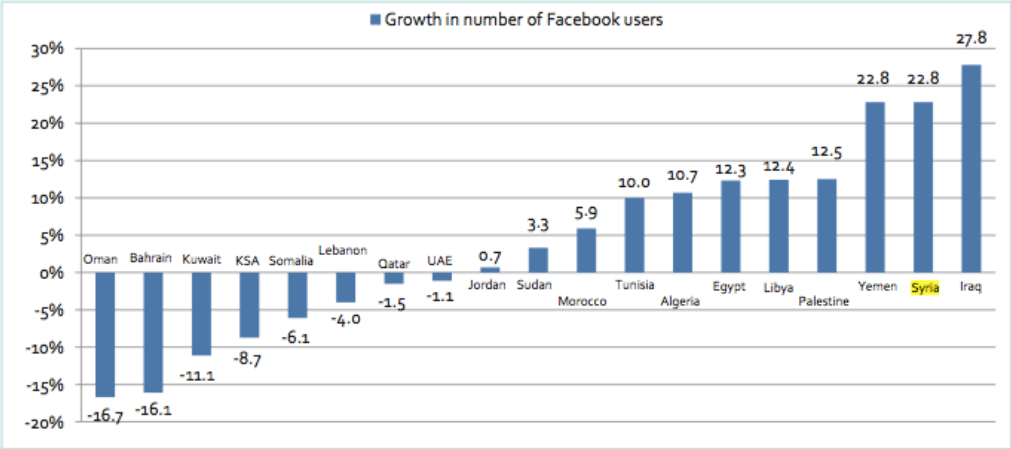


***Figure 2. 1.*** **Increase of Facebook users numbers (January-May 2013) (Dubai School of Government, 2013, p. 15).**

As seen in figure 2.1, Syria experienced a high level of growth of using Facebook (January-May 2013), with approximately 22% of growth, compared with a number of Arab countries who witnessed a considerable drop in usage, such as Oman and Bahrain with approximately -16%.

In summary, the educational sector in Syria has been affected by a number of factors which have formulated the current form of educational and higher educational systems. However, the adoption of ICT faced a number of barriers, the number of ICT users increased remarkably. The next section highlights the Higher Education System in Syria for a better understanding of the current educational position.

### 2.1.3 Syrian Higher Education System

The Syrian Higher Education System (SHES) is delivered by Universities, Higher Institutes, and Intermediate Institutions of Professional and Technical training. The responsibility of SHES is centralised by the MoHE, with a limited decentralisation level in decision-making (Al-Fattal, 2010). Figure 2.2 demonstrates the hierarchy of the SHES.

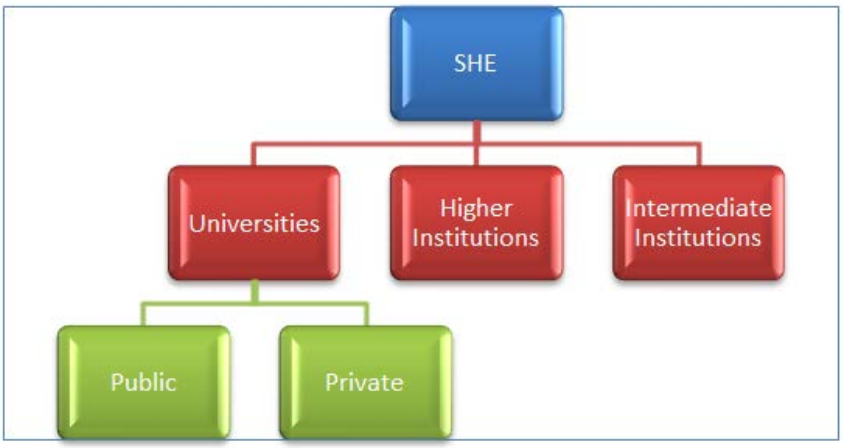


***Figure 2. 2.*** **Hierarchy of SHES (Abdul-Wahed & Al-Awa, 2006).**

The notion of SHES is based on the equality of opportunities for all students; it is compulsory and free from primary to secondary level; while, it is limited-fee-based at the higher education level (Potter, 1961). That, in turn, has led to overloading in the number of students who enrolled in Syrian Governmental Universities (SGUs), which became unable to serve massive numbers of students annually. This view is supported by Mahmoud (2001) who highlights the impact of the tendency of Arab public universities to be unable to meet the demands of students, and on the quality of the Higher Education.

Indeed, SHES confronted a number of challenges that had a negative impact on it. Alassaf (2011) indicates a number of challenges, according to the National

Planning Commission, that influence negatively on the SHES; which were low-economic efficiency, low-qualification of faculty members, limitations of the traditional learning model, lack of organization and the shortage of the IRs' financial support. Thus, SHES worked on improving its strategy to respond to these challenges. The conclusion was a significant growth of SHES over last decade. The number of universities and faculties has increased; responding to the increase of the students' numbers and other factors affecting the SHES (section 2.1.5). New modes of SHES have emerged such as a Virtual learning, Parallel education, the Open learning system and Private universities, alongside governmental universities; aiming to stimulate the process of SHES, and to improve the EP in general (Alassaf, 2011; Ministry of Higher Education, 2004).

As the most common modes in the SHES are SGUs and SPUs, both modes are viewed to understand the external environment of SALs.

### 2.1.4 Syrian Governmental Universities (SGUs)

SGUs consist of four main universities: Damascus University, Aleppo University, Al-Ba'ath University and Tishreen University, in addition to Alphorat University, which was founded in 2006. All these universities work under the umbrella of the MoHE, covering different specializations in different fields of theory and practice. Table 2.3 presents an overview of the Syrian Public Universities' established up to 2004.

**Table 2. 3.** ***An Overview of Syrian Public Universities (Ministry of Higher Education, 2004).***

| University | City | Year of Establishment | Faculty Members | Students |
|---|---|---|---|---|
| Damascus | Damascus | 1923 | 2173 | 110000 |
| Aleppo | Aleppo | 1958 | 1150 | 65000 |
| Tishreen | Lattakieh | 1971 | 892 | 40000 |
| Al Baath | Homs | 1979 | 525 | 30000 |

According to the table, SGUs were founded in the twentieth century. They are located in different parts of Syria serving all regions. A vast and ever-growing number of students attend these universities. Figure 2.3 illustrates the number

of students enrolled in the Syrian Public Universities in 2001-2002 (Ministry of Higher Education, 2004).

Briefly, SGUs were founded to serve all students regardless of their economic, religious, political or social backgrounds. They are available in several disciplines and in different locations.

### 2.1.5 Syrian Private University (SPUs)

SPUs construct a fundamental alternative method in the SHES. This mode has intensely developed during the last few years. It is a response of the increase in the SHES's demands, and changes in requirements (Potter, 1961). Since the establishment of SPUs, they have attracted a large number of students due to the flexibility in management, the provision of new fields of sciences, and the enhancement of a number of existing sciences (Al-Samir, 2009; Alassaf, 2011). The minister of SHES, Dr. Abdul Razzaq al-Shaykh al-Issa (2011), assures the SPUs' role in reinforcing SGUs, and the role of the MoHE in supporting EP in terms of matching the changing needs of careers (Forum of Syrian private universities, 2011). Thus, establishing SPUs is a result of the awareness of challenges facing the EP, and the need to find new methods and channels to support it.

#### 2.1.5.1 The Establishment of *S*PUs

SPUs were established in 2003 (Ministry of Higher Education, 2004). They emerged as a vital element in modernizing the SHES. The aims of establishing them were to promote the SHES and the research level, and to enhance the EP. The strengths of SPUs are in improving educational content by adopting new sciences that meet students' changing requirements in the digital age, and by adopting reliable curricula. Investment in SHES leads to achieving developmental goals by involving people in the development process, decreasing students and scientists emigration, and linking students' needs to career demands in the Arab world (Ahmed, 2010; Al-Samir, 2009). Since the regulations have been issued to launch SPUs, a number of SPUs has been founded to serve different regions of Syria. Figure 2.3 reveals a geographical map of the SPUs founded, up to 2006.

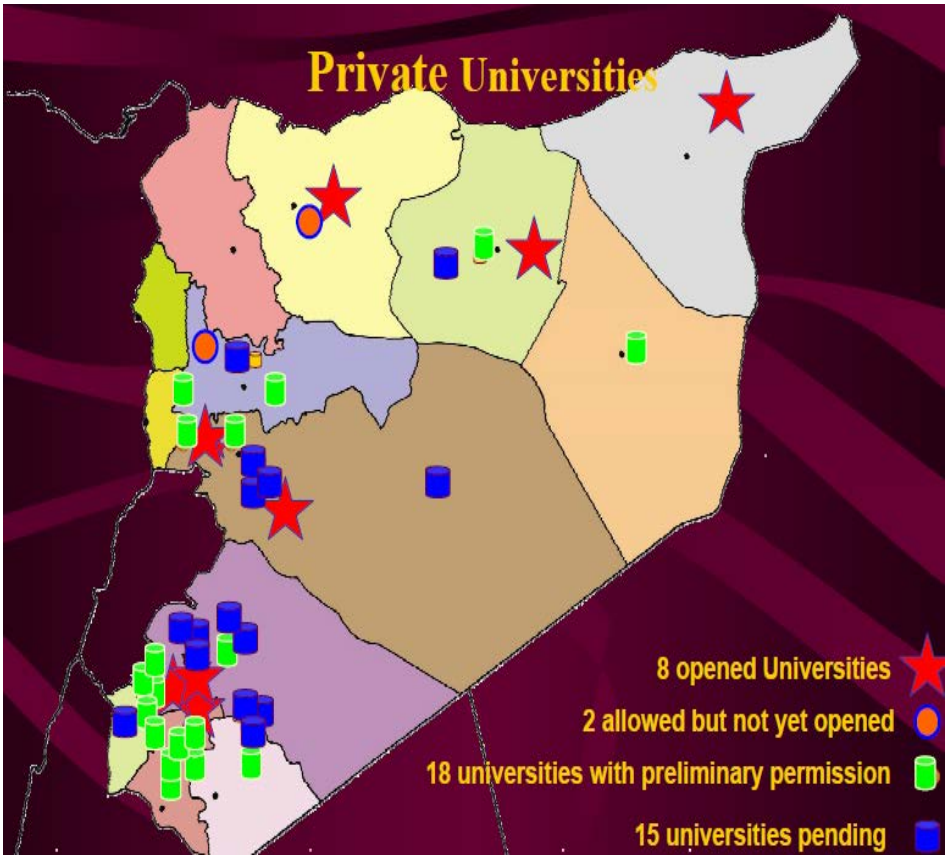


***Figure 2. 3.*** **Geographical Map of the SPUs (Abdul-Wahed and Al-Awa, 2006).**

Further numbers of the SPUs have been instituted up to 2009, in addition to other universities which are still under construction (4 International Colleges and Universities, 2011; Ministry of Higher Education, 2011). Appendix (C) shows a list of established SPUs covering new and accompanying fields of the global trends of HE.

SPUs are located in different parts of Syria; hence, the opportunity to choose the most suitable one in terms of location, price, and field is available. In 2007, more than 11,000 students enrolled in the SPUs all over Syria, aiming to obtain advanced opportunities in terms of providing new channels of learning and career developments (Kabbani & Salloum, 2010).

#### **2.1.5.2** *Justification of the SPUs' Establishment*

Certainly, a number of factors and justifications were behind the establishment of SPUs. These factors have affected the ALs and university performance. they were the reasons behind establishing a private sector of Syrian universities and SPALs. The most important reasons are summarised as follows:

1. The increase of the undergraduate students enrolled in the SGUs;
2. The increase of the number of Syrian students who study abroad;
3. The acceptance system in SGUs, based on students' marks, which restricts students' capabilities and talents.
4. The decrease of the EP quality and the inability to meet the EURs;
5. The lack of assessing to students' learning outcomes (Al-Samir, 2009).

According to Al-Fattal (2010), the main reason for the movement toward SPUs was the quality of the EP which became a priority for students. He confirms that the students' decision to enrol in the SPUs reflects their expectations, and the requirements of further opportunities can be obtained regarding career developments (good job), self-development (quality) and meeting requirements (satisfaction). He specifies a number of administrative, economic, and social issues that can affect the students' decision in selecting the SPUs. He concludes that there is an interrelationship between students' decisions to enrol in SPUs, and marketing strategies used. Critically, there is a significant difference between Al-Fattal's (2010) findings and other studies done in the same area of research in terms of the impact of contextual and cultural differences on the variation of priorities.

To summarise, these sections have provided an overview of the SHES, which is centralised by the MoHE. SGUs and SPUs have been highlighted to understand the external environment that may impact on the ALs. The reasons behind the adoption of SPUs were identified. A number of questions here arise: "Are the SAL affected by external environment? What services are they providing? What barriers are they facing? What is the SALs' role in responding to EUERs?". The next section provides deeper information to answer these questions.

### 2.1.6 The Syrian Private Academic libraries (SPALs)

SPALs were founded in 2003 at the same time as the foundation of the SPUs themselves. The studies that investigated these libraries are limited. There are two studies that investigated SPALs along with Syrian governmental academic libraries (SGALs) (Ahmed, 2010; Alassaf, 2011), while Al-Samir (2009) explore the situation of SPALs in terms of building, services, IRs, facilities, and

staff. Critically, no study has been conducted to particularly investigate EUERs in SPALs. A summary of these three studies is provided in table 2.4.

**Table 2. 4.** ***A Summary of Syrian Previous Studies***

| Author | Year | Research Aims/objectives | Methodology /Methods | Main findings | Conclusion/Recommendations |
|---|---|---|---|---|---|
| **Ahmad, N** | 2010 | - Determine the weakness of SALs;<br>- Discover the potentiality of building a cooperative university libraries' network;<br>- Develop a proposal of cooperative university libraries' network. | Case study;<br>Chronological study;<br>Questionnaires;<br>Interviews;<br>Observation;<br>Secondary data analysis. | - A lack of e-/IRs, strategic plan, and budget;<br>- A lack of ICT;<br>- Rely on providing traditional services;<br>- The majority of SPALs used ICT and e-catalogue comparing with governmental ALs;<br>- A lack of technical and language skills;<br>- The absence of collaboration between SALs;<br>- The need to build a cooperative university libraries network. | - Adopt the proposal of building a cooperative university libraries network;<br>- Facilitate a qualified staff dealing with the network process and procedures;<br>- Establish a new building for the administrators of this network;<br>- Study the requirements of shifting to e-SALs;<br>- Establish a policy and increasing budgets. |
| **Alassaf, A** | 2011 | - Constructing a number of the services that meet information needs from a managerial approach. | Secondary data analysis<br>questionnaires<br>Interviews | - End-users from the same and different groups had different requirements and behaviours regarding faculties, and level of study;<br>- End-users required an easy access to IRs that respond to their needs;<br>- Students relied on the curricula and used the Internet to achieve their homework, while academics were more independent in their researches and required accurate information;<br>The common used services are the circulation and access information | - Suggesting a proposal for facilitating the access to e-/IRs; enhancing academic construction, improving the physical space of the library, providing training; programmes, customizing services.<br>- Helping SALs' leaders to increase users' satisfaction. |

| | | | | | |
|---|---|---|---|---|---|
| | | | | - The majority of LAIU students were satisfied with provided e-/IRs;<br>- End-users were not satisfied with the library spaces and technical facilities.<br>-There were several challenges faced SALs' leaders economically, technologically, professionally, legitimately, and organizationally; | |
| **Al-Samir** | 2009 | Investigate the situation of PSALs regarding building, services, IRs, facilities, and staff. | Questionnaire<br>Interview<br>Observation | - A lack of spaces and facilities;<br>- A lack of strategic plan, qualified staff, and budget;<br>-A lack of the acquisition methods;<br>- The majority of SPALs did not use e-catalogue, and international LMSs;<br>- The satisfaction level of end-users with services provided was on average. | Develop SPALs by establishing new buildings, providing appropriate facilities and equipment, establishing a policy, offering qualified librarians, providing training programmes, increasing the library budget and the e-/IRs, adopting e-catalogue, provide e-LISs, evaluating the LP, implementing ICT, building a cooperative university libraries network. |

It was unexpected that these modern libraries would reveal several weaknesses and challenges, which negatively affect their performance, since they have been established to promote the quality of SHES and promote the developments of technology and sciences. Al-Samir (2009), Ahmed (2010), and Alassaf (2011) determine a set of findings related to the reality of the SPALs. A number of key SPALs' characteristics are briefly summarised as follows:

**Location and space**: the majority of SPALs are located in inappropriate locations. The libraries are constructed within the academic faculties. End-users were dissatisfied with the locations as a result of difficulties in reaching the libraries or that the libraries were located in noisy places. Also, the library's space and conditions were inadequate for serving the enormous number of end-users involved in the SPUs. The spaces were small and did not match academic and social requirements;

**Following Standards:** The majority of the SPALs did not follow international standards regarding the number of end-users enrolled in universities and the essence of the LISs provided. On the other hand, all SPALs adopted MARK2, Dewey decimal classification and Anglo-American Cataloguing Rules (AACRs);

**Budget:** SPALs did not have their own budget, but it was instead a fragment of the whole SPUs' budget. The budget of the SPALs was limited and insufficient in a number of the SPALs in terms of meeting the requirements mainly as a result of the absence of strategic planning;

**E-/IRs**: All the SPALs provided a range of IRs in different languages, types and subjects, and in both electronic and printed formats. They provided their end-users a remote access to their e-IRs on and off-campus. More than half of the end-users were satisfied with the IRs provided;

**Strategy and Policy:** The majority of the SPALs did not have a policy organising and determining the procedures of libraries. A number of SPALs did not have a tangible strategy for acquisition. Although the majority of SPALS annually acquired a substantial number of IRs, these IRs did not meet approximately half of the EUERs;

**E-/LISs:** All the SPALs provided a set of on-site and online services such as circulation, reference services, current awareness and guidance. These services were considered crucial to support the end-users in their EP and meet their requirements; however, photocopying, scanning and Audio Visual Materials were not provided in all SPALs.

Online cataloguing is commonly used in the majority of the SPALs for more flexibility and accessibility;

**Library Staff:** The number of library staff involved in the SPALs was inadequate for all the libraries. They had extra roles and duties in the digital age such as guidance, training, and helping students in their EP.

**Technology and Facilities:** All the SPALs used their own local library management system to manage and organise their functions, excluding the LAIU, which implemented the "Horizon" system to control its operations. The majority of the SPALs had limitations of providing the facilities that meet the EUERs and support them in their EE. A shortage of providing sufficient equipment was observed such as a lack of computers;

**Library's assessment**: The majority of the SPUs assessed their performance level by an annual general survey; however, they did not seek to obtain their end-users feedback about the library quality particularly;

**Collaboration**: The collaboration between SPALs is absent. The majority of SPALs implemented a local network connection between the library and other departments of the university. Ahmed (2010) and Al-Samir (2009) recommended that it is important to build a collaborative University Libraries Network for better performance.

Briefly, although SPALs were recently established, taking into consideration the importance of the adoption of ICT, the majority of them suffered from a number of weaknesses. These weaknesses were related to a lack of policies or strategic planning to control processes and procedures, and/or a lack of the awareness of libraries' role in supporting EP. Additionally, further reasons for the decrease in the level of LP may be due to a lack of marketing of the library's features, or the inability to understand the changing and increasable EUERs.

## 2.2 End-Users' Expectations and Requirements in ALs

### 2.2.1 Introduction

The present study is primarily focused on exploring End-Users' Expectations and Requirements (EUERs) within Academic Libraries (ALs). This chapter provides an overview of EUERs, discusses the occurring changes, and the various aspects of changing EUERs. Finally, a summary of the chapter is provided.

### 2.2.2 Overview of EUERs

Understanding and meeting EUERs is the core of the foundation of ALs. To understand EUERs, they should be accurately determined. Applegate (1993) identifies Users' Expectations (UEs) as the anticipation of users regarding the LP, and Users' Requirements (URs), and the tangible needs of ALs. EUERs remain a problematic area to study. What exactly end-users really expect and require of their ALs is still ambiguous (Dabholkar, Shepherd, & Thorpe, 2000; Gronroos, 1990). Highlighting this point, McKnight (2009) states "Library staff assumptions of customer perceptions are not always accurate". Their assumptions should be built based on the users' perceptions. Thus, understanding and identifying the needs, preferences, skills and the reactions of users is fundamental to the future of libraries (Brophy, 2007). Another debated issue is the relationship between EUEs and the measurement of LP. Yu (2006) points out that the assessment of EUEs should be separated from the *perception measurement*. On the other hand, Phillop and Hazlett (1997) and Parasuraman, Zeithaml, and Berry ( 1994) argue that the integration between service quality measurements and UEs can add value and can provide further information. Hence, understanding UEs is the keystone of providing high quality service.

The relationship between the EUERs and satisfaction has been articulated in the existing literature (Applegate, 1993; Dalrymple & Zweizig, 1992; Shi, 2003; Shi, Holahan, & Jurkat, 2004; Yu, 2006). Meeting EUERs can be an indicator in measuring the level of satisfaction; however, the initial (and essential) points of meeting the EUERs are the end-users' ability to determine the EUERs, along with the librarians' ability to understand and respond to them. Indeed, identifying EUERs is a difficult task for both end-users and librarians. John and Marion (2001) express that identifying exactly what patrons need is complex, and this complexity increases more with the

existence of digital libraries. In addition, Blair (2003), and Makri and Warwick (2010) point out that EURs, especially students' requirements, are varied. They indicate that grouping the requirements is possible. Thus, identifying EUERs can decrease the complexity and increase the meeting of EUERs. The responsibility of this identification is for both end-users and library staff. Hence, we may ask the following questions: "Have EUERs changed after the adoption of ICT within ALs?" "To what extent have they changed?" and "What are the factors behind this change". The next sections discuss these issues to answer the emerging questions

### 2.2.3 The Change of EUERs

The use of the ALs was confined to essential purposes, such as reading and borrowing printed IRs. With the adoption of ICT and the development in ALs' environment, since the 1960s, ALs have confronted several challenges (section 2.3.3) in relation to their process, services, management and users' profiles (Vicente, 2004). In turn, EUERs have increased and changed as a result of the radical changes in the ALs. To accommodate these changes, ALs experienced challenges in terms of discovering new approaches of accessing, organising, and delivering information, and re-structuring their constructed places (Bazillion & Braun, 2001; Crump et al., 2012). Several researchers such as Budd (2005), Vicente (2004), Feather and Sturges (1997), and Stueart and Moran (2007) ascribed the change of ALs and EUERs to a number of factors that were classified as: 1) external factors that are related to social, cultural, economic, political and technological factors, 2) internal factors such as ALs' budget, the Internet and e-IRs access, increasing IRs' collection, and users' ISB and skills. Hence, determining external and internal factors affecting ALs and their EUERs are the cornerstone of responding to these changes by enhancing ALs' IRs, increasing the accessibility and availability to e-IRs, restructuring ALs places and processes, providing IL programs, and dealing with financial and technological problems (section 2.2.4).

The change of EUERs does not mean eliminating previous expectations and requirements; rather, it means emerging new expectations and requirements that proportion the new era of ALs. Hence, the integration between traditional and non-traditional services provides further opportunities of meeting EUERs. For instance, Demas (2005) reveals that the end-users of a college library required a physical use of

traditional library activities, such as reading and studying. This is integrated with new modernised activities such as "Meeting and Socialising". Thus, the change of the EUERs does not mean the elimination of the traditional ALs' role; it means improving the traditional library role by adding social, cultural and technical value to the ALs.

### 2.2.4 The Aspects of Change

As mentioned above, EUERs have changed due to a number of internal and external factors. The change of EUERs is varied and assorted. It is a reflection of the end-users' needs for the different characteristics of their ALs. Interestingly, the findings of Alassaf (2011) show that users, either from the same or different groups, had different requirements regarding their faculties, level of study, working environment and status. Based on this view, ALs have been observed from different aspects: as a place, services, IRs, a staff, learning-centre, and a technology and other facilities as demonstrated in figure 2.4.

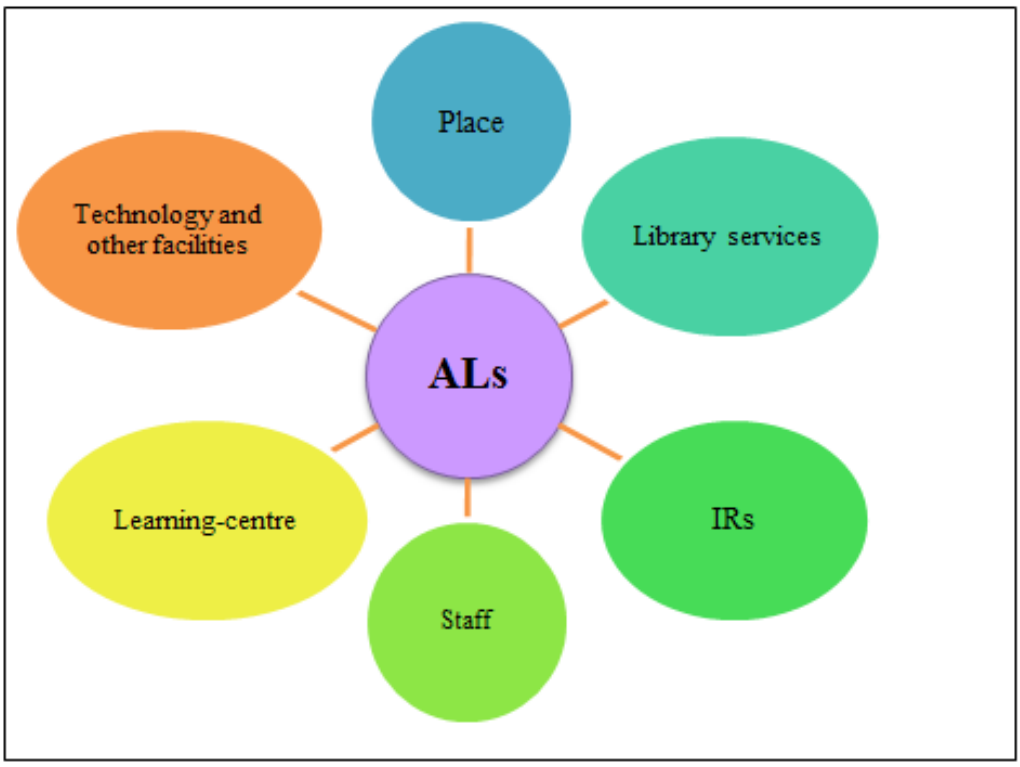


***Figure 2. 4.*** **The Aspects of EUERs in ALs (Created by the Researcher).**

#### 2.2.4.1 *ALs as a Place*

The importance of "ALs as a place" is still an arguable issue. However, Crump et al. (2012) state that the "ALs as a place" is important to serve potential users in terms of

operating services, storing and organising IRs, they distinguish between two groups of librarians' perspectives regarding the importance of "AL as a space". The first group of librarians declared that the importance of the ALs' place has been eliminated due to shifting to an e-library format and embracing collaborative learning styles; in spite there is a need in improve the collaborative learning (Kenan, Elzawi, Pislaru, & Restoum, 2015), while the second group believed that the new format of e-library should not eliminate the concrete format of ALs. They contended that the main function of ALs was to meet educational and social EUERs on-campus.

The importance of "ALs as a place" is explored literature in relation to EUERs. The EUERs of the "ALs as a place" are varied among a number of studies regarding technological and cultural issues. For instance, Martha and Persson (2006) point out that ALs' place was not important for all categories of Swedish users excluding students. Conversely, Rehman (2012) reports that the "place" was the highest expectation and requirement for all categories of the Pakistani end-users; who expected that their ALs would provide them a quiet and convenient place to study and research along with a place for group studying. Accordingly, in Pakistan, as a developing country, the end-users might not be familiar with the technology and prefer to use their ALs traditionally due to a lack of adopting advanced information technology within their ALs. Another reason affecting the difference between users regarding cultural issues might be that Pakistani users are more social people than the Swedish, although Swedish students considered the importance of "ALs as a place". That might reflect that the students' requirements of "ALs as a place" is similar over the entire world; however, the users in developed countries such as Sweden are more familiar with ICT. On the other hand, the importance of "ALs as a place" was shown by other Swedish groups, such academics; which might be due to a lack of time, therefore, preferring the use of other IRs.

ALs confronted a new challenge relating to socialising the ALs' environment. In the collaborative learning and e-learning era, end-users expected their ALs to provide a social space for meeting, chatting and studying in groups (Brophy, 2007; Crump et al., 2012). This socialisation of the ALs reflects the EUERs in terms of providing a convenient place with flexible hours to underpin their learning materials (Jordan, 1998). Viewing "ALs as a social place" is becoming more prevalent; especially after

connecting ALs to social and communication media such as Facebook, Twitter and YouTube. However, socialising ALs might attract new users to access them; it, in turn, results in further challenges such as the inability to recognise potential users, relying on e-IRs more than the library printed collections, and concentrating on the entertainment side more than the content (Brophy, 2007).

In the SPALs context, the findings of AL-Samir (2009) show that "ALs as a place" were ignored in the majority of the SPALs as an important element that can influence the EUS and usage. Even though the spaces of the SPALs are inappropriate regarding the number of the end-users enrolled in the SPUs and cannot be extended, the findings present that the majority of the end-users were satisfied with the SPALs as a space and facility. This might be because AL-Samir (2009) conducts his questionnaire adopting a three-point scale (strongly agree- agree- disagree) which is not ideal for the use in social and cultural research (Gorard, 2003). It might be due to a cultural issue; where the participants intended to show a positive view. On the other hand, the findings of Alassaf (2011) illustrate that the end-users require a comfortable place to study, in addition to social places for meeting friends and work in groups.

In the view of the researcher, re-structuring ALs' building and other spaces can be a positive factor to attract further users and operate the library functions in a sophisticated way. Therefore, adding the value of social features to the ALs can be essential to enhance the ALs performance, thereby, meeting the EUERs in the digital age.

#### 2.2.4.2 *ALs as e-/LISs*

The integration between e-/LISs and ICT in the ALs has changed the way of providing and delivering services. A number of e-/LISs have been developed, while others have arisen. Users' emphasis is on using e-catalogue, printing, photocopying, Current Awareness Service (CAS), Scanning, and Virtual reference Services (VRSs) (Al-Samir, 2009; Mirza & Mahmood, 2012). Furthermore, Alfrih (2010), in his thesis, concludes that all mentioned services along with circulation and designing an adequate library website were required by the users in the selected Saudi Arabia universities for both face-to-face and e-learners. The findings of Restoum and Wade (2013a) show that the main e-/LISs used by undergraduates were borrowing books and reference services, either printed or electronic. Based on this change, ALs have faced a number of challenges, such as the complexity of ICT, the increase of the cost and the access to the

e-/IRs against printed ones (Rehman, 2012; Sidera-Sideri, 2013). Hence, understanding EUERs regarding the provision of LISs is the keystone of meeting these expectations and requirements.

Shifting to a digital environment has challenged the ALs in terms of decreasing the use of the e-/LISs against e-IRs. The findings of Feeney (2004) and Tremblay and Wang (2008) illustrate a decrease in the familiarity and the rate of the e-/LISs provided. Insisting on this thought, Brophy (2007) asserts that EUEs of IRs are high, especially in the digital environment. Thus, providing LISs is insufficient to motivate their attendance at ALs. Hence, ALs should generate an integrative way to provide high-quality services concentrating on the EUERs, skills and preferences. This agrees by Poll and Payne (2006) who investigate the challenges facing LISs. They conclude that ALs are in a seeking stage to examine their impact on users' skills and capabilities. Hence, It is significant to draw attention to identifying and marketing the LISs efficiently for better usage of the LISs and facilities (Casey, 2004; Sloan, 1998).

Interestingly, the purposes of using e-/LISs have changed and are varied depending on the changes of the EUERs. A study by Crump et al. (2012) shows that end-users needed to access their ALs for a number of purposes. The main purposes were attending workshops, consultation, using the library collection, and printing their assignments and other information materials. On the other hand, there was a need to access the ALs remotely to browse databases, use e-catalogue and VRSs and other e-LISs. In the SPALs context, end-users were not satisfied with several LISs provided. There was a need to provide further services such as guidance, photocopying, searching online, VRSs, CAS, and Selective Dissemination of Information Services (SIDS) alongside other traditional LIS such as circulation and reference services (Al-Samir, 2009).

Another challenge confronting the ALs is to provide personal services tailored to the EURs and interests. Personalised services can be provided through offering VRSs, Consultation, and SIDS. Personalising the LISs eliminates the gap between the LISs provided and the information required (Brophy, 2007; Crump et al., 2012; Dollah, 2008). Thus, customising the LISs provided relying on the EUEs and probable requirements could meet their requirements, thereby, enhancing their level of satisfaction.

Collaboration is another significant issue which has been raised in the ALs. ALs and librarians have realised the importance of collaboration in ALs especially for the ALs that do not have a sufficient number of collections, staff, budget, and technology. Collaboration enhances the LP by providing Inter-library Loan, unifying the procedures and catalogue, and reducing the cost by sharing e-/IRs and controlling the duplication of resources (Ahmed, 2010; Al-Ganem, 2006; G. Gorman & Cullen, 2000; Oxnam, 2010; Scigliano, 2002; Sheshadri et al., 2011). On the other hand, applying collaborative service faces a number of barriers that have a negative effect on the provision of this service, such as the lake of communication and experience in offering this service, financial and technological barriers, and the inability to respond to EUERs (AlHarrasi, 2012; Darch, Rapp, & Underwood, 1999; Kucuk & Hartley, 1995; Langley, Gray, & Vaughan, 2006; Wilding, 2002). Alfrih (2010) agrees with Basager (2001) that Saudi academic libraries suffered from a lack of the collaboration because of the lack of police and guidelines. Thus, collaboration with other ALs increases the level of EUS through accessing further IRs and LIS that meet EUERs. Furthermore, preparation and planning for providing a collaboration service is crucial to increase the validity and the benefits of the collaboration itself.

#### 2.2.4.3 *ALs as e-/IRs*

There is an agreement with the notion that end-users expect and require a rapid and easy access to a wide range of IRs, and these requirements have increased in the digital library environment (Alassaf, 2011; Casey, 2004; Feeney, 2004; Sidera-Sideri, 2013). The studies show that end-users, especially students, are sufficiently impatient to search and find required information. Most of them want to retrieve and receive information in a very short time (Dunn & Menchaca, 2009; Sidera-Sideri, 2013). Recently, a number of studies have discovered that the provision of e-/IRs in ALs is more essential than offering LISs. The literatures have reported increasing use and access to e-IRs against the provision of LISs (section 2.2.4.2). They have shown that the main purpose of using ALs was to access the IRs in both formats, printed and electronic, and to obtain the information required (Casey, 2004; Feeney, 2004; Jordan, 1998; Sloan, 1998; Tremblay & Wang, 2008).

Furthermore, the internal organisation of ALs' collection is required by the end-users who expect and require finding information effortlessly. For stance, Al-Samir (2009)

demonstrate that the lack of the IRs' organisation in SPALs was a negative factor influencing EUS due to the difficulties of finding the IRs on the library shelves. Several studies reveal that there is a robust relationship between finding and accessing an appropriate number of e-/IRs and increasing the level of EUS as a result of meeting their expectations and requirements (Anna Maria, 2008; Bergman & Holden, 2010; Casey, 2004; Cullen, 2001; Feeney, 2004; Jayasundara, 2008; Restoum & Wade, 2013a, 2013b; Sidera-Sideri, 2013; Sloan, 1998; Tremblay & Wang, 2008). The findings of Restoum and Wade (2013a, 2014) demonstrated that the main objectives of EUERs of LAIU were to obtain updated and accurate information, and to access a bulk number of databases, rapidly and effortlessly. These findings agree with Kassim and Zakaria (2006) who identified that providing the newest and most valuable numbers of the collection and information resources was proposed to meet users' satisfactions and needs. Furthermore, Restoum and Wade (2013, 2013a) observed that there were several components affecting end-users' decision of selecting IRs. The majority of the participants; approximately 50% of undergraduates and 80% of the academics considered that **Accuracy** was the "most important" component to influence their selection of IRs. In contrast, the **Cost** was a "less important" element in selecting IRs for both end-users. Obviously, **Publication Year** was addressed to be "most important" element for the academics (40%) more than the undergraduates (25%). Hence, organising e-/IRs in a sophisticated way, providing accurate, up-to-date, and low cost e-/IRs, and adopting a flexible and accessible system to retrieve IRs easily and rapidly are required to meet the EUERs.

However, end-users require access a wide range of e-/IRs, the purposes of obtaining e-/IRs are varied based on end-user's groups (section 2.4.4.3). For instance, lecturers' expectations and requirements of the IRs are to obtain up-to-date information that supports their teaching purposes regarding their specialisations and the education policy, while students require specific information in a short time to reinforce their learning purposes (Jordan, 1998). The findings of Alassaf (2011) show that the main EURs of academics were accessing the full-text of e-IRs in foreign languages, and browsing the publication produced by their universities; however, printed IRs were considered a very important source for their research activities, while the majority of scholars required reinforcing a hybrid library environment in which printed IRs were integrated with electronic. In contrast, students were more reliant on hand-outs and

textbooks to pass exams and prepare assignments. Alfrih (2010) found that there was a lack and limitation of full-text IRs especially in Arabic. He discovers that approximately 35% of lecturers deemed that IRs were out-of-date and insufficient to be used in ALs.

It appears that the growth of the IRs' numbers in the digital ALs is more dynamic than the growth in the traditional form (Dadzie, 2005; Kani-Zabihi, Ghinea, & Sherry, 2006; Suarez-Balseiro & Sanz-Casado, 2001). Digital ALs are more capable to extend their IRs using technological equipment such as computers, the Internet and e-repository. E-IRs are much more accessible in the digital environment. It is more cost effective especially in collaborative libraries, while the limitation of physical storage space, cost of acquisition, and the time consumed obtaining printed publications are barriers facing traditional ALs (Arms, 2000; Kani-Zabihi et al., 2006). Although the EURs for IRs were ranked highly, it is crucial to understand what end-users really need by finding further channels enabling ALs of identifying the EUERs. Furthermore, ALs should provide an efficient system to manage, store and retrieve information in a rapid and accurate way in order to meet the EUERs in terms of IRs.

#### 2.2.4.4 *ALs as Staff*

Librarians in ALs faced a number of significant challenges in terms of changing their roles, responsibilities, and skills. In addition, librarians found themselves working as trainers, counsellors, supervisors, and guides in order to satisfy the emergent expectations and demands of end-users. They realized that they must discover new channels to communicate, deliver, develop and assess their skills and tasks (Bawden & Vilar, 2006; Kani-Zabihi et al., 2006; Kaur, 2010; Restoum & Wade, 2014; Simmonds & Andaleeb, 2001). Furthermore, librarians recognised the importance of observing and understanding end-users' behaviour towards seeking required information, and responding to their requirements and attitudes by offering high quality services and motivating them to use their ALs (Mills & Bannister, 2001; Spink, Ozmutlu, & Ozmutlu, 2002). These challenges are more serious with the absence of qualified librarians who should be able to serve end-users and meet the EUERs. The studies of Alfrih (2010) and Basager (2001) show that Saudi university libraries were limited in terms of offering qualified librarians especially in ICT.

The first challenge is the need to promote the skills and abilities of academic librarians in order to: a) be active or even pro-active librarians; b) to meet the EUERs by assisting and educating end-users how to improve their skills in terms of finding and using information, especially in the digital library environment (Kani-Zabihi, Ghinea, & Sherry, 2006). Sidera-Sideri (2013) illustrates that IT skills are essential for both end-users and academic librarians in terms of accessing information and using e-services. She recognises the importance of the librarians' awareness of the IT skills end-users possess. Moreover, Jordan, Lloyd, and Jones (2002) agree with Pantry (2000) that although IT skills are essential for academic librarians, there is a set of further skills that should be acquired for enhancing the performance of academic librarians. They summarise them as "oral communication skills, meeting skills, interpersonal skills, writing skills, time management skills, management skills, project management skills, knowledge management skills, marketing and publicity skills, and the skills of being able to work alone or in a team". Therefore, professionally qualified academic librarians will be more able: a) to cope with different groups of end-users and different expectations and requirements; b) to accept and manage the changes in EUERs, EP, and library environment; c) and to be more interactive and communicative with end-users.

The second challenge is the need to enhance end-users' skills and capabilities. ALs environment has become more complicated and requires special and sometimes advanced skills to find, retrieve and/or use information (Arms, 2000; Kani-Zabihi et al., 2006; Torras & Stre, 2009). Gannon-Leary, Banwell, and Childs (2001), in their first cycle of the three year JUBILEE (JISC User Behaviour in Information-seeking: Longitudinal Evaluation of EIS) project, explore the fact that there is a lack of end-users' skills that are essentially required for technology-driven services and resources. They state that the main skills they should have are "literacy skills IT; information searching skills; evaluative & critical skills; and information handling skills" (P. 5). Waldman (2003) and Ren (2000) argue that developing end-users' self-efficacy is important to increase the capitalisation of the ALs especially in terms of using e-IRs. Furthermore, Ren (2000) points out that demonstrating high self-efficacy affects the end-users' use of the library resources and services in addition to their educational achievement. Thus, acquiring a set of information skills is required. These requirements are more vital in the digital libraries rather than the traditional mode. Indeed, ALs

alongside end-users themselves have an important role in improving end-users' skills, in terms of increasing the use of ALs and academic achievement.

The third challenge is shifting from users coaching to information literacy (IL). This is because of increasing the end-users' needs to develop their technical and searching skills in order to find and use technology-driven IRs and services. In addition, this is due to the needs to create and conduct IL programmes to be more than just instructions (Hearn, 2005; Korobili, Tilikidou, & Delistavrou, 2006; Sidera-Sideri, 2013). Sidera-Sideri (2013) and Debowski (2000) indicate that the shift toward an electronic library environment requires exploring concrete approaches to meet the new EUERs by creating information literate end-users and recognising the difficulties and obstacles they face, while V. T. Burton and Chadwick (2000) state that "*users instruction*" is important regardless of the way this instruction is provided (electronic or face-to-face). On the other hand, the argument of Dorner, Taylor, and Hodson-Carlton (2001) summarises that "*users instruction*" is still essential and the IL is a part of it, and it is important to conduct a stable program of IL for underpinning the notion of Lifelong-Learning.

Although adopting IL is important to develop the end-users' skills and abilities to find and use information required, it is more complicated, especially in developing countries. Debowski (2000) states "The challenge of creating users who are information literate is not as simple as it first appears, and will require some significant reviews of the ways in which users and information workers relate" *(p. 179).* Ashoor (2005) articulates that the main challenges and difficulties confronted when establishing IL programs in developing countries are "the traditional educational system, the low literacy rate, and the low level of publishing" (P.308). He adds that if developing countries want to embrace IL programs, they should tailor them according to the ALs environment and EURs. Moreover, Alfrih (2010) observes that the main challenge of users, especially e-learners, regarding providing IL, is vagueness. Users faced barriers in relation to using ICT due to a shortage in ICT skills and poor attendance of IL programs.

In the Syrian context, as a developing country, Al-Samir (2009) reports that the majority of the SPALs provided inefficient IL programmes and there was a lack of the end-users' and librarians' awareness of the meaning and importance of IL. Furthermore, Ahmed

(2010) determines that there was a lack of IL provision in the Syrian university, both public and private, but he did not identify and/or discuss the reasons behind this lack and did not suggest any further measures for promoting IL. Hence, SALs should draw more attention to generate high-level of IL programme based on their EUERs, and structure their policies and strategy regarding this viewpoint.

#### 2.2.4.5 *ALs a Learning-Centre*

In the traditional form of ALs, ALs obviously considered a place of IRs storage and users attendance. Linking ALs to EP and adopting ICT shifts the need of ALs to be "a learning-centre". Several publications have articulated the importance of ALs in increasing the quality and outcomes of EP; especially in digital ALs (Alfrih, 2010; Campbell, 2006; Debowski, 2003; Lindauer, 1998; Oladokun, 2002; Simons et al., 2000; Torras & Sŭre, 2009). EUERs have changed responding to the consideration. EUERs increased in terms of providing valuable and sufficient e-/IRs and LISs, corresponding with their EP and academic experience (Sidera-Sideri, 2013; Torras & Sŭre, 2009). Thus, the link between ALs and EP has had an impact on the ALs' environments and their users. This impact led to the emergence a new concept of ALs calling "ALs as a learning-centre".

The main notion of ALs as "a learning-centre" is based on creating an ALs' environment related to and integrated with the EP, to improve end-users' attainment and respond to their educational requirements. Simons, Young, and Gibson (2000) support the idea of "ALs as a learning-centre" in an American AL. They indicate that this idea is relying on the interaction and integration between a set of aspects (students, faculty, librarians, IRs, and academic curricula). They argue that EP is a social process and it occurs through the interaction inside ALs. Barsun (2002) agrees with Hall (1998) that LISs are a crucial part of the EP. She suggests that providing e-learning programmes should be compatible with appropriate IRs and LISs. Hence, ALs as "a learning-centre" are required in the higher education field in terms of supporting end-users in their academic achievements by providing them with all LISs and related IRs and offering the required assistance and other facilities in order to respond to all their expectations and requirements. Figure 2.5 demonstrates the multiple features of the ALs as "a learning-centre".

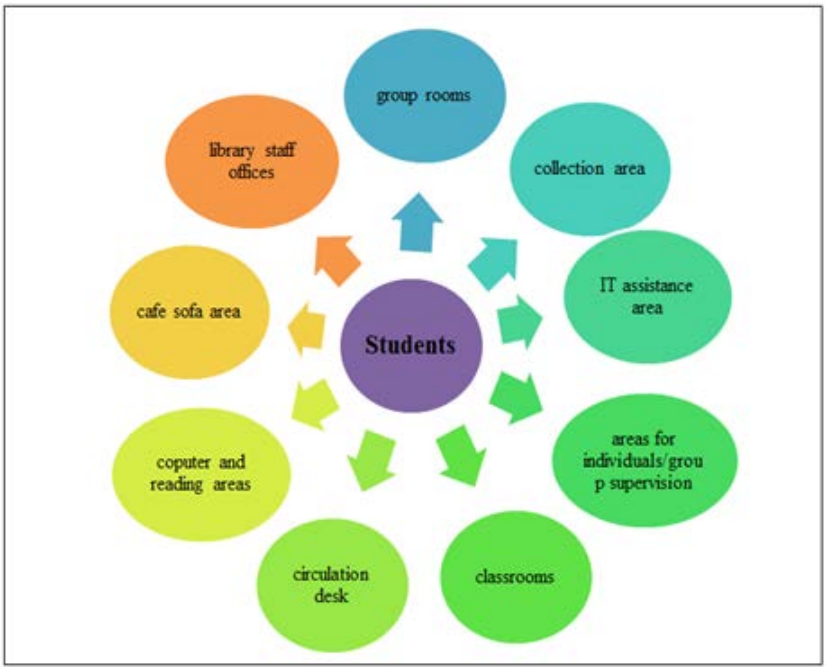


***Figure 2. 5.*** **ALs as a Learning-Centre (Created by Torras, 2009).**

ALs as "a learning-centre" encompasses different angles of ALs. They should comprise academic, social and individual places for reading, discussion and educating purposes. They should offer access to an efficient range of related IRs in both printed and electronic formats. Additionally, ALs should provide their end-users with assistance and all the facilities required achieving their educational objectives.

On the other hand, the literature has articulated the relationship between "ALs as a learning-centre" and providing IL programs. It is proved that IL is a crucial part of the academic curriculum and recent educational system (Baker & Evans, 2013; Cynthia A Raquepau & Richards, 2002; Owusu-Ansah, 2005; H. A. Thompson, 2002). Interestingly, the findings of Korobili and Tilikidou (2005) show that the majority of end-users preferred having induction courses combined with their academic pedagogies, or individually on demand in the early stages of their study to support them in their EP. Thus, the effective integration of ALs and the academic pedagogies is important in order to support the end-users in their educational experiences and processes.

Furthermore, librarians have an important role regarding "ALs as a learning-centre". Doskatsch (2003) indicates that academic librarian's role, as an educator, requires a combination of "pedagogical knowledge, expertise, information, technological competence, strategic skills and professionalism" (113). However, she argues that

academic librarians play a significant role as educators; her findings reflect that lack of time was the most important barrier facing them as they were responsible for performing further sets of roles and duties. Certainly, Sidera-Sideri (2013) concludes that IT skills should be designed and restructured regarding the design of academic curriculum and the variation of the EUERs. Hence, end-users expect that ALs should be familiar with their academic curriculum, able to respond to all inquiries and assist them in their assignments and research.

#### 2.2.4.6 *ALs as Technical Facilities*

The requirements to provide appropriate facilities and equipment, responding to the adoption of ICT in ALs, have gradually increased. The literature has articulated a number of issues and challenges related to adopting and using ICT in ALs (Baker & Evans, 2013; Gannon Leary, Bent, & Webb, 2008; Sidera-Sideri, 2013; Webb, Gannon Leary, & Bent, 2007). Firstly, the shift toward digital ALs is meaningless without offering accurate facilities that deliver, retrieve and support this shift. End-users expected that the Internet and World Wide Web are a basic facilities that should be provided (Baker & Evans, 2013). Crump et al. (2012) state that adopting technology has increased the EUERs in ALs concerning immediate access and user-centred services. Furthermore, Webb, Gannon Leary, and Bent (2007) indicates that in order to respond to EUERs, librarians should provide an efficient access to their e-IRs and e-LISs. Thus, end-users need the Internet and other equipment in order to search on-line catalogue, access databases and other e-IRs, and search engines such as Google, Yahoo, and Google Scholar. In addition, PC labs and computers with underpinning systems and software, and flexible and usable interface are crucial to connect the end-users with their ALs, and to simplify their access to e-IRs.

Secondly, embracing ICT in ALs let to a change in the ALs' environment. ICT enables end-users to access their ALs remotely twenty-four hours a day. This does not mean that the role of academic librarians has vanished. End-users still need assistance in terms of solving problems, inquiring, and guiding. On the other hand, it is necessary to monitor and understand the technology usage and its impact on ALs and users (Jordan, 1998). Such development requires ALs to work cooperatively with IT staff (Covey, 2004). The relationship between academic librarians and IT staff is crucial to enhance the library potentiality in terms of providing technical support for all end-users and

reinforcing EP by adopting efficient technology which promotes information delivery and LP.

The third challenge is changing end-users' ISB in a digital age (section 2.4). The new generation or so-called "digital generation", "generation Y" or "digital natives" have grown up interacting with technology. They use technology in their daily-life for gaming, using mobiles, social networks and other web applications (Byrnko, 2006; Crump et al., 2012). Indeed, there is an argument that end-users in the developing countries are less familiar with ICT rather than those in developed countries; however, students in the developing countries are the group most in contact with ICT. For instance, in the Syrian context, Ahmed (2010) agrees with Al-Samir (2009) that the undergraduate students of SPALs were more familiar with using ICT than the academics, although they faced several difficulties. Hence, ALs should provide their end-users with a sufficient level of technical facilities and library electronic-driven services that respond to their new expectations and requirements. In addition, they should offer adequate and appropriate programmes to improve their technical skills.

Furthermore, embracing a library management system (LMS) within ALs is a crucial element in meeting the EUERs by controlling and unifying ALs' functions, and increasing access points (K. Wilson, 2012). End-users expect their ALs to provide them with easy access to a wide range of IRs and web services via a flexible interface. Thus, offering an efficient dynamic flexible LMS can help end-users to access and obtain the information required, check into their library account, renew and/or reserve items, and book rooms. Moreover, LMS assists the librarians and other library staff in monitoring, unifying and managing the IRs, and LSs such as cataloguing, acquisitions and circulation (Gerhard, 2008). According to Gumilar and Johnson (1995), the ALs' functions are controlled and managed more effectively with the adoption of LMS, in spite of the complexity of the ALs as an environment. They state that the movement toward integrating the LMS with open sources is essential to increase the *efficiency, effectiveness and competitiveness* of ALs. The integration with open sources is fundamental in terms of decreasing the LMS limitations and reducing the cost.

Finally, since the need to socialise, collaborate and share knowledge has increased in the digital age, e-learning environment has been established as a solution for learning and teaching process. Due to the limitation of it, providing a personal learning

environment recently (Alharbi, Platt, & Al-Bayatti, 2013). E-learning environment has been established as a solution for learning and teaching process. Due to the limitation of it, providing a personal learning environment recently (Alharbi et al., 2013). ALs have shifted to Library 2.0 which is based on web applications and social networking tools such as Blogs, Wikis, Twitter and Facebook (Brophy, 2007; Gannon Leary et al., 2008; Kim & Abbas, 2010; Nesta & Mi, 2010). A considerable number of ALs all over the world have upgraded their libraries to Library 2.0. In the UK, for instance, the University of Huddersfield Library has promoted its catalogue by adding borrowing suggestions and serendipity, while the library of Bath University has offered the opportunity to its international students to recommend and comment on books from their home country (Gannon Leary, Bent, & Webb, 2008). Shifting to Library 2.0 has changed the nature of ALs and improved the LP and responded greatly to a number of EUERs, however end-users found a number of its applications and features complicated and difficult to use. Hence, ALs should consider the continuous improvement of ICT. Also, they should be aware of the need to improve end-users' IL and technical skills for better results.

Regarding the current study, the findings of Restoum and Wade (2014), published in the 6th Qualitative and Quantitative Methods in Libraries International Conference, show that end-users' requirements of the LAIU were high in terms of providing supportive IRs, experts, high quality services and personal services; however, Undergraduates were more demanding than academics regarding providing social, learning and personal space, while academics were more requiring regarding the quality and recency of IRs. Additionally, borrowing printed books, accessing journals, obtaining general and specific information were required to support their educational process. These findings are presented in more detail in chapter 5, since they are an important part of this research.

Briefly, understanding and identifying EUERs are a complex task. EUERs have changed regarding a number of issues and challenges faced the ALs. They have been affected by several factors such as ISB, satisfaction, LP. The change encompassed all the ALs' characteristics. New expectations and requirements have generated, and a number of existing requirements have improved responding to the change occurred in

the ALs environment. Thus, implementing new channels and approaches to provide, manage, and deliver LISs and IRs are required in order to support end-users in the EP.

In the context of meeting EUERs, it is necessary to measure the LP to reflect to what extent ALs are able to respond their EUERs and activate their role in supporting EP. The next sections discuss the importance of assessing the PL and the challenges and barriers facing ALs and affecting EUERs and EUS.

## 2.3 Assessment and Challenges

### 2.3.1 Introduction

The previous part of this chapter discussed EUERs in the ALs, concentrating on the generation of changing expectations and requirements due to a number of reasons. The change of EUERs encompasses different characteristics of ALs. In this part, the focus is on discussing the assessment of LP and on addressing main challenges and barriers facing ALs regarding functions and users.

### 2.3.2 The Assessment of Library Performance

The assessment of the library performance (LP) has shifted from traditional methods, based on the number of IRs and library staff, the frequency of attendances, and budget, to be more focus on social and commercial issues of services such as marketing, end-users' requirements and satisfaction (Brophy, 2006; Kassim, 2009; Nitecki & Hernon, 2000)This shift has been considered as a result of adopting ICT and changing EP in academic institutions. Indeed, LP refers to the quality of e-/LISs provided and functions operated to respond EUERs.

Measuring services quality is a critical issue in ALs. It reflects to what extent e-/LISs are able to meet EUERs (Asubonteng, McCleaty, & Swan, 1996; Dotchin & Oakland, 1994; Satoh, Nagata, Kytomaki, & Gerrard, 2005; Wisniewiski & Donnelly, 1996; Zahari, Yusoff, & Ismail, 2008). Several publications show that the assessment of the LP has existed since the middle of the twentieth century (Brophy, 2006, 2007, 2008; Gumilar & Johnson, 1995; Martha & Persson, 2006; McKnight, 2009; Philip & Roswitha, 2006; Roswitha Poll, 2006; Satoh et al., 2005; Whitmire, 2002; H. I Xie, 2008). According to Brophy (2007), assessing LP has been shifted from viewing the library as a system investigating the inputs, processes and outputs, to emphasis on assessing the outcomes and impacts on education. See Figure 2.6.

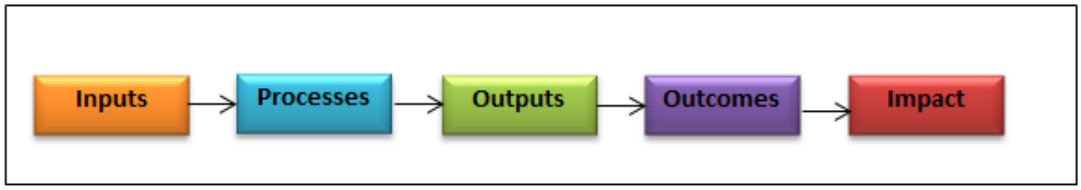


***Figure 2. 6.*** **System View of ALs (Cited by Brophy, 2007).**

Assessing the LP should be according to a strategic plan that controls the library process and services, and identifies the roles of involved staff. Strategic planning has an important role in academic libraries (Adeyoyin, 2005; Huotari & Iivonen, 2005), especially with the speedy change occurred in the ALs' environment. Strategic planning considers a development instrument of the ALs' vision, and a guide to achieve that development (Piorun, 2010) Establishing strategic planning does not mean meeting the desirable development. It requires the integration between the library members to achieve this change (Brown & Blake Gonzalez, 2007; Piorun, 2010). Certainly, providing a tangible written strategic plan is crucial to control and monitor the LP. McLoughlin and Wilson (2006) identify that a strategic plan is a fundamental document that should be provided in ALs. They indicate that a strategic plan is crucial to ensure the services quality, unify the procedures of implementations, increase the awareness of the EUERs, and consider further improvement.

Interestingly, a strong correlation has been found between LP and EUERs. It has been shown that providing high quality services increases EUERs (Asubonteng et al., 1996; Dotchin & Oakland, 1994; B. R. Lewis & Mitchell, 1990; Restoum & Wade, 2014; Wisniewiski & Donnelly, 1996; Zahari et al., 2008). Assessing ALs from different aspects (place, services, IRs, staff, facilities, and so on) can be helpful to improve the quality and performance (Crawford, Pickering, & McLelland, 1998; Satoh et al., 2005). Thus, identifying the features of each aspect is essential to determine the factors affected enhancing the LP. According to Gumilar and Johnson (1995), the assessment of PL is essential to determine "libraries' strengths and weaknesses when compared with internal and external targets, norms and averages" (p.20). Hence, establishing clear goals, missions, and standards, to control and assess the ALs' characteristics can be important to improve the LP.

The relationship between LP and EUS has been observed (Hung, Huang, & Chen, 2003; Parasuraman, Zeithaml, & Berry, 1988; Restoum & Wade, 2013a, 2013b; Seth & Deshmukh, 2005; Sureshchander, Rajendran, & Anatharaman, 2002; Wisniewiski & Donnelly, 1996) (section 2.5.6). It is assumed that the more ALs provide high quality services, the more end-users will be satisfied. Regardless of this assumption, satisfying end-users is a challenging task. Identifying the gap between what ALs perceived and what end-users expect can be that main step to increase the level of EUS. Several studies

have developed models determining the services quality gaps in relation to EUEs (Frost & Kumar, 2000; Luk & Layton, 2002; Parasuraman, Zeithaml, & Berry, 1985; Shahin & Samea .M, 2010). The most common model is the one that developed by Parasuraman, Zeithaml, and Berry (1985). The authors identify five gaps that impact negatively on the level of EUS. The main gap is a customer gap, which is the gap between end-users expectations and company perceptions of the services regarding their delivery. Minimising this gap is essential to increase the EUS level. Other gaps are related to ALs' inability to meet EUERs (gap of listening to end-users, gap of designing services, gap of delivering services, and gap of communication).

Another model of service quality gaps is developed by Wisniewiski and Donnelly (1996) who identify five gaps (service gap, understanding gap, design gap, delivery gap, and communications gap). These gaps determine the difference between perceived and the expected service, users' expectations and service provider. Furthermore, Luk and Layton (2002) developed the model of Parasuraman, Zeithaml, and Berry (1988) by involving two extra gaps (gap 6, gap 7), which focuses on the difference between management awareness and staff perceptions regarding users' expectations.

Indeed, providing adequate e-/IRs, which support end-users in their EP, can be significant in improving LP. Simmonds and Andaleeb (2001) declare that frequent access to different formats of e-/IRs associated with educational curricula can be an indicator in measuring the accuracy of these e-/IRs. In addition, they underlined on the significance of the perceived quality of the e-/IRs. In this way, providing adequate access to a number of e-/IRs, which respond to their needs and reinforce their academic curricula, can impact positively on the LP.

Additionally, statistic is another important indicator to obtain quantitative about LP and the quality of LISs provided (Ashcroft, 2002; Coombs, 2005; Sacchetti, 2007); however, a number of studies deem that adopting statistics might not be sufficient to determine the information reliably (Duy & Vaughan, 2003; Liu & Cox, 2002). Moreover, obtaining direct and/or indirect feedback from end-users might be crucial to investigate the satisfactory level of finding and using required information (Adeniran, 2011; Madhusudhan, 2010). Hence, the application of efficient statistics, which reveal the EUS and obtaining their feedback, can be vital for improving the LP based on EUERs.

Interestingly, providing high quality services along with expert staff, who are able to deliver these services, guide end-users, communicate with them, and develop their skills, is important in increasing the EUS with the LP (section 2.2.4.4 and 2.2.4.2). Additionally, providing an appropriate management system is essential to monitor and manage IRs and library operations in a systematic way, in addition to other required facilities and equipment to simplify and activate the use of ALs (Bawden & Vilar, 2006; Brophy, 2007; Casey, 2004; Crump et al., 2012; Kani-Zabihi et al., 2006; Kassim, 2009; Kaur, 2010; Liu & Cox, 2002; Simmonds & Andaleeb, 2001).

A number of projects have been conducted in terms of assessing LP. The assessment of LP assists in identifying EURs in order to improve LSs and their quality. Different approaches have been adopted in terms of measuring ALs and their services such as the Association of Research Libraries (ARL), Statistics and Measurement Program and projects such as the EQUINOX, COUNTER, EDNER+, SERVQUAL, the ARL's LibQUAL+® the JUBILEE project, and most recently the eVALUEd project (Kaur, 2010; Lincoln, 2002; Parasuraman et al., 1988; Rehman, 2012; Sidera-Sideri, 2013). These projects have concentrated on assessing the LP based on evaluating the level of the EUS (Cook & Heath, 2001; Dole, 2002; Hiller, 2001; B. Thompson, Cook, & Kyrillidou, 2005). LibQUAL+® is a web-based-survey project. It used widely in Europe, America and the UK in term of evaluating the LP based on measuring the users satisfaction. Recently, it has been presented in two conferences conducted in librarianship field (5th Qualitative and Quantitative Methods in Libraries International Conference 2013; 10th Northumbria International Conference on Performance Measurement in Libraries and Information Services, 2013). The nation of the LibQUAL+® is based on designing and distributing a standardised survey. The questions of LibQUAL+® allow evaluating three dimensions of service: the relationship with librarians, the access to IRs and the library as place. Thus, assessing the quality of the LP increases the EUS by meeting the EUERs of ALs

To summarise, providing high quality LISs, IRs, staff, facilities and other features are important to enhance the LP. Assessing LP is crucial to determine to what extent ALs are able to respond to their end-users. This can be measured by acquiring statistics, which reflects the end-users' attendance, satisfactory level, and needs. In addition, obtaining direct feedback can be helpful to improve library performance.

### 2.3.3 Challenges and Barriers Facing ALs

As mentioned previously, ALs confronted and/or still facing several challenges and barriers as a result of the TCT adoption and the change occurred in the HE systems. These challenges are due to the change of ALs' environment and process, and the increase of EUERs (Alfrih, 2010; Baker & Evans, 2013; Basager, 2001; Bawden & Vilar, 2006; Bazillion & Braun, 2001; Brophy, 2007; Crump et al., 2012; B. David & Polona, 2006; Dollah, 2008; Gannon Leary et al., 2008; Kani-Zabihi et al., 2006; Poll & Payne, 2006; Rehman, 2012; Restoum & Wade, 2013a; Sidera-Sideri, 2013; Simmonds & Andaleeb, 2001; Vicente, 2004; Webb et al., 2007). Main challenges and barriers are summarised as follow:

- The need of rapid access to a wide range of e-IRs, and to obtain up-to-date information that supports learning and teaching purposes;
- The need to develop end-users skill-based education in terms of providing IL programs, enhancing their EP and developing careers;
- The demand to provide personal services such as VRSs, consultation and instruction.
- The concentration on the entertainment side more than the content;
- The decrease of using e-/LISs against the increase of e-/IRs;
- The trend of end-users toward the Internet and other technical facilities, and social media;
- The variety of the interest and perceptions;
- The inability to recognise potential users;
- The limitations of physical space, opening hours, and budget in traditional ALs;
- Facing several issues and barriers in relation to offering collaborative service that have a negative effect such as the lake of communication and experience in offering this service, and the inability to respond to EUERs;
- The change of academic librarians' role and responsibilities (training, guiding and consulting), and the need to promote their skills especially IT skills;
- The demand to adopt an efficient LMS to monitor, control and unify the ALs' functions and processes.

Interestingly, Jadhav (2011) writes that several ALs confront a number of challenges and barriers that have an impact on ALs' environment regarding financial, technical

and human limitations. Furthermore, Heery (1996) indicates that the key challenges confronting ALs is the provision of LIS high quality to the increased number of e-learners.

On the other hand, ALs in Arab countries suffer from a number of challenges and barriers. AlHarrasi (2012), identifies a set of challenges faced Omani ALs. He summarises the challenges as "the increase in the number of users, lack of printed and electronic resources, shortages of staff, difficulties in subscribing to journals due to high access fees, lack of professional development, insufficient budgets, and coping with rapid changes in technology" (P. 92). He investigates other challenges faced by the users of Omani ALs, such as the lack of meeting EUERs, the lack of searching and communication skills. Moreover, Saudi ALs confront as well from several barriers and obstacles in relation to the application of ICT. The findings of Alfrih (2010) show that Saudi ALs suffer from a range of difficulties in relation to the absence of determinant strategy, budget, lack of qualified staff, lack of Arabic-resources, lack of collaboration, lack of LP assessment, the decrease of satisfaction level, lack of providing training and marketing services, lack of ICT facilities, failure to meet EUERs, and the limitation of providing traditional LISs.

In the Syrian context, SALs suffer from a number of challenges and barriers that were discussed in section 2.1.6. The primary challenges and obstacles here are the weaknesses of the LMS adopted, lack of IRs collections and organization, limitation of the provision of e-LISs, limitation of budget, reliance on traditional services, reduction of satisfaction level, lack of skilled staff and technical facilities, lack of strategy and assessment, and inappropriate location and space (Ahmed, 2010; Al-Samir, 2009). These findings were crossed with the findings of Restoum and Wade (2013a) who pointed out that the key difficulties confronting LAIU were a lack of time, inability of attending the library, slowness of the Internet, and a limitation of e-/IRs availability and accessibility. According to Alassaf (2011), SALs are faced by a set of challenges that affect leaders which are related to economic, technological, professional, legitimate, organizational issues. Moreover, she determines further barriers that were compatible with the findings of Restoum and Wade (2013a). These barriers are in relation to lack of the time, and lack of SALs opining hours. Hence, the awareness of the challenges and barriers facing ALs is crucial to promote the LP and meet EUERs. It can be helpful

to overcome these challenges and obstacles socially, politically, and economically by identifying, understanding and analysing EUERs and the change of ALs environment and functions.

Briefly, ALs experience a number of challenges and barriers as a result of changing their functions and users' profiles. These challenges are related to different characteristics of ALs. They increase in digital environment of ALs. Arabic ALs including SALs also suffer from the same challenges. Solutions are essential to enhance the level of LP.

The next section highlights information-seeking behaviour (ISB) due to the need to obtain required information formulates the way of seeking-information.

## 2.4 End-users' Information-seeking Behaviour

### 2.4.1 Introduction

The previous part discussed the assessment of the LP as an important indicator to evaluate and meet EUERs. In this part, Information-Seeking Behaviour (ISB) is discussed revealing an overview of the main models and processes; as seeking to obtain required information is based on a set of behaviour. Also, the relationship between the ISB and demographic variables is demonstrated.

### 2.4.2 Overview of Information-seeking Behaviour (ISB)

Information-seeking Behaviour (ISB) is a set of processes and activities, which aim to obtain specific information to achieve specific purposes. According to Krikelas (1983) and Brophy (2007), users seek for information when they feel that their existing knowledge is not sufficient to cope with special issues or problems, and the process of ISB ends with obtaining required information. The investigation of ISB has changed over time. In the 1950s, the main focus was on investigating the activities of researchers and scientists, while it has extended to include other populations, especially students since the 1980s (Weiler, 2005).

Despite the fact that a growing body of literature has recently investigated the ISB field, this field is still undefined and misunderstood. The reason behind this misunderstanding is that ISB are very subjective and an individual process. ISB is influenced by each user's personality, and is affected by a number of internal and external factors affecting users' behaviour such as their mood and feeling through seeking information, time spent, their disciplines, and the library and university structure. In addition, the social, economic, and cultural environment impact on their process and outcomes (Caregnato, 2000; Weiler, 2005).

The main scope of this research covers end-users' activities, processes and strategies through seeking information. Furthermore, it explores the differentiation between end-users in terms of their demographic variables, such as age, gender, level of study and experience, and discipline groups. Several attempts have been made to develop a range of models of IBs; this research discusses a number of these models briefly to shed light on the main models developed in the IBs' field.

### 2.4.3 Snapshot of ISB Models and Processes

A number of models have been created and developed to study ISB (Eisenberg & Brown, 1992; Ellis, 1987; Krikelas, 1983; Kuhlthau, 1991; Niedźwiedzka, 2003; Weiler, 2005), while other models have been developed to determine ISB (Information Retrieval Behaviour) emphasising the overall activities which end-users undertake in order to obtain the required information (Haynes, 2004; Hiemstra, 2009; K. S. Jones & Willett, 1997; Kowalski, 1997). Several researchers have found a robust relationship between the broad-spectrum sense of the ISB and the information searching behaviour (Belkin, Cool, Stein, & Thiel, 1995; Ingwersen, 1996; Saracevic, 1996). The model of Ellis (1987) is considered one of the common models identifying the activities of ISB. These activities are summarized as follows:

- Starting: including the activities of initial searching for expected relevant information, by reviewing literature, browsing e-catalogue, and asking classmates.
- Chaining: following a series of references and citations that than be done either forward or backward;
- Browsing: searching for relevant information by perusing the publications and references;
- Differentiating: balancing and filtering information to select relevant sources;
- Monitoring: being up-to-date and well-informed with the relevant sources of the interest;
- Extracting: emphasising and selecting the most relevant information from different sources.

Interestingly, T. Wilson (1999) analysed a set of previous models of ISB, and proposed what he called “a nested model ” with various areas of research within the general field of information behaviour” (P. 262) ; as demonstrated in figure 2.7.

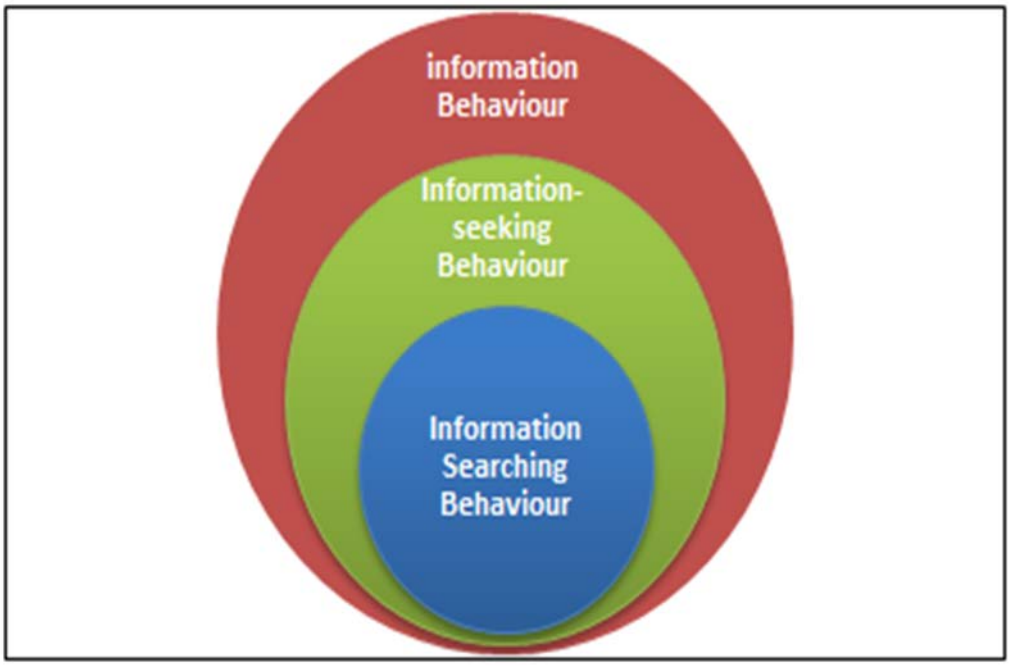


***Figure 2. 7.*** **A Nested Model of the Information Seeking and Information Searching (T. Wilson, 1999)**

T. Wilson (1999) considers Information Behaviour (IB) as a wide spectrum of analysis. It is implemented in both traditional and electronic library environments (Brophy, 2007). ISB is a segment of the spectrum with different approaches, which helps discovering, and accessing the IRs. Information Searching Behaviour stems from ISB with a communication between information end-users and e-information systems (information retrieval systems). In terms of using ALs, Brophy (2000, 2007) demonstrates a set of processes that end-users should adopt in order to complete their access and use of information, as presented in figure 2.8.

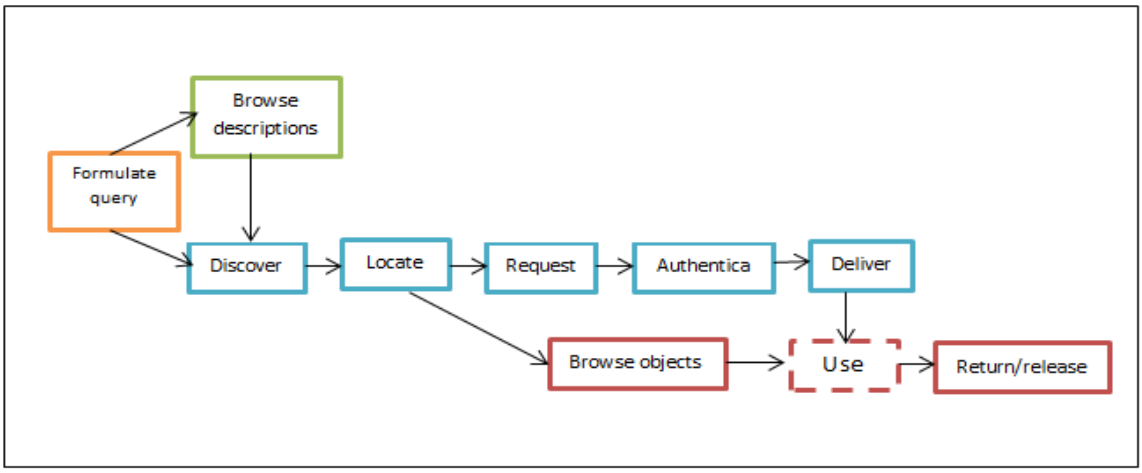


***Figure 2. 8.*** **Information Access and Use Processes (Brophy, 2007).**

Brophy (2007) outlines that IB processes start when end-users express their requirements, and complete when end-users return borrowed items to ALs, or release the link of e-IRs accessed. Since this research concentrates on strategies and processes of ISB, thus, it is significant to introduce the ISB's processes. Kuhlthau (1991) summarises them in six stages as follows:

- *Initiation*: the awareness of the need for information
- *Selection:* determining the common and general field or methods of inquiries or problems with vague thought;
- *Exploration*: investigating and examining information of general field of inquiries for better understanding with uncertain thoughts;
- *Formulation*: constructing more focused and personalised perception of the area of inquiries,
- *Collection*: gathering relevant information through an adequate interaction between the end-users and the information system operated.
- *Presentation*: the complement of the research and presentation of results. This stage reflects their satisfaction with the results.

However, the ISB processes of Brophy (2000, 2007) and Kuhlthau (1991) show some similarities in several points, there is a little distinction between these processes. Kuhlthau (1991), in her model, recognises that the ISB processes start with the awareness of the need for the information. She believes that ISB is an integration of thoughts, feelings and actions, while Brophy (2000, 2007) emphasises the concrete processes of accessing and using information. His model ignores the personal and emotional impacts on the ISB processes. As the end-users' ISB can be influenced by a set of personal variables such as thoughts and feelings, it is crucial to investigate to what extent personal variables can affect ISB in terms of obtaining the required information, and determining the purposes behind requiring this information.

### 2.4.4 Relationships between ISB and Demographic Variables

The impact of the demographic variables of end-users such as age, gender, user groups, and/or different disciplines on the ISB has been investigated in a number of studies (Cox & Jantti, 2012; Fortson, Scotti, Chen, Malone, & Del Ben, 2007; Ileperuma, 2002; Koontz, Jue, & Lance, 2005; Makri & Warwick, 2010; Odell, Korgen, Schumacher, & Delucchi, 2000; Tahir, Mahmood, & Shafique, 2010; Weiser, 2000; Whitmire, 2002;

Wu & Chen, 2010). However, several studies have concentrated on studying these relationships in ALs field, such studies are still more prevalent in the public libraries field (Koontz et al., 2005; Stone & Collins, 2013). The relationships between ISB and demographic variables are classified as following:

#### 2.4.4.1 ISB and Gender

Interestingly, the perspective that "gender" affects end-users' ISB, is conflicted. However, a number of studies show a different view and demonstrate the impact of gender on end-users' ISB. For instance, Restoum and Wade (2013a, 2013b) point out that no significant difference in finding and using information in relation to gender for both the undergraduates and academics. Fortson, Scotti, Chen, Malone, and Del Ben (2007) reveals that there was no gender influence on end-users ISB. Their findings showed that there was no difference between males and females in terms of using the Internet for educational purposes and library access. This result contradicted the findings of Jones, Johnson-Yale, and Millermaie (2009), Cox and Jantti (2012), and Stone and Collins (2013). In the study of Jones et al. (2009), the findings demonstrated that although male students of an American college spent more time using the Internet, female college students used the Internet for social communication more than males. They indicated that females tended to use e-IRs and websites more than males. Furthermore, the findings of Stone and Collins (2013) agreed with Jones et al. (2009) in terms of females using e-IRs more than males. In contract, Cox and Jantti (2012) showed that males in the University of Wollongong in Australia were interested in the use of e-IRs more than females. This confirms the finding of Korobili, Tilikidou, and Delistavrou (2006) who illustrates that females show technical-phobia more than males.

Stone and Collins (2013) confirmed that although female students from The University of Huddersfield used library resources more than males, males attend the library physically more than females. This finding was contradcited by Alassaf (2011) who showed that female students were likely to attend libraries physically more than male students, with 68.7%; however, 80.4% of male academics used to attend SALs physically. Hence, gender is an important indicator that should be taken into consideration for a better understanding of the end-users' ISB and therefore to respond more effectively to the EUERs

#### 2.4.4.2 ISB and Age

Age is another significant variable influencing end-users' ISB. Age should also be taken into consideration when researchers endeavour to observe ISB. According to Cox and Jantti (2012), age had an impact on young participants in terms of borrowing and accessing IRs, while it had no influence on the participants over 39 year old. This result agreed with Alassaf (2011), who pointed out that attending SALs physically included academics who were over 30 and under less than 50. Moreover, in Stone and Collins's (2013) study, the findings depicted that young students tended to attend the library, and use e-IRs on-campus more than mature students, who used e-IRs more off-campus. They stated that although young students frequented the library more often, library usage by mature students was significantly higher than young students in terms of logging-in hours and the number of e-IRs accessed. This might be due to the nature of postgraduate research, which requires access to a vast number of e-/IRs, the use of technical equipment at flexible times and in different locations. Furthermore, Restoum and Wade (2013a) revealed highly significant differences regarding academics in relation to age groups of academics in finding information. That indicates that academics' ability of finding and using information might well increase with greater age and the experience. Sidera-Sideri (2013) showed that age influenced end-users in terms of using technology. She declared that mature end-users had more complex difficulties relating to learning how to use technology, compared with younger end-users. Hence, the relationship between age and ISB can be affected positively or negatively regarding the end-users' skills, the use of e-IRs, and the attendance of ALs.

#### 2.4.4.3 ISB and End-user Groups

Determining end-user groups is important to understand their attitudes in terms of seeking information. The relationship between end-users' ISB and user groups has been investigated in several studies such as (Al-Samir, 2009; Crump et al., 2012; Jordan, 1998; Restoum & Wade, 2013a, 2013b, 2014; Sidera-Sideri, 2013). Al-Samir (2009) discovered that undergraduates in SPUs were more likely to attend ALs and access their e-/IRs, and to stay for longer periods, compared to the other groups of users such as academics or employees. Restoum and Wade (2013a) supported these findings. They showed that undergraduates were more frequent to visit their ALs and to spend time in their library more than academics; however, the findings show that no significant differences were found between the undergraduates and the academics in terms of

gender, age, level of study/teaching experience and faculties regarding attending LAIU. This was contradicted with the findings of Sidera-Sideri (2013) who demonstrated that students used e-IRs less than academics.

The relationship between ISB and end-users' groups is addressed by Alfrih (2010) and Banwell et al. (2004) who found out that the main purpose for e-/students using e-LISs and e-IRs were for academic reasons associated with their attainment assessment, and other reasons such as leisure and lifestyle. Banwell et al. (2004) reflected the academics awareness of students' seeking behaviour in relation to seeking rapid responses using Google and/or other search engines; however, students were limited in assessing e-resources. Additionally, Alfrih (2010) showed that the main purposes of e-lecturers to access e-IRs were for teaching purpose, to keep themselves up-to-date with knowledge, and for leisure purpose. Furthermore, Makri and Warwick' (2010) findings affirmed the findings of Banwell et al' (2004) that postgraduates make more demands or/and use more frequently e-LISs and e-IRs.

According to the findings of Alassaf (2011), the use of SALs as a physical place was considered by students more than academics. She adds that students were familiar with the use of the Internet more than academics, with 89.1%; however, both groups were influenced by new technologies in terms of searching, communicating, teaching and learning. Furthermore, her findings agree with Sidera-Sideri's (2013) findings; they pointed out that academics preferred printed IRs more than e-IRs, and they were independent in their research and required precise information more than students. Hence, the influence of end-user groups on their ISB should be considered as an essential indicator to perceive the end-users ISB.

#### **2.4.4.4** ISB and Academic Disciplines

Several studies have articulated the impact of academic disciplines on the users of academic institutions. For instance, the findings of Restoum and Wade (2013a, 2013b) regarding undergraduates demonstrated a highly significant difference in terms of using and finding information in relation to academic disciplines. These results look interesting since LAIU may give different attention in terms of providing different e-IRs according to specializations. Makri and Warwick (2010) examined the influence of the Architecture faculty's requirements on the postgraduate students' ISB. The study was based on Ellis's behavioural model. They observed that although architecture

postgraduate students were the most demanding and complex user groups in the digital information environment, they had a number of IBs similar to academics and participants from other faculties. Makri and Warwick (2010) made recommendations in terms of designing or improving electronic information resources. Whitmire (2002) implemented the "Biglan model" to investigate the variation and influence on undergraduates' ISB for re-designing and providing academic LSs. He summarised that

"Undergraduates majoring in the soft, pure, and life disciplines engaged in more information-seeking activities than under- graduates majoring in the hard, applied and nonlife disciplines. In addition, there were fewer differences between the information-seeking behaviors of undergraduates majoring in the life versus nonlife disciplines. The most differences in information-seeking behavior patterns were between undergraduates majoring in the pure versus applied disciplines". (Whitmire, 2002: P. 636)

Furthermore, Banwell et al. (2004), in the JUBILEE project, affirmed with Whitmire (2002) that there was a differentiation between end-users' ISB regarding their disciplines. They pointed out that the students of Pure, Clinical Medicine, and Applied Sciences were more frequent users of databases than Humanities and Arts students. Their findings showed that students have a positive perspective on e-LISs and e-IRs in terms of accessibility, comfortability and efficiency. In the same context, Alassaf (2011) found that academics in the Humanities Sciences were more likely to use primary IRs, while academics in Medical Sciences and pharmaceutical preferred scientific e-journals. Thus, the variation of end-users' disciplines is another crucial variable in investigating end-users' ISB in ALs.

#### 2.4.4.5 *ISB and the Level of Study/Experience*

The level of study/years of experience is other variables' impact on the end-users' ISB. Restoum and Wade (2013b) found a highly significant difference regarding academics in relation to their teaching experience in using information. According to Sidera-Sideri (2013), there is a relationship between the use of e-IRs and the students' level of study. She indicated that the more the students used e-IRs, the more often they were advanced in their studies. The findings of Al-Samir (2009) confirmed this perspective. He discovered that students in their first academic year had less experience with the e-/IRs

and e-/LISs compared with others at advanced levels. Furthermore, Alassaf (2011) indicated that the more students were advance in their studies, the more they preferred searching and using ALs, and the more they used e-mail to communicate with academics and colleagues. Therefore, the level of study affects the end-users' ISB positively or negatively regarding their experience of ALs' usage.

Interestingly, end-users' strategies for seeking-information can be changed regarding the ALs' capability of responding to demands. For instance, with the absence or the unavailability of one book or more, end-users might change their strategies or reduce their requirements by using another library, buying a copy of the book, borrowing related books on the same topic, borrowing the same book from colleagues or lecturers, or they might abandon their search (Alfrih, 2010; Brophy, 2007). Nowadays, it is very simple for end-users who face such unavailability of a specific book to convert to the digital world by accessing databases and other e-IRs, or browsing Google and/or other search engines (Crump et al., 2012; Weiler, 2005). Weiler (2005), who conducted a focus group study on Generation Y (who were born between 1980 and 1994) at the University of Idaho Library, found that Generation Y relied on using the Internet in the first place. She reflected that this result was compatible with the Pew Internet study (2002) which showed that 71% of college students used the Internet as a main source of obtaining information. Her findings demonstrated that although a number of students preferred seeking information on their own, there were others who preferred to ask for assistance for more accuracy and authority. Furthermore, she listed a number of important factors required when seeking information such as "*easiness, reliability, accuracy, currency,* availability, and cost. In addition, she added that features such as "trust, quality, credibility, validity, completeness, and comprehensiveness" (P. 50) were less important factors.

#### 2.4.4.6 *ISB and Other Variables*

The decrease of attending ALs is caused by several reasons related to end-users' ISB. This reflects the perspectives of Kuhlthau's (1991) model in relation to the integration of thoughts, feelings and actions (section 3.3.3). According to Alassaf (2011), using the Internet as a primary source to obtain information was the main reason behind the law attendance or non-attendance in ALs alongside with using textbooks. Thus, attending ALs and performing behaviour reflects end-users' thoughts and experiences toward

ALs. Hence, increasing the level of EUS can positively enhance the end-users ISB in ALs.

As a number of studies have confirmed that end-users require rapid, free and easy access to information (section 2.2.4.3), the time spent through seeking and searching for information is a crucial element influencing their satisfaction level positively or negatively. The work of Weiler (2005) revealed that end-users assessed their searching and seeking information experiences with reference to the time spent, more than the quality of information obtained. She added that the unavailability of IRs, information flood and validity were the most frequent difficulties faced by students when finding information. ALassaf (2011) indicated that the important reasons behind the low attendance of SALs were the lack of time and the inadequate opening hours.

To summarise, the relationship between ISB and the demographic variables have been addressed in the literature. It is proven that demographic variables impact on end-users' attitudes through seeking information processes and activities. These variables have been taken into consideration in this research in order to understand the EUERs in the LAIU in Syria, thereby, developing its performance and understanding EUERs.

The next part discusses EUS to investigate the models of the EUS, and identify its relation with other variables such as EUERS, ISB, LP, and demographic variables

## 2.5 End-users' Satisfaction

### 2.5.1 Introduction

The previous part provided an overview of the ISB's models and process. It investigated the relationships between ISB and demographic variables. In this part, end-users satisfaction (EUS) is discussed showing its two models. This is embraced to show the relationship between it and other variables (EUERs, ISB, library performance, and demographic variables). Finally, this part provides a summary concluding the main points of this chapter.

### 2.5.2 Overview of End-users' Satisfaction

End-users' satisfaction (EUS) in ALs has been clearly articulated in literature since the late 1990s. The relationship between EUS and LP has been discussed earlier in part two of this chapter. EUS has been considered an indicator for assessing the LP (Bergman & Holden, 2010; Cullen, 2001; Jayasundara, 2008). A number of studies have investigated several characteristics influencing EUS. Table 2.5. presents an example of the characteristics that are considered important for increasing EUS.

**Table 2. 5.** ***The Characteristics of ALs Influencing EUS (Created by the Researcher)***

| Resources | e-/IRs | LSs | Staff | Place | Technology | Equipment |
|---|---|---|---|---|---|---|
| (Majid, Anwar, & Esienchitz, 2001) | √ | √ | | | | √ |
| (Martensen & Gronholdt, 2003) | √ | | √ | √ | √ | |
| (Dadzie, 2005) | √ | | | | | |
| (Kassim & Zakaria, 2006) | √ | | | | | |
| (Kassim, 2009) | √ | √ | | √ | | |
| (Adeniran, 2011) | √ | | | √ | | |
| (Restoum and Wade, 2013a, 2013b) | √ | √ | √ | √ | √ | √ |

Interestingly, providing e-/IRs has been addressed in all mentioned studies. This supports the importance of offering e-IRs in increasing increase the level of EUS, and reflects the urgent requirements of end-users towards finding and using the e-IRs that respond to EP (section 2.2.4.2); however, providing other characteristics (efficient e-/IRs, high quality of LSs, qualified staff, convenient environment, and/or sufficient facilities) are crucial to increase the level of

satisfaction. This confirms previous studies that addressed the relationship between EUS and the quality of LISs and e-/IRs (Ankeny, 1991; Kotler & Andersen, 1996; Pitt, Watson, & Kavan, 1995; Restoum & Wade, 2013a; Yu, 2006). Hence, enhancing the LP corresponds to a set of characteristics, which should be combined for better performance.

However, a considerable number of publications have investigated EUS in terms of e-/IRs and services provided, a slight attention has been drawn to recognise the impact of the end-users on the satisfaction of other end-users. Potential end-users can influence positively or negatively on the general level of the EUS regarding their experience in using ALs. For instance, Camelis, Dano, Hamon, and Llosa (2011) pointed out, through their qualitative research, that other users have an influence on users' satisfaction. They recognise the roles of other users in terms of influencing user satisfaction. In addition, they present mechanisms of influencing other users on satisfaction.

In order to understand EUS appropriately, the next sections shed light on the two models of EUS, and the relationship between EUS and other related variables.

### 2.5.3 Models of EUS

EUS has been interpreted in two models. In the first model, the emphasis has been placed on the relationship between the requested and received information of e-/IRs. This model is identified as a "Material Satisfaction Model", since the level of EUS relies on the quality and quantity of the e-/IRs provided (Arishee, 2000; Martensen & Gronholdt, 2003; Stamatoplos & Mackoy, 1998; Tagliacozzo, 1977; Yu, 2006; Zorn & Marshall, 1995). In contrast, the second model has concerned with the feelings and emotional reactions of the end-users yielded from their library usage (Applegate, 1993; Dalrymple, 1990; Plutchak, 1989; Tessier, Crouch, & Atherton, 1977; Yu, 2006; Fenichel ,1980; D'Elia and Walsh, 1986; Dalrymple and Zweizig, 1992). Hence, implementing these models can reflect to what extent end-users are satisfied with provided IRs and services.

Since EUS is assessed in two different methods, it is important to show the main points of each model. The next two sections briefly discuss the Material Satisfaction Model (MSM) and Emotional Satisfaction Model (ESM).

#### 2.5.3.1 *Material Satisfaction Model (MSM)*

Material satisfaction model (MSM) has been applied in a range of library and information studies as an indicator to assess the LP (Applegate, 1993; Arishee, 2000; Tagliacozzo, 1977; Yu, 2006). MSM is a significant indicator to assess the extent to which ALs are able to meet their EUERs. For instance, Tagliacozzo (1977), in his study, evaluated the students' satisfaction, investigating to what extent online search outcomes were useful. According to Applegate (1993), investigating MSM relies on the relationship between students' demands and received materials. This relationship determines the level of the EUS. This support the findings of Restoum and Wade (2013a, 2013b) that found that providing efficient e-IRs, in terms of accuracy, accessibility, understandability and year of publication, is crucial to increase the level of EUS.

Since students are the main category of the end-users in ALs, their satisfaction can significantly impact the value of ALs' information services. In this context, Zorn and Marshall (1995) pointed out that the students' satisfaction affects, positively or negatively, the level of usability of graphic user interface. In another study conducted by Stamatoplos and Mackoy (1998), they stated that the users' willingness can be assessed by their description of the value of services provided. Hence, providing a sufficient number of e-/IRs can be an important element in obtaining the EUS. Even though it is essential to provide sufficient number of the e-/IRs, the level of the EUS cannot increase without providing appropriate, valuable, and up-to-date e-/IRs. Thus, the IRs should be related to their educational curricula in order to meet their educational requirements.

#### 2.5.3.2 *Emotional Satisfaction Model (ESM)*

The emotional satisfaction model (ESM) emphasises the personal feelings and sensations of users toward their ALs (Applegate, 1993; Dalrymple, 1990; Dalrymple & Zweizig, 1992; Plutchak, 1989; Tessier, Crouch, & Atherton, 1977; Yu, 2006). ESM comprises all emotions related to the end-users' internal, personal and emotional satisfaction with all ALs' characteristics. Interestingly, ESM is an acceptance of the information obtained, an explanation of students' feelings about the ALs' functions, and a standard of information system assessment (Applegate, 1993; Yu, 2006). With the application of the ESM, the

researchers have the opportunity to ask end-users directly whether they are satisfied with their ALs or not. Furthermore, they can ask them for their feedback by using scale questions from ‘strongly disagree’ to ‘strongly agree’. (Applegate, 1993; Butler & Kortman, 1988; Restoum & Wade, 2013a, 2013b; Yu, 2006). Their feedback can reflect the EUS with the ALs’ characteristics.

Even though the assessment of EUS is significant to develop the LP, investigating the end-users’ feelings and emotions is a complex and multi-dimensional task (Applegate, 1995). The complexity lies in the constantly changing emotions and feelings according to the end-users’ mood, achievement, and other internal and external affected factors regarding to their skills and search strategy, their experience in using the ALs, and previous expectations. Hence, it can be useful to evaluate constantly the emotional satisfaction by observing their attitudes, and distributing a regular survey or by asking end-users directly if they are satisfied with the library or not.

Since satisfaction is obtained from the library's ability to respond to the EUERs, and can have an impact on their behaviour and be affected by demographic variables, it is crucial to highlight the relationships between the EUS and aforementioned variables. The following sections discuss the relationships between the EUS and EUERS, ISB, library performance, and demographic variables.

### 2.5.4 EUS and EUERs

In the ALs context, it is essential to determine to what extent ALs are able to respond to EUERs. This ability of response reflects in the EUS. Thus, assessing EUS is crucial to demonstrate the level of their satisfaction; and thereby, to find ways to improve the response to the EUERs. Nitecki and Hernon (2000) identified EUS as responding to users expectations, or as the distinction between users’ perceptions and expectations of services. Oliver (1993, 1997) considered that students’ satisfaction is built on their prior expectations. It is based on the perceived quality of LISs, and the overall assessment of the LP. Hence, satisfying end-users relies on understanding their expectations and, subsequently, identifying the gap between their expectations and the LISs provided.

Meeting EUERs has been reviewed in the literature in terms of satisfying end-users and supporting them in their EP (Cullen, 2001; Kassim & Zakaria, 2006; R. L. Oliver, 1993; Shi, 2000, 2003; Simmonds & Andaleeb, 2001). For instance, Shi (2000) observed the correlation between EURs and EUS. Through her "Disconfirmation model", she explores that as long as the LISs are able to meet the EURs, the satisfaction level can increase. She indicates "satisfaction with information product may be a better predictor of overall EUS than satisfaction with information service (system/access) to retrieve the products" (p. 113). This view is thoroughly consistent with the findings of Martensen and Gronholdt (2003). Shi (2000) pointed out that satisfying users by meeting the users' information requirements may be more important than satisfying them by meeting their expectations. Interestingly, her model is compatible with the MSM constructed by Applegate (1993), which revealed the significance of providing information materials that respond to the EURs. In the same trend, Kassim and Zakaria (2006) considered that providing the newest and most valuable collections of e-/IRs meet EURs; therefore, increases the level of EUS. Conversely, the findings of Yu (2006) were at odds with Shi (2000) and Shi et al. (2004). Yu (2006) reported that the contribution to the users' general satisfaction was equal for both received information product, action and service satisfaction.

In the Syrian context, a significant correlation between the EUS and EURs has been addressed (Ahmed, 2010; Al-Samir, 2009; Alassaf, 2011; Restoum & Wade, 2014). Furthermore, the relationship between EUS and EURs regarding their specializations is found. For instance, students and academics who enrolled in scientific fields such as pharmacy and medicine were more satisfied with the IRs provided than the end-users who were enrolled in literature and human sciences (Ahmed, 2010; Al-Samir, 2009). This can be because of the nature of literatures and human sciences, which are based on reviewing publications, or might be as a result of the massive number of students enrolled in such fields. Furthermore, Restoum and Wade (2013b) concluded that the users of the LAIU were somewhat satisfied with the e-/IRs provided, however, there is a need to enhance these e-/IRs for further satisfaction.

Investigating EUERs has been considered an important criterion to explore the emotional satisfaction of end-users (Applegate, 1993; Shi et al., 2004).

However, there is not enough evidence for the impact of emotional satisfaction on ALs, emotions can impact either negatively or positively on their use regarding the emotional satisfaction yielded from their experience. Applegate (1993) demonstrated that it is difficult to determine end-users' emotional satisfaction, and the end-users' emotional satisfaction is often not related to responding to their inquiries. Precisely, end-users might be satisfied with e-LISs provided rather than traditional LISs, or vice versa, or they might not be satisfied with librarians' behaviour or professionalism, but they can be satisfied with overall services and resources. Thus, assessing the end-users' emotional satisfaction can reflect their internal feelings and thoughts toward different features of the ALs, since their satisfaction level can be distinct from one feature or service to another. Hence, investigating overall satisfaction is not often sufficient to evaluate the exact level of the EUS.

To summarise, meeting the EUERs can increase the level of satisfaction with the e-/IRs, e-/LISs and other characteristics. The more the EUERs are met, the higher the EUS can increase. Assessing the EUS is essential to identify to what extent the EUERs have been met. Furthermore, investigating the MSM and ESM as important parts of the overall satisfaction can assist in improving the library performance and meet the EUERs in a more effective way.

### 2.5.5 EUS and End-users' ISB

Despite several studies that have indicated the relationship between EUS and ISB, this relationship is not definitely supported by evidence. A number of researchers, such as Applegate (1993), Cullen (2001), Balatsoukas and Demian (2010) and Martensen and Gronholdt (2003) deemed that end-users' ISB reflects EUS with the LISs and e-/IRs. For instance, Martensen and Gronholdt (2003) demonstrated a robust association between end-users' loyalty (long-term user behaviour) and EUS. They stated that, "user loyalty is created as an interactive result of user satisfaction" (p. 146). Based on this perspective, investigating EUS can be helpful to predict further behaviour in the future. In contrast, some studies have shown that there is no relationship between end-users' ISB and EUS in the library field. Fang (2001) found that there was no relationship between EUS and behaviour in terms of using a Chinese vocational school library. Hence, the relationship is still debatable and there is a need to

conduct further studies in order to clarify this relationship, and show to what extent EUS can be influenced by the end-users' ISB.

The end-users' strategy(s) in relation to seeking-information can be influenced by the EUS. If it is assumed that as long as end-users adopt an efficient search strategy to find the information required, their level of satisfaction will increase as a result of meeting their requirements. That is confirmed by Gwizdka and Lopatovska (2009) who show that using a non-high research strategy can have a negative impact on the EUS; however, users were less misleading through searching processes. They pointed out that the positive emotions and thoughts prior to and during the search process can reflect positive emotional satisfaction after completing the research. While the findings of Xie and Cool (2009) considered that the end-users, who involved in multi-search strategies in two different digital libraries, were more lost; however, they sought assistance to complete their search. Furthermore, the authors categorised fifteen types that enable beginners to seek assistance, such as identifying relevant digital collections, browsing for information, constructing and evaluating results. In addition, they determine a number of factors that influence assistance seeking which are personal knowledge structure, task dimensions, system design, and interaction outcome. Hence, adopting an effective search strategy and following appropriate processes through information-seeking can increase the EUS level.

Certainly, end-users seek to access and obtain information easily and rapidly (section 2.2.4.3 and 2.2.4.6); thus, they can be more satisfied by providing sufficient and efficient e-/IRs, in addition to being provided with the appropriate equipment to facilitate access. Balatsoukas and Demian (2010) found that end-users were more satisfied with accessing relevant online information rapidly using Relevant in Context (RIC) interface, and with spending a short time to find relevant information. In the Syrian context, Alassaf (2011) realised that the low or non-attendance of SALs were because of the decrease of the level of the EUS with the services performed. Al-Samir (2009) supported that the end-users of the SPALs were not strongly satisfied with the IRs offered due to the lack of e-/IRs provided; thus, their attitudes toward attending their ALs changed. These findings were not confirmed by Restoum and Wade (2013a, 2013b), who reported that end-users were satisfied with the quality of LISs and e-/IRs in terms of the accessibility. They determined that providing the newest and most

valuable collections and information resources will increase the level of satisfaction.

Briefly, conducting further studies to investigate the correlation between EUS and ISB can be valuable in the ALs field. ISB can be an important indicator in assessing the EUS level. In addition, determining their searching strategies can be crucial in responding to their requirements, thereby increasing their satisfaction.

### 2.5.6 EUS and LP

Several attempts have been made to investigate the relationship between the LP and EUS. The findings of these studies are considerably different. A number of studies have stated that no important relationship between EUS and LP was found such as (Dalrymple & Zweizig, 1992), whilst other studies have pointed out that there was a statistically significant relationship between them such as (Ankey, 1991; Kassim, 2009; Kaur, 2010; Kinnucan, 1992; Restoum & Wade, 2013a, 2013b). The relationship between EUS and LP has been discussed in part 2 of this chapter.

The main purpose of ALs is to meet EUERs and satisfy them; thus, it is important to assess the quality of the LISs and e-IRs provided by evaluating the achieved level of the LP. Evaluating the level of the LP is not sufficient without assessing the satisfaction level. It is possible that the EUS level can differ according to their changing needs and/or to what extent the ALs are able to respond to them. In a study that has been carried out in Chang Jung Christian University, Wang and Shieh (2006) demonstrate a considerable constructive influence of LISs quality on EUS. Furthermore, Kassim (2009) points out that end-users were satisfied with the LP in terms of the e-/LISs provided, structures, and the availability of e-/IRs. Also, the study observed that there were important differentiations in the satisfaction level of the aforementioned principles between the participants of the selected faculties. This agrees with the findings of Restoum and Wade (2013a) who revealed a highly significant difference of undergraduates regarding using and finding information due to the results of faculty groups.

Another study has been conducted by Hossain and Islam (2012) to evaluate the undergraduates' satisfaction with the current service performed by Dhaka

Academic Library in Bangladesh. Although they did not report the correlations between EUS, demographic variables and service quality; they concluded that LP could reflect the undergraduates' satisfaction. They stated that the more e-/LISs are able to respond to the undergraduates, the more the level of the satisfaction can increase. Hence, although different studies have shown different findings in terms of determining the relationship between EUS and the LP, evaluating EUS can be important in improving the LP by providing efficient LSs and IRs that meet EUERs.

In particular, the integration between MSM and ESM can be valuable for assessing the LP by applying both models' approaches to investigate to what extent end-users are satisfied with their ALs and their characteristics (Applegate, 1995; Dalrymple & Zweizig, 1992). In the information science field, the correlation between EUS and LP has been explored through two types as follows:

- The first type is based on a presumed equation form: *library performance = user satisfaction.* This form is commonly fostered;
- The second type describes a presumed equation and devises the procedure of the satisfaction creation.

To summarise, it can be significant to identify the relationship between EUS and LP to enhance the e-/IRs and LISs' quality. Furthermore, investigating the satisfaction in both models, MSM and ESM, can be essential to evaluate the level of satisfaction.

### 2.5.7 EUS and Demographic Variables

Demographic variables have been considered substantial characteristics that can influence EUS. Several studies have been conducted to investigate the demographic variables of the end-users, and the relationships between them and other variables (Arishee, 2000; Restoum & Wade, 2013a, 2013b; Shi, 2003; Shi et al., 2004; Yu, 2006). Sandore (1990) points out that there is no difference recorded between students' profiles and students' satisfaction. Whereas, Allen (1989) indicates that 'gender' affected students' satisfaction to a great extent. He states that females hold more positive attitudes in terms of using CD-ROM system. Furthermore, Arishee (2000) illustrates an essential relationship

between EUS and the quality of LISs, IRs and other variables, such as length of stay, native language and English language proficiency, and academic levels of study. In contrast, another study by Arishee shows that there is no statistically significant relationship with EUS in terms of other demographic variables, such as gender, age, and undergraduate major field.

Moreover, Kassim (2009) outlines significant differences in the satisfaction level between the participants and their faculties in respect of structure, IRs, and high quality service. In a recent study conducted by Mirza and Mahmood (2012), the findings concludes that there are significant differences among the EUS with e-IRs and e-LSs and their groups, faculties, experiences, and their purposes of use. The findings of Mirza and Mahmood (2012) are slightly compatible with the findings of Adeniran (2011), who demonstrates that end-user group, gender, facilities and experiences can differently impact on the satisfaction. These findings were in agreement with the findings of Restoum and Wade (2013a, 2013b) that presented a significant difference regarding to e-/IRs in relation to the gender, age, level of education and faculty groups. Therefore, demographic variables should be taken into consideration, since important variables can affect the EUS when ALs seek to evaluate their library performance.

To summarise, EUS is an important indicator in evaluating the quality of the ALs' services, resources and other characteristics. Also, it is an indicator in assessing the libraries' ability to respond to EUERs. Furthermore, integrating MSM and ESM to evaluate the EUS can be crucial in enhancing the level of satisfaction by obtaining feedback about the internal and external factors which can affect it. Moreover, since EUS can be influenced by the EUERs, ISB, the library performance, and the demographic variables, assessing the EUS taking into consideration the relationships with other affected variables can be valuable

## 2.6 Summary

This chapter has discussed different perspectives relating to ALs, especially in the Syrian context. It has reviewed the changes occurring in the ALs' requirements according to different aspects. It presented the main processes and strategies related to seeking information in ALs. Also, it demonstrated the satisfaction models of end-users in ALs, and the relationships between EUS and other variables. The main overviews of this chapter is outlined as follows:

- **Significant development within ALs**: The importance of ALs has been considerably increased, especially in the digital age. ALs have been associated with EP. The adoption of ICT in ALs has led to a change in the role of ALs and academic librarians. ALs have implemented new channels and approaches to access, retrieve and deliver information and services;
- **Significant change in the SHES**: SHES has been affected by a number of social, economic, and political issues which have formulated the current SHES. New modes have been founded to provide efficient SHES. Thus, SPUs were founded in 2003 as a result of the bulky increase of the number of students enrolled in the SGUs, and their inability to respond to all students' requirements;
- **Apparent deterioration in SALs**: SALs have suffered from a number of difficulties and limitations that affected their performance; however, they have provided a set of essential services and e-/IRs. The situation in SPALs was better than what had existed in governmental ones, even though SPALs could not satisfy about half of the end-users.
- **Significant change in EUERs**: EUERs have changed as a result of adopting ICT in the ALs' field, as well as due to changes in the education system. ALs have been considered an educational as well as social place for researching, reading, learning, discussing and meeting friends. The trend of ALs has been to adopt digital, personal and collaborative services, in addition to providing basic services to enhance LP and to fill the gap between the LISs provided and the EUERS. Moreover, providing e-access to the information, training and IL have become essential to meet EUERs, in parallel with providing an qualified staff and appropriate facilities and information technologies;

- **Improvement in the LP assessment**: assessing the LP of ALs is essential to determine the strengths and weaknesses of the ALs; thereby, to respond to EUERs and satisfy them. It has shifted to an emphasis on assessing the outcomes and impacts on education. Additionally, a strong relationship between the LP, EUS, and EUERs has been founded. Interestingly, several challenges and difficulties have been articulated in the literature and in practice. ALs have faced a number of challenges and barriers that were related to the change of the ALs' environment and processes, while others were related to the change of the EUERs and their behaviour in seeking information;
- **Multiple behaviour and relationships through seeking-information**: End-users follow a set of processes and activities during searching and seeking information. Interestingly, there is a relationship between the ISB and the demographic variables;
- **Challenges in EUS**: EUS has become an indicator to measure and increase the quality of the LP in ALs. The integration between MSM and SM is crucial to increase the level of satisfaction. Additionally, the correlations between the EUS with each of the EUERs, end-users' ISB, LP and demographic variables have been addressed.

This chapter highlights several aspects of the literature. Reviewing literature aims to understand the full picture of the research and investigates related studies that help in answering the research questions. Determining the research methodology is important to clarify the way of collecting and analysing data that is the core of answering the research questions. The next chapter discusses the main issues relating to the research methodology

# Chapter 3
# Research Methodology

In chapter 2, the researcher discussed the research background and the literature review in detail, in order to discover the relevant areas of the research. It focused on EUERs in ALs from different angles. Furthermore, ISB, EUS and LP were discussed, showing the relationship between them and other variables. This chapter's emphasis is on discussing the research methodology and methods used to formulate the research. This chapter is divided into three parts. First part includes the background of the research methodology. Second part focuses on how the research has been conducted, while third part demonstrates the ethical issues of the research.

## 3.1 Background of Research Methodology

### 3.1.1 Introduction

This part provides an overview of the research philosophy, research reasoning, and the research strategy and design from the theoretical view. Research methodology has been identified as "a recommended series of steps and procedures to be followed in the course of developing an information system" (Avison and Fitzgerald, 2006, p.567) . The application of research methodology seeks to answer the research questions (Ranjit Kumar & Metzler, 2014), and to achieve the research objectives and aims. Mark Saunders, Lewis, and Thornhill (2009) classify the steps of the research methodology in six layers (Research Onion). Figure 3.1 demonstrates the research onion.

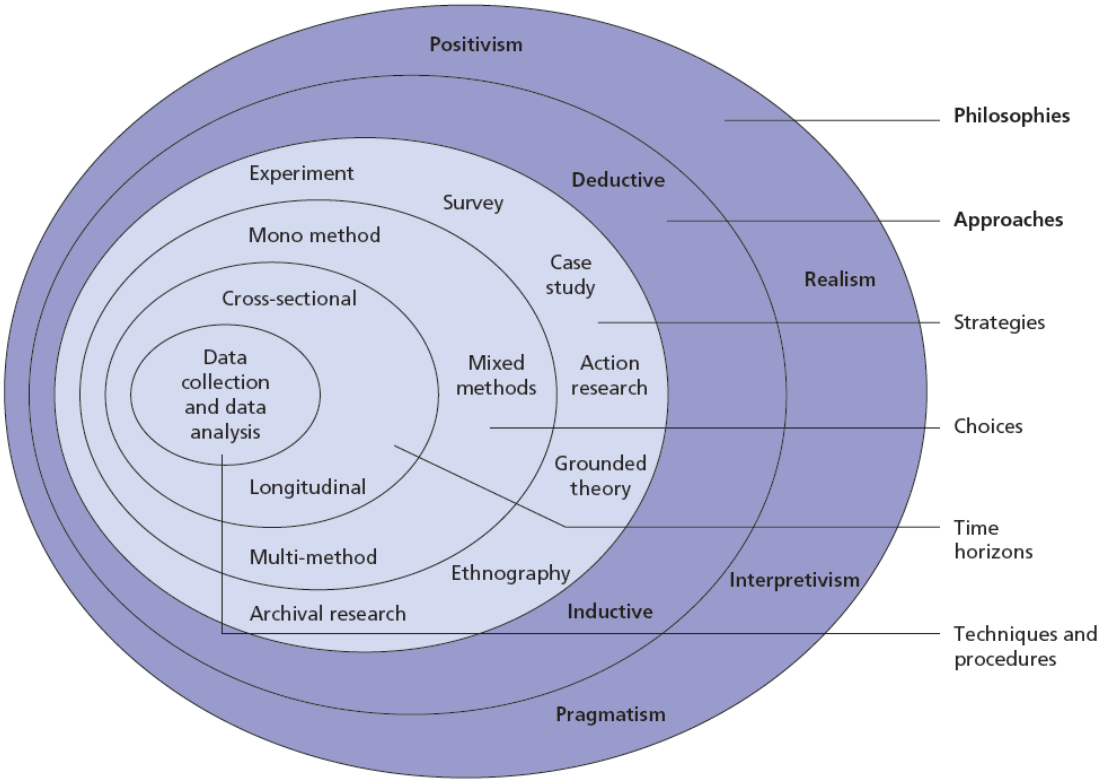


***Figure 3. 1.*** **The Research Onion (Saunders et al., 2009).**

### 3.1.2 Research Philosophy

The research philosophy encompasses important assumptions regarding the researcher approach in viewing the world and the reality (Alexander, Thomas, Cronin, Fielding, & Moran-Ellis, 2009; Collis & Hussey, 2009; Creswell & Plano Clark, 2007; Saunders et al., 2009). The adoption of a philosophical paradigm is crucial in terms of making the idea of selecting research methods and strategies explicit (Creswell, 2009; Slife & Williams, 1995). The research paradigm or "worldview" as it is called by Creswell (2009) is an elementary range of beliefs and thoughts adopted to direct the research actions (Creswell, 2009; Guba, 1990; Guba & Lincoln, 1994). It can be characterised as an ontological question (what is the nature of reality?), an epistemological question (what is the nature of the relationship between the knower and what can be known?), and as a methodological question (how should the inquirer go about finding out knowledge?) (Corbetta, 2003; Guba, 1990; Guba & Lincoln, 1994).

The answers to these three questions can be driven in different ways formulating the philosophical paradigm of the research. For instance, Guba (1990) and Guba and Lincoln (1994) stated that the answers to these questions can be demonstrated in a

Positivism, Post-positivism, Interpretivism, Critical Theory, and Constructivism paradigm, while Creswell (2009) determines four major elements of the research paradigm (Post-positivism, Constructivism, Advocacy/Participatory and Pragmatism) as presented in the table 3.1.

**Table 3. 1.** ***The Major Elements of the Four Philosophical Paradigms (Creswell, 2009).***

| **Post-positivism** | **Constructivism** |
|---|---|
| • Determination<br>• Reductionism<br>• Empirical observation and measurement<br>• Theory verification | • Understanding<br>• Multiple participant meanings<br>• Social and historical construction<br>• Theory generation |
| **Advocacy/participatory** | **Pragmatism** |
| • Political<br>• Empowerment issue-oriented<br>• Collaboration<br>• Change-oriented | • Consequences of actions<br>• Problem-centered<br>• Pluralistic<br>• Real-world practice oriented |

Based on the table above, the paradigm is essential to shape the researchers' beliefs and thoughts, and embrace the type of research (quantitative, qualitative, or mixed methods approach) (Creswell, 2009). Despite the fact that there are a number of similarities and differences between quantitative and qualitative research (Johnson & Onwuegbuzie, 2004), a number of researchers concentrate on the differences between the quantitative and qualitative philosophies more than on the similarities (Cohen et al., 2000; Holliday, 2002; Onwuegbuzie & Leech, 2005; Abbas Tashakkori & Teddlie, 1998). Considering the differentiation and similarities between quantitative and qualitative research enables the researcher to adopt different paradigms. The implementation of the mixed methods approach, embracing quantitative and qualitative approaches, reinforces the strengths and decreases the weaknesses of each method (sections 3.1.7 & 3.1.8). Table 3.2. identifies the characteristics of the quantitative and qualitative research in terms of ontology, epistemology and methodology.

**Table 3. 2.** ***Quantitative vs. Qualitative (developed from Onwuegbuzie and Leech, 2005 and Abdur-Rahman, 2010).***

| | Quantitative | Qualitative |
|---|---|---|
| **The role of theory in research** | Deductive | Inductive |
| **Epistemological orientation** | Naturalist, positivist | Interpretive |
| **Ontological orientation** | Realist | Idealist, constructivist |
| **Characteristics of research approach** | Objective<br>Impersonal<br>Reductionist<br>Generalisation | Subjective<br>Personal<br>Holistic<br>Uniqueness |
| **Type of research** | Explanatory | Exploratory |
| **Type of data collection methods** | Questionnaire<br>Experiments | Interview, observation,<br>Focus group |
| **Type of data analysis** | Statistical | Interpretive |
| **Type of data** | Quantifiers<br>Numbers | Describers<br>Words |

Section 3.2.3 shows and justify the adopted paradigm in this study.

### 3.1.3 Deductive and Inductive Approach

The deductive reasoning approach is applied by proposing a set of assumptions, questions supporting the research conclusion. Conducting quantitative research deductively enables researchers to confirm the relationships between the theory and research starting with evidence then developing theory and generalising results (Bryman, 2008; G. E. Gorman & Clayton, 2005). On the other hand, inductive reasoning is implemented to collect and analyse inductively qualitative data. Evidence and interpretations of results were used to build or develop a theory (Gorman & Clayton, 2005; Holsapple & Joshi, 2002). The use of each one is based on the nature of the aim of the conducted study. In this study, the implementation of deductive and inductive approach has been discussed in section 3.2.3.

### 3.1.4 Research Strategy

A research strategy is a proposed plan that guides a research in collecting and analysing data for achieving targeted aims, objectives, questions/hypotheses, and audiences (Miles & Huberman, 1994). It is the keystone to answer the research

questions by selecting appropriate methods and techniques (Mason, 2002; M Saunders, Lewis, & Thornhill, 2007). Definitely, any methodology(ies) used in the academic research context have their strengths and weaknesses (Avison & Fitzgerald, 2003). Indeed, a Research Strategy is associated with the perception of 'hard and soft' within system theory. Checkland and Holwell (1998) distinguish between 'hard' and 'soft' approaches. The main distinction between both approaches is the consideration of the human and organizational perspective. Hard or structured system thinking focuses on "how" questions (Checkland 1988, p. 242). In contrast, soft or unstructured system thinking focuses on "what and how questions" and investigates problem situations in social contexts such as "organizational structure, employee job satisfaction or professional ethics" (Flynn, 1998, p. 333). In this research, the research strategy has been discussed in details in section 3.2.5. The research strategy has been structured using the tool of the Soft System Methodology (SSM) and case study, and selecting Mixed methods approach.

The next sections provide further information about SSM and its application in the library context.

#### 3.1.4.1 *Soft Systems Methodology*

- ***Background of Soft System Methodology (SSM)***

SSM was developed in the 1960's at the University of Lancaster in the UK by Peter Checkland, who developed a systems thinking, focusing on solving organizational problems, through action research (Avison & Fitzgerald, 2003). P Checkland and J Poulter (2006) assert that "SSM is an organized, flexible process for dealing with situations which someone sees as problematical, situations which call for action to be taken to improve them, to make them more acceptable, less full of tensions and unanswered questions… it is a process based on a particular body of ideas, namely systems ideas" (p. 4). SSM, as a system thinking approach, copes with complex problems via adopting a holistic view as an essential element. It has been initially considered a modelling tool. This consideration has developed to become 'a learning and meaning development tool'. It has been used as a common approach to investigate a complex, fuzzy and ambiguous situations, and is an appropriate tool to establish discussions and arguments (Avison & Fitzgerald, 2006; Checkland, 1981). Producing conceptual models and comparing those models with the real-world are important

components of SSM, based on the understanding of human actions' systems (Checkland & Scholes, 1990; Williams, 2005). This view justifies the application of the SSM's tools to understand, learn, and develop problematic situations.

However, SSM is appropriate to deal with problematic situations and to concentrate on human activities, several authors such as (Bryman, 2008; G. E. Gorman & Clayton, 2005) criticise it. The criticisms stem from its characteristics comprising: 1). SSM is too flexible and wide to the extent that it is difficult to cope with whole views and activities, 2). SSM is unstructured and iterative; involving in developing problem situation leads to create new problem situation, 3). SSM is subjective and soft approach. Building human activities models informally can lead to misinterpretation 4). SSM does not provide critical methods to assess research processes and outcomes. In this research, adopting mixed methods approach was crucial to cover the weaknesses of SSM and to structure and determine the behaviour, experiences and perspectives of the stakeholders.

SSM has stemmed from Information System Development Methodologies (fifth generation); based on various expectations, both in commercial practice and from academic perspectives (Hirschheim, Klein, & Lyytinen, 1995). Interestingly, different representations of the SSM have been developed. Figure 3.2 demonstrates four diverse representations of the SSM based on Holwell's view (1997) (Cited by Checkland, 2002).

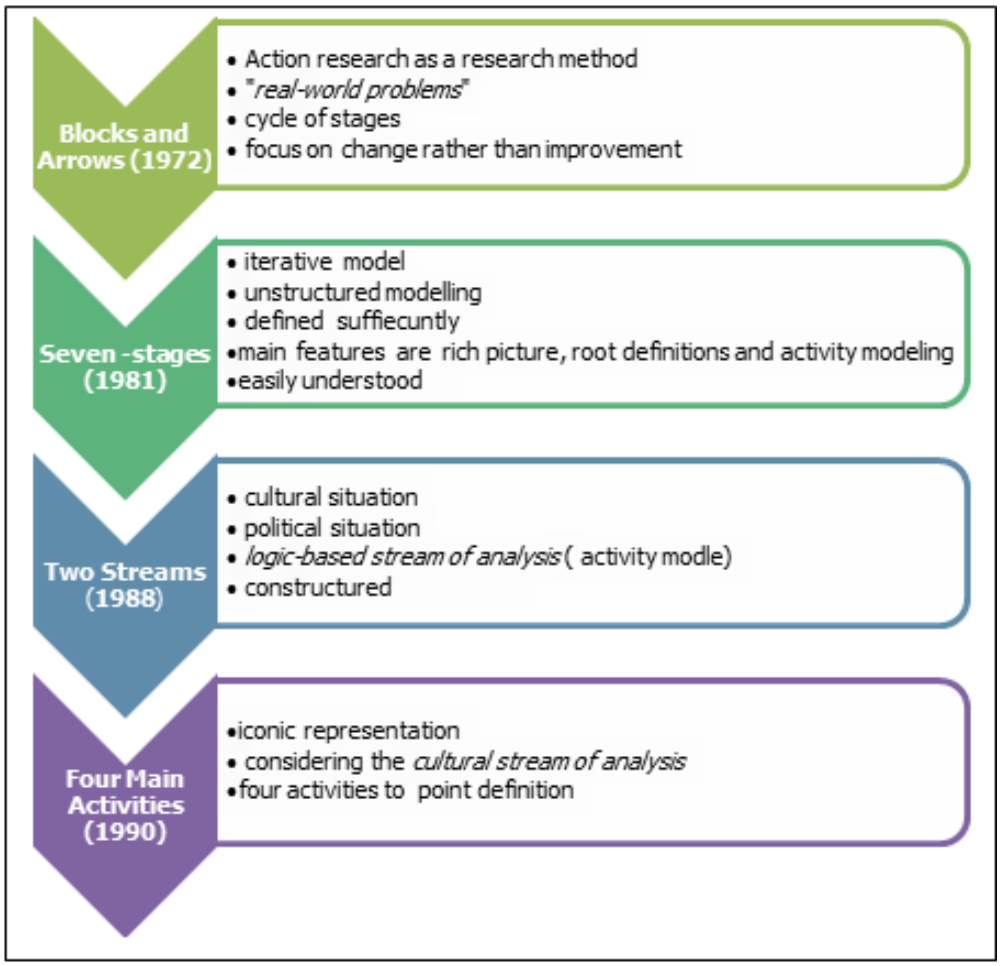


***Figure 3. 2.*** **Holwell's view of the SSM representations (Author's own, 2012).**

The implantation of SSM does not require following all stages. Every application of SSM has it in essence (P Checkland & J Poulter, 2006). SSM contains two types of activities; real-world activity, which is helpful to understand the problem situation by collecting data required to explore the problematic situation and stakeholders' perspectives, and conceptual activities that seek to improve the situation (AlHarrasi, 2015; Yadin, 2013). Yielding these activities is based on using its special tools and techniques (rich picture, root definitions, and conceptual models).

Rich picture is an effective technique that is used to summarise and display schemes, ideas, and activities comprehensively and is visually based on gathering data that identify problematic situations. Developing the rich picture relies on implementing appropriate methods such as questionnaires, interviews, observations and document analysis. Applying rich picture is useful to clarify relationships and conflicts between different variables and stakeholders (Checkland & Scholes, 1990; Underwood, 1996).

Root definition illustrates the process of input-output transformation. It means "a system to do X (what the system will do), by meaning Y (how it is to be done**),** in order to achieve Z (why it is being done)". Checkland and Scholes (1990) suggest that a well-formulated root definition should robustly consider the components of CATWOE (Customers, Actors, Transformation, Weltanscauungen, Owner, and Environment). Identifying the elements of CATWOE mnemonic is significant to create precise and accurate root definitions by expressing the customers who will benefit from the activities (C), the actors who will achieve these activities (A), the owners who will influence change (O), and the different environmental constraints affecting the system. The core of the CATWOE is the process of the Transformations (T) of a purposeful activity from an input to an output, and the worldview (W) which makes T meaningful (Checkland and Scholes, 1990, p. 36).

Conceptual models are diagrams of activities and relationships illustrating root definitions (Checkland, 1999; Checkland & Scholes, 1990). They are built using a set of verbs that should be clear and coherent to simplify the transformation processes and interpret root definitions (Delbridge & Fisher, 2007). Activity models were developed over time, adopting two types of activity system. Firstly, operational activities were constructed in order to generate the transformation to clarify and insure essential requirement to improve the existing barriers. Secondly, monitoring and control operational activities were added by determining the resources to achieve the change, and insure and evaluate the performance of these activities. Assessing the representation of transformation processes is created by adopting the criteria of 3Es (Efficacy "does the means work?", Efficiency "amount of output divided by amount of resources used" and Effectiveness "is T meeting the longer term aim?") (Bergvall-Kareborn & Grahn, 1996; P  Checkland & J Poulter, 2006; Checkland & Scholes, 1990).

After building a conceptual model based on the root definitions, the comparison of conceptual models with real world is required to create a discussion presenting the situation of the real world, and the methods of improving it (P  Checkland & J Poulter, 2006). Such discussion achieved by asking a set of questions " Is the activity presented in the real world? How is it perceived? Should it be achieved? And how should it be provided?". Answering these questions yields a set of recommendations

leading to improve the areas considered problematic of the situation. Improving the areas considered problematic requires implementing change that should be "systematically desirable" and "culturally feasible" (Checkland and Scholes, 1990, p. 36). The change can be in structure, procedures, strategies, attitudes and cultural change (AlHarrasi, 2015).

- ***SSM in the Library Context***

The application of SSM in academic libraries, information systems and the information systems management fields have been articulated in several publications (Chilvers, 2000; R  Delbridge, 2003; Lucian & Syed, 1996; Somerville & Brar, 2009; Underwood, 1996; Zahidah, Noorhidawati, & Zainab, 2011). For instance, Delbridge and Fisher (2007) have utilized SSM to understand the activity of library and information services. The application of SSM to investigate organisational and cultural impact has been addressed. Kirkham (1994) applied SSM focusing on organisational and cultural elements in designing an information system. Moreover, Brown-Syed (1996) used Checkland's SSM to develop an organizational library consortium among a number of different types of libraries. SSM was used to determine the aspects affected the libraries' strengths and increases the number of consortium's users. Interestingly, the application of SSM alongside other approaches can be valuable to obtain further understanding of the situation. Abell (1998) stated that further approaches can be used in tandem with SSM based on the researcher's predilection to increase the understandability of the situation. B. Wilson (2001) reported that situations are varied and an adopted methodology should fit each situation according to its case and analyst.

The attempts to apply SSM in the Arabic libraries were limited. One of these attempts was the attempt of Al-Hassan and Meadows (1994) who implemented SSM to investigate the problem of human resources management in the Kuwaiti public, academic and special libraries. Thus, adopting SSM in libraries provides the researcher with the flexibility and efficiency to solve problem situations in different contexts. Another attempt was conducted by AlHarrasi (2012), who implemented SSM as an interpretive approach to understand and develop the problematic situation of Omani Academic library Collaboration. In this study, as mentioned above, the tools of SSM were embraced to identify the viewpoints of stakeholders in order to

understand the EUERs of the ALs. Also, it was used as a problem-solving tool, and as a fundamental instrument to explore activities, which can improve LISs and support the EP.

Next section highlights the Case Study approach for obtaining a deeper and clearer of the real situation.

#### 3.1.4.2 *Case Study*

In qualitative research, a number of strategies and approaches are adopted. The main five strategies, according to Creswell (2007), are Narrative Research, Phenomenology, Grounded Theory, Ethnography, and Case Study. The aims of using a Case study are to provide a deep interpretation of the real-situation. Yin (1984) identifies the case study as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used" (p. 23). By adopting a case study strategy, researchers have the opportunity to cover different issues and subjects for single or multiple-cases. It is implemented with both qualitative and quantitative research (N. S. R. Walliman, 2006). It is used to investigate the situation, collect data in its real context, and to explain its complexity (Gary, 2004). Adopting the case study strategy is appropriate to investigate the fieldwork that emphasized "how" questions, and to understand the complexity of the real situation. According to Yin (2009) 'How' questions are more explanatory and it probably causes the use of the case study strategy.

Next section illustrates the background of the research design.

### 3.1.5 Research design

Designing research is an important stage of any research journey. It determines what and how methods and techniques are going to be used in collecting and analysing data. The essence of the data collection and analysis depends on the approaches and methods used in order to answer the research questions (Creswell & Plano Clark, 2007). It is important to generate the data that achieves the research goals and objectives (Pickard, 2007). Furthermore, Creswell, Plano Clark, Guttman, and Hanson (2003) and Creswell (2009) have identified four crucial features (timing,

weighting, mixing and theorizing) that should be taken into consideration in designing any research (section 3.2.6).

On the other hand, analysing collected data is important to draw research conclusions by identifying evidence, discovering patterns, testing hypotheses and advancing descriptions. The methods are conducted to reflect the relationships with the research problem, questions and objectives. In addition, it is fundamental to reflect the reason(s) behind the selection, whether it is for measurement, comparison, exploration and/or construction of a theory (Gorman & Clayton, 2005; N. Walliman, 2011).

The next sections present an overview of the mixed methods approach, the methods and processes using in collecting and analysing data.

### 3.1.6 Mixed Methods Approach

The mixed methods approach has been widely used in diverse disciplines, as an efficient research choice, to obtain deeper understanding of the phenomenon under investigation (Bryman, 2008; Creswell, 2009; Flick, Kardorff, & Steinke, 2004; Ghauri & Grønhaug, 2005; R. B. Johnson & Onwuegbuzie, 2004; Onwuegbuzie, Turner, & Johnson, 2007; Pickard, 2007; Punch, 2005; Saunders et al., 2007; Veal, 2005). The implementation of mixed methods approach varies according to the research problem and the researcher's view of the problem. It is conducted sequentially in phases, whether it begins with a quantitative approach followed by qualitative, or vice versa, or at the same time (concurrently) regarding the research problem(s) and questions (Creswell, 2009; Creswell & Plano Clark, 2007; Creswell et al., 2003; A. Tashakkori & Teddlie, 2008).

Using the mixed methods approach helps in answering the different research questions (Creswell & Plano Clark, 2007; Tashakkori & Teddlie, 2008), and to provide further evidences to understand different variables (Ranjit Kumar & Metzler, 2014).

Although adopting the mixed methods approach has several advantages in terms of flexibility, the ability to provide further evidence, and the capability of dealing with complex situations and responding different questions and objectives (Bryman, 2008; Creswell, 2009; Flick et al., 2004; Ghauri & Grønhaug, 2005; R. B. Johnson &

Onwuegbuzie, 2004; Ranjit Kumar & Metzler, 2014; Onwuegbuzie et al., 2007; Pickard, 2007; Punch, 2005; Saunders et al., 2007; Veal, 2005); several criticism were addressed. Embracing the mixed methods approach requires extra time, effort, financial resources, and different populations. It requires obtaining different skills in order to collect and analyse data quantitatively and qualitatively, and to deal with conflicted data (Alexander et al., 2009; I. M. Johnson, Newton, R. and Reid, P, 2004; Ranjit Kumar & Metzler, 2014). Regardless of these criticisms, mixed methods approach is the most used approach in the research. It is essential to develop the research, increase validity and reliability, and generate new ways of thinking.

The next sections discuss the quantitative and qualitative research approaches theoretically, while Part 2 of this chapter provides detailed information of the research data collection and analysis.

### 3.1.7 Quantitative Research

The core of quantitative research is the collection and analysis of data in a numeric format. Quantitative research is used to measure different variables and to investigate the relationships between them using determinant instruments and techniques that provide numerical and statistical data Creswell (2009). The quantitative approach conducts to test and confirm the research hypothesis and questions with the notions (Johnson & Onwuegbuzie, 2004). It is concerned with collecting statistical, measurable and generalizable data from large numbers of participants (Bryman, 2008).

#### 3.1.7.1 *Quantitative Data Collection*

Questionnaire has been adopted in this research to collect quantitative data. Commonly, the questionnaire is the main instrument used to collect quantitative data in academic research (Bryman, 1989; De Vaus, 2002). It provides statistical depictions of a population's perspectives and behaviour by investigating a sample of the population under study (Creswell, 2009). By using the questionnaire, a researcher becomes more familiar with the participants, is more able to contact a large group of members, and spends less money (Losee et al, 1993; Pickard, 2007). Critically, not all authors agreed with this perspective. Several authors have criticised it, such as (Gillham, 2000a, 2000b; Gorard, 2003). Gorard (2003) argues that the questionnaire

is not sufficient for collecting precise data. He claims that more valuable is added to the questionnaire by combining it with other methods for more reliability.

Online survey is another common tool used in collecting quantitative data. It is adopted to reduce and manage the risk that might face the researcher during the distribution of a printed questionnaire. Cheapness is another reason for adopting this format. Additionally, other reasons were taken into consideration such as rapidity and accessibility into databases for analysis (David & Sutton, 2011; Sharp, Rogers, & Preece, 2002).

Questions can be designed using closed questions "Yes or No" to obtain clear and determinant answers (De Vaus, 2002), multiple choice questions to give participants the opportunity to select all related choices, and/or a five-point scale based on the Likert approach to identify the ordinal attitudes of undergraduates and their level of agreements (Gorard, 2003).

Piloting the quantitative research is a crucial process in conducting academic research. The pilot study is conducted to reduce any ambiguity from research tools by running a preparatory analysis, and increase intelligibility and clarity (Cohen et al., 2000; Robson, 2002; Teijlingen & Hundley, 2001). (Bell, 1999). It is required to increase the validity of the collected data in order to answer the research questions (David & Sutton, 2011, p. 272).

Furthermore, sampling is a vital procedure for selecting a representative group of the whole population under the investigation (De Vaus, 2002). It aims to reduce time, efforts, and expenses with respect to the collected data to achieve the research aims (Robson 1993 cited at Alfrih, 2010). In turn, generalizing research findings is an important reason for sampling. Indeed, sampling can be conducted in two different types: probability (random, systematic, stratified or clustered selection), or non-probability sampling (convenience, snowball or quotas approach) (Corbetta, 2003; Gorard, 2003). The research sampling and distribution are provided in section 3.2.8.1

#### 3.1.7.1 *Quantitative Data Analysis*

Statistical Software Package for Social Science 18.0 (SPSS) that is considered the most popular for managing and analysing a large collection of the quantitative data (Blaxter, Hughes, & Tight, 2010). The quantitative data can be analysed either using

parametric approaches or non-parametric methods according to the nature of the data (ordinal, numeric, or scale) (Bryman, 2008; Bryman & Cramer, 2005; Connolly, 2007; Kinnear & Gray, 2010).

### 3.1.8 Qualitative research

The main principle of qualitative research is based on exploring the social problems of individuals or groups textually. Qualitative research has been summarised by Creswell (2009) as "Exploring and understanding the meaning individuals or groups ascribe to a social or human problem. The process of research involves emerging questions and procedures; collecting data in the participants' setting: analysing the data inductively, building from particulars to general themes; and making interpretations of the meaning of the data" (p. 232). Thus, adopting qualitative research reflects the social reality of the individuals and the subjective meaning of respondents. Furthermore, the implementation of the qualitative approach reinforces the research especially when combined with a quantitative research approach (Bryman, 2008; Corbetta, 2003). Quantitative approach is essential to expand and deepen the understanding of the phenomenon under investigation (Brophy, 2008; Glazier & Powell, 1992).

#### 3.1.8.1 *Qualitative Data Collection*

Using qualitative collection methods is important to collect in-depth data answering research questions. Observation, interview, and focus group are the main methods using to collect qualitative data (Corbetta, 2003), in spite the interview is still the commonest usage in qualitative research. Flexibility is the main characteristic of conducting the qualitative interview. The researcher has had the opportunity to add, modify or omit some questions to expand the clarification for participants (Brophy, 2006; Bryman, 2008; Robson, 2002).

Researchers can conduct the interviews using different types of interview (structured, semi-structured, and unstructured) regarding the degree of flexibility (Corbetta, 2003) (Arksey & Knight, 1999; Patton, 1990);. A structured interview refers to a set of planned questions prepared for all respondents in the same order. According to Corbetta (2003), it is "a questionnaire with open questions" (p. 269). In contrast, a semi-structured interview can be a check-list or a list of general questions outlining a specific topic. In this type of interview, the researcher is free to formulate the

conversation, as he/she wants, and to clarify unclear answers (Drever & Scottish Council for Research in Education, 1995). In the unstructured interview, the interviewer does not restrict themsleves to a determined form or content. Interviews can be conducted in different formats. In this type, the interviewee is free to develop the interview's themes as he/she wants (Corbetta, 2003; Gillham, 2000b, 2005; May, 2001).

Although semi-structured interview is conducted adopting different methods (face-to-face, telephone, and email), face-to-face method is still the most common used methods for a number of reasons. Firstly, conducting face-to-face interviews increases the interaction between the interviewer and interviewee to answer the questions asked directly by carrying out a purposed conversation (Robson, 2002). Secondly, considering the interviewee's interest is easy and the ability to raise their interest is available through the immediate interaction. Furthermore, it enables the interviewer to consider the interviewees' interaction and the change of their feelings and emotions such as the tone of the voice, body language, and facial expression (Arksey & Knight, 1999; Opdenakker, 2006). The face-to-face interview is flexible and adaptable method to collect data according to the interview atmosphere (Bell, 1999; Drever & Scottish Council for Research in Education, 1995). However, face-to-face interviews have a range of advantages, it confronts several criticisms (Bryman, 2008; Gillham, 2005; Opdenakker, 2006). These criticisms are related to the consumption of time regarding preparing, scheduling, conducting, transcribing and analyzing data (Smith, 1995) Conducting face-to-face interviews is expensive especially when it requires travelling to diverse places (Opdenakker, 2006).

Piloting qualitative research is useful in terms of determining the difficulties, replacing with alternatives, and revealing the research design and methodology (Janesick, 1998). It is essential for the interviewer to interact with the experiences of the informant; consequently, actual interviews would be more controlled and convenient for both the interviewer and the interviewee (Teijlingen & Hundley, 2001). Piloting semi-structured interviews is important to clarify any ambiguous questions, and to expand the validity of the collected data by revising, modifying, or omitting unacceptable questions (Gillham, 2005).

Saturation is the main principle of qualitative research (Hennink et al., 2011). Hence, conducting qualitative research should be carried on until reaching to the saturation. Using a digital voice recorder is crucial to increase the voice quality and to capture the richness of the conversation (David & Sutton, 2011, p. 126).

#### 3.1.8.2 *Qualitative data analysis*

Since qualitative research involves complex data, it is believed that using special analytical software adds value for more precise analysis by organizing, inquiring, modelling, and presenting data (Bazeley, 2007; Bazeley & Richards, 2000; Gibbs, 2002). NVivo software is one of the most used software in analyzing qualitative data (Matthews & Ross, 2010). In the qualitative research, coding is significant to group, classify, implement the themes generated on transcribed data, and to create a manageable and systemic guide to the vast amount of transcript data (Arksey & Knight, 1999; David & Sutton, 2011). Moreover, embedding the emotions and feelings of the interviewees could assist in understanding their attitudes, extending the meaning of the interview (Ezzy, 2010). Furthermore, Matthews & Ross (2010) confirm that it is essential to interpret the analysed data and present the findings concentrating on the themes regarding answering the research questions. They indicate that organizing, coding, interpreting the qualitative data, creating memos are important to remind the researcher with notes and concepts of interest.

## 3.2 Research Methodology Employed

### 3.2.1 Introduction

This part illustrates the steps and reasons behind the decision-making regarding the selection of the research methodology. It justifies the research philosophy and approaches adopted. Furthermore, it addresses the research strategy and choices regarding the processes of designing, piloting, and sampling, distributing and conducting the research methods.

### 3.2.2 Decision Making

After selecting the topic of interest and identifying the research problem, it was crucial to determine the precise research methodology, which should formulate and guide the research in order to answer the research questions and to gain accurate outcomes. The stages and the justifications of the decision-making are presented in Table 3.3 as follows:

**Table 3. 3.** ***Steps of Decision-making.***

| Steps | Description |
|---|---|
| **Identifying Research Problem** | • Reviewing literature and other related publications, based on the researcher's interests and background;<br>• Selecting the topic of interest (LAIU) for a number of reasons;<br>• The main emphasis was on investigating what are the exact EUERs, and to what extent they were satisfied;<br>• Transforming a set of questions, and dividing the problem into sub-problems;<br>• Exploring the elements of the problem such (satisfaction, and EUERs). |
| **Gaining Required Information** | • Determining essential skills needed to conduct the research (the skills of research design, data collection and analysis, research's development and self-development and writing up);<br>• Identifying the similarities and differentiations of stakeholders regarding the complex and fuzzy problem situation by analysing gathered data. |
| **Producing Potential Solutions** | • Reviewing the philosophies and theories of methodologies related to the research<br>• Discovering the methodologies implemented in the area of librarianships and information science, such as Action Research, Grounded Theory, Soft Systems Methodology (SSM), and Case Study. |
| **Assessing the Provided Solutions** | • Evaluating methodologies by adopting a number of common criteria; the selection of the research methodology was based on the principles such as correlation and comparisons between reviewed methodologies (Hansson, 1994);<br>• Considering that the application of seldom used methodology might be an opportunity to obtain significant outcomes. |

| | |
|---|---|
| **Selecting an Accurate Proposal for Presentation (Justifications)** | • The decision was made to apply mixed methods approach in order to increase the benefits, reliability and validity of collecting and analysing both the quantitative and qualitative data (section 3.1.6 & 3.2.7);<br>• The decision was made to implement the tools of the SSM in order to identify the fuzzy and complex situation of the LAIU, and to explore the perspectives of different stakeholders who influenced on the situation. SSM can be valuable to investigate the human and cultural elements affecting the LAIUs by collecting considerable data and learning from the worldviews. SSM comprises a number of techniques such as "Rich Picture" and "Conceptual models" that assisted the researcher to map the situation in order to identify and understand the problem situation holistically and precisely (chapter 6, 7 & 8). It highlights the weaknesses and deficits of the existing system in order to develop the LP based on the stakeholders' perspectives;<br>• The application of case study strategy- this research emphasizes on investigating a single case study; which is LAIU. Thus, implementing a case study strategy was important to obtain in-depth details of the library, and investigate it in a real context; for better understanding. |
| **Applying the Decision** | • The combination between three approaches in this research is useful to expand the understanding of the real situation under investigation, to obtain the advantages of all approaches, and to reduce the weaknesses of each approach. |

In summary, making the decision to select an appropriate research methodology was fundamental to identify the research problem, gain required information by determining the problem situation and required skills, and produce the potential solutions by reviewing the related publications. In addition to assessing the solutions by comparing the reviewed methodologies, selecting the most appropriate methodology was selected and then applied.

### 3.2.3 The Philosophy of Methodology Employed

In this research, the philosophical paradigm is adopted to structure the researchers' thoughts, and embrace the research type (section3.1.2). Thus, pragmatism paradigm is implemented relying on the mixed methods approach. The adoption of the pragmatism paradigm, in designing and explicating the research ideas and methods, is justified as following:

- Pragmatism is not devoted to one system of philosophy and reality. It applies to different assumptions and paradigms of the research.
- Pragmatism gives the researcher the opportunity to combine different methods together in order to collect and analyse data for better understanding of the research problem.
- The researcher is free to select the methods and approaches that are the best to respond to her research aims and objectives.

- Pragmatism occurs in social, political and other contexts. It underpins the flexibility of the mixed methods approach

Thus, this research was formulated relying on a pragmatism paradigm because of its flexibility in combining different methods, and its nature of viewing the real world of the situation under investigation. The combination of different methods was important to obtain different philosophical rationales, and to apply different approaches to collect and analyse data in terms of answering the current research questions. Answering the research question relies on the assumption of positivist, realist and objective (Quantitative approach), interpretive, constructivist, and subjective (Qualitative, SSM and case study).

### 3.2.4 Research Reasoning

This research was conducted by adopting two reasoning methods (deductive and inductive) aiming to achieve the aims of this study (section 3.1.3). The deductive approach was adopted to test the research questions by investigating the interaction between the end-users and their LAIU, and illustrating to what extent the LAIU was able to understand and meet its EUERs in the educational context. It was important to provide evidence that would confirm the relationships between the end-users and their LAIU (chapter 8 & 9).

On the other hand, The inductive approach was applied to gain an extensive picture of the real world of the LAIU. Using the tools of SSM significant to explore the world-views of four different stakeholders (chapter 6 & 7). Using the inductive approach enabled the researcher to develop and generalize her conclusion for all SALs that operate under the same conditions. Hence, both deductive and inductive reasoning approaches were adopted in this research to provide efficient evidence to support the research questions and assumptions, find relationships between variables, and to interpret the research results.

### 3.2.5 Research Strategy Adopted

In this research, several approaches are combined aiming to obtain efficient answers to the research questions “what exactly do the end-users require from the ALs to support their EP and to be satisfied?” and “what do they actually receive?”. Rating questions such as “how do you rate?” were provided to gather quantitative data (section 3.1.7),

aiming to assess the LP of LAIU and the EUS. On the other hand, perspective questions such as “what/how do you think?” were provided to collect qualitative data (section 3.1.8) based on respondents’ subjectivity. Furthermore, the implementation of SSM and case study were necessary to gather and analyse accurate data from different perspectives and angles, and to interpret the human interaction and the perception of human activity systems based on different world-views of different stakeholders (section 3.1.4)

The tools of SSM (section 3.1.4.1) were conducted as a part of the methodological framework formulating this research in order to investigate the real world situation of the LAIU. The implementation of the these tools was helpful to understand the holistic situation of the LAIU, to consider problematic areas of the situation based on different stakeholders, and to propose appropriate conceptual models aiming to improving the performance of the situation. Making the changes with the problematic situation was done by comparing conceptual models with the real world situation.

A single case study strategy was implemented combined with the tools of SSM to obtain a fuller picture and deeper investigation of the real situation of the LAIU, and about the end-users and the library staff’s perspectives and expectations. Furthermore, adopting the case study strategy assisted the researcher to understand the complexity of the real situation, and to answer the ‘How’ question: “How can the LAIU develop the LP to meet the EUERs and support the EP?”.

After adopting the research strategy, it was essential to establish the research design in order to determine the research processes as illustrated in the next section.

### 3.2.6 Research Design Established

A number of methodological strategies and methods were reviewed in terms of designing the study under investigation. Much attention and effort was drawn to establish an appropriate research design using different methods and techniques to answer the research questions (section 3.1.5). In this study, the choice was to implement a mixed methods approach (section 3.1.6) to understand the EUERs, and to assess the relationship between different variables. The combination of quantitative and qualitative data was embraced to obtain a better understanding of the research problem, by converging numeric trends with textual-detailed data. Using the mixed methods

approach was essential to support the research strategy by avoiding the weaknesses of each method, and increases the benefits, reliability and validity of collecting and analysing. Indeed, numerical data were collected using a self-administered questionnaire (section 3.2.8) designed by the researcher herself. The quantitative approach assisted specifying the boundaries of the research problem, and determining the variables that may affect undergraduates and academics through their use of the library, its resources, and services (section 3.1.7). In contrast, conducting a qualitative approach using a semi-structured interview technique generated a textual, rich and detailed data of librarians and administrators (section 3.1.8). The results of quantitative and qualitative approaches were integrated in order to innovate a conceptual model aiming to improve the library performance of the LAIU. Figure 3.3 illustrates the research design and processes of the mixed methods approach in terms of answering the research questions.

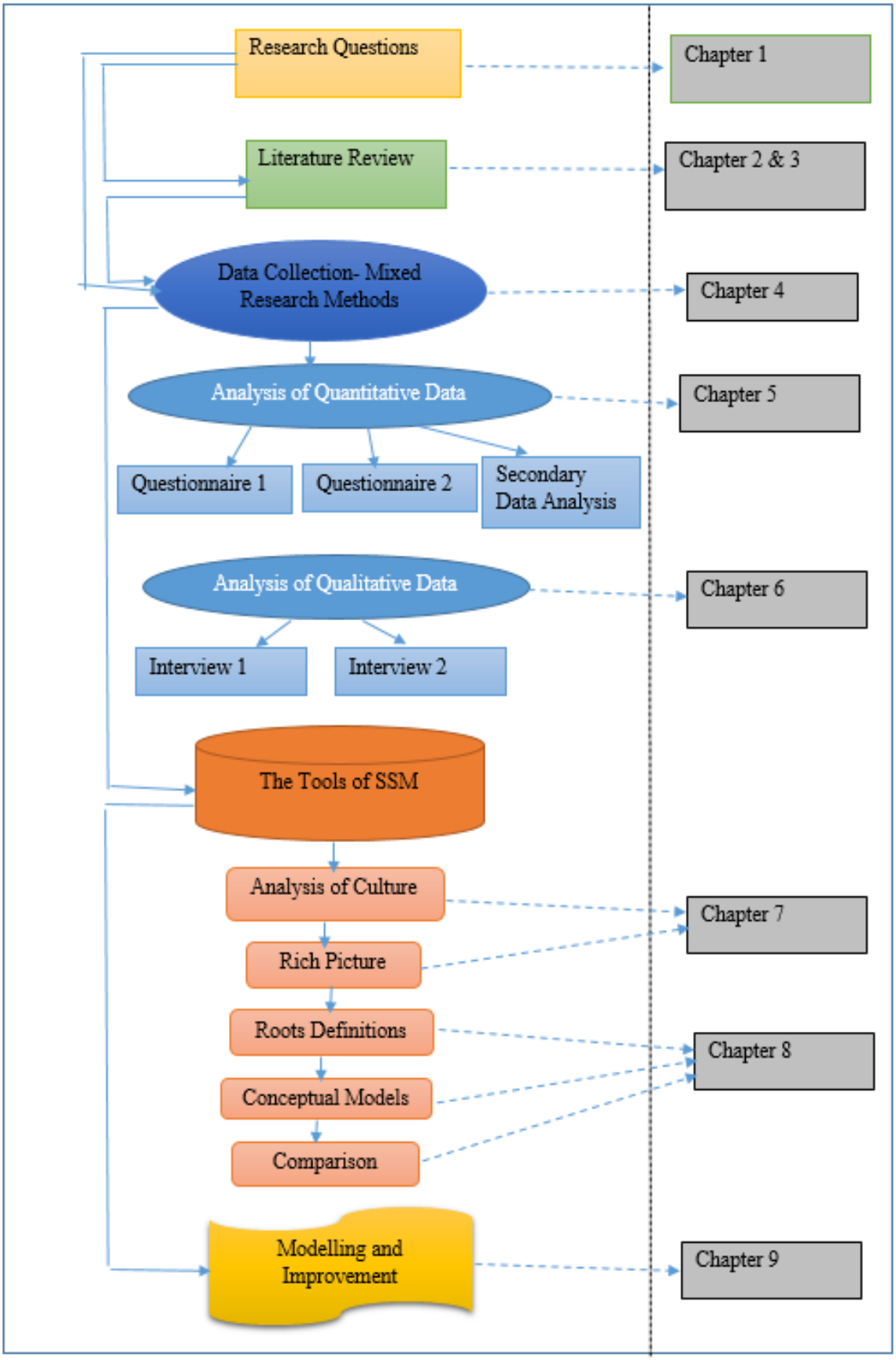


***Figure 3. 3.*** **Research Design (Author's own, 2012).**

Four crucial features (timing, weighting, mixing and theorizing) were taken into consideration in designing this research. Initially, timing was presented sequentially in four phases. It referred to the way of collecting data. Critically, weighting revealed the priority to conduct the research quantitatively, followed by collecting qualitative data. The results of the first and second stages were used to formulate the questions of the third stage; however, the participants of each stage were different stakeholders. Essentially, the first phase included designing and distributing printed questionnaires to a targeted number of undergraduates, while the second phase consisted of designing and distributing an online survey (smart-survey) to all academics of LAIU. The third phase aimed to design and conduct a number of interviews with the librarians and administrators to investigate their perspectives and identifying the caps between their perspectives and end-users one. Fourth phase was carried out to analyse secondary statistics collected from the LAIU and related websites, as shown in Figure 3.4.

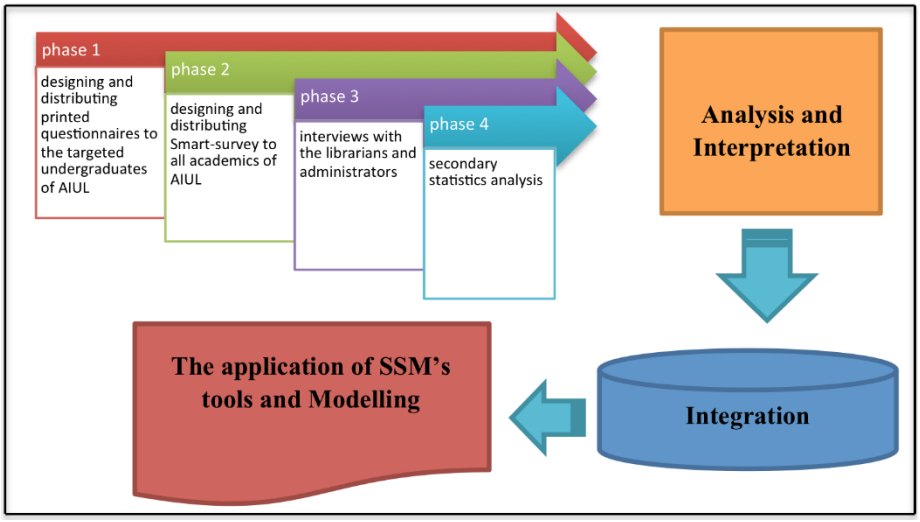


***Figure 3. 4.*** **The Phases of Data Collection**

Mixing elucidated when and how the integration of qualitative and quantitative data raised. The integration was achieved in the interpretation stage; the consequent results of the quantitative and qualitative data were combined in order to determine the similarities and differences between different stakeholders' perspectives. Furthermore, theorizing was adopted to generate a framework and theory that explicates the processes and procedures of the researcher. The researcher discussed all the processes and procedures related to

the research framework and theory, such as the research strategy (section 3.2.5), the participants involved in the study, and the tools and techniques used for collecting and analysing data (sections 3.2.8 and 3.2.9).

In this research, data were analysed quantitatively and qualitatively using PASW 18.0 and NVivo 10.0 (sections 3.2.8.2 & 3.2.9.2).

The next sections present the methods and processes used in collecting and analysing data.

### 3.2.7 Mixed Methods Approach

Because of the complexity of LAIU's situation and the involvement of different groups of stakeholders, selecting one approach was not sufficient. Thus, adopting the mixed methods approach using different methods and techniques was required, in this study, to answer the different research questions and to provide a broader view of the phenomenon, and to understand the themes and variables under investigation. A quantitative research approach was adopted, using questionnaires, to collect statistical data from a large number of end-users (undergraduates and academics) in the LAIU, and over a short period. Furthermore, secondary statistics collected from the LAIU was carried out as well to explore the library usage and EURs (appendix 2). On the other hand, a qualitative approach was embraced to investigate the perspectives of the library staff (librarians and administrators).

The implementation of the mixed methods approach was essential to develop the research, where one method was utilized to enhance others, increase validity and reliability, collect deeper data, and generate new ways of thinking via realizing the appearance of new perceptions and oppositions.

The next sections discuss the processes and methods that were used sequentially, starting with quantitative research, followed by qualitative research.

### 3.2.8 Quantitative Research

In this study, the quantitative approach was conducted deductively (section3.2.4) to measure statistically different variables (satisfaction, library

attendance, EUERs, and LP), to investigate the relationships between different themes, and test the research questions with the notions. The next sections provide in-detailed information of qualitative research in terms of qualitative data collection and analysis and their related processes.

#### 3.2.8.1 *Quantitative Data Collection*

In the first stage of the current study, a printed questionnaire was implemented to collect statistical data from the undergraduates of LAIU, while an online survey was carried out to collect quantitative data from the academics in the second stage. Both questionnaires were applied to produce objective data to investigate to what extent the LAIU was able to understand and meet the EUERs and to what extent they were satisfied with its performance. The processes of designing, piloting and sampling are discussed in more detail below.

- ***The Questionnaire of Undergraduates***

Both questionnaires of undergraduates and the academic were implemented, following same processes and order. Figure 3.5 present these processes and order.


***Figure 3. 5.*** **The Processes of Collecting Quantitative Data**

The processes of the undergraduates' questionnaire were summarised as follows:

- **Questionnaire Design**

The first stage of this research included the design of a printed questionnaire aiming to investigate the undergraduates' interaction with their LAIU, their satisfaction, and their preference for using IRs and LISs' formats in order to understand their expectations and requirements. The questionnaire was initially designed and distributed as a web-form, using the Survey-Monkey technique, in 7/6/2010. Choosing web-form was based on a decision of the LAIU's president; as an easy form to be sent via emails to the participants, but

unfortunately, no significant responses were recorded. Two months later, the questionnaire was redistributed using a Microsoft-Word-form attached to undergraduates' university emails, as recommended by the director of the IRD, but just 12 questionnaires were returned. Finally, a printed format of the questionnaire was distributed to the sample of the study by the researcher herself after obtaining permission from the Ministry of the SHE to conduct the questionnaire. The researcher considered that meeting participants face-to-face and distributing the printed format of the questionnaire would be appreciated in terms of interacting with the undergraduates involved in the investigation, and motivating them to fill the questionnaire by discussing and explaining several issues related to them. Additionally, it was useful to communicate with them directly and receive their perspectives and suggestions.

The printed questionnaire was distributed during the period 7th to 15th October 2011. It was written and distributed in English, as English is the main language adopted in teaching and the learning processes. The questionnaire was designed to take approximately 10 minutes to complete. It was divided into seven sections; each section concentrated on one area to clarify all associated issues, and included a brief introduction explaining the aims of each section, in addition to a general introduction in more detail regarding the research purpose and aim (Appendix G1). Each section sought to answer a group of questions related to one area of research as follows:

- **Section one**- concentrated on investigating the undergraduates' interaction with the LAIU by asking the participants about their physical attendance, frequencies of attendance, time spent in the LAIU, and their alternative sources to gain information;
- **Section two**- focused on identifying the undergraduates' requirements of their AL, by asking them about their general requirements of the LAIU, the main factors affecting them in their selection of e-/IRs, and the most LISs usage and needed to improve their EP.
- **Section three**- focused on measuring the level of the undergraduates' satisfaction with different characteristics of LAIU;

- **Section four**- aimed to investigate the ISB of the undergraduates by asking the participants which kind of services they prefer and the reasons for this preference;
- **Section five**- targeted to discover all challenges and difficulties facing them in relation to their use of LAIU;
- **Section six-** emphasised on obtaining the undergraduates' perspective of providing VRSs;
- **Section seven**- highlighted the demographic variables from the participants such as their age, gender, their level of study, and their faculty.

Questions were designed after reviewing related literature to clarify previous and associated overviews. Closed questions using "Yes" or "No" were implemented to obtain clear and determinant answers, while multiple choice questions were also adopted, giving participants the opportunity and freedom to select all related choices. In addition, a five-point scale based on the Likert approach was used in order to identify the ordinal attitudes of undergraduates and their level of agreements. This variety of questions required various answers in order to identify different research variables. Moreover, the research contained two kinds of variables. Dependent variables referred to the undergraduates' interaction with the LAIU, EUS, EUERs, ISB, LP, and undergraduates' preferences of LISs, while independent variables expressed a demographic profile such as age, gender, and the level of study.

- **Pilot Study**

In this study, the piloting was conducted to reduce any ambiguity from research tools. The questionnaire of undergraduates was piloted with a sample of 10 postgraduates from the Huddersfield University, who have studied library and information science or related sciences. For more accuracy, the questionnaire was piloted again with 30 of the undergraduates of the AIU from different faculties.

After probing the responses from the pre-testing, some questions were modified, based on the feedback obtained from the pilot study for better understanding. For instance, the researcher recognised that a number of the undergraduates were unfamiliar with some librarianship terminology in English

(Q14), therefore, she provided their equivalent meaning in Arabic. Furthermore, she realised that there were a number of undergraduates who could not differentiate between the VRSs' types in (Q19); thus, she provided them with a short, simple description for each type. Additionally, several undergraduates wrote their secondary schools' names when they were asked for their school name (Q24); thus, this question has been modified to be "faculty" instead of "school". As the questionnaire was distributed in a printed format, it was easy to explain a number of questions that were not clear enough to a number of undergraduates who had difficulty understanding the English version. Hence, piloting the questionnaire was essential to clarify the ambiguity of any question, and to obtain various perspectives of pilots in order to fill the gaps and develop the questionnaire.

- **Questionnaire Sampling and Distributing**

In this research, undergraduates (from the first year to the fifth year) were selected as the target population. The clustered sampling approach was implemented. Since the AIU consists of six faculties, each faculty was considered a unit (group). Selecting all faculties was important to obtain findings from different groups, and to compare these findings. The comparison of the findings was essential to investigate to what extent faculties can affect the participants. Moreover, adopting this type of sample provided findings from a large number of participants in a short time and with minimum effort. The number of distributed questionnaires was varied from one Faculty to another, based on the actual number of students in each faculty.

In addition, a non-probability sampling approach was adopted for each group. A convenience sample was created in this phase as an easy and convenient approach to recruit participants. The researcher distributed the printed-format of the questionnaire in person. In fact, the questionnaire was distributed during the period between 7th and 15th October 2011. The distributions were sometimes conducted in their classrooms, in small groups out of classrooms or individually. The total of 228 were collected. Table 3.4 shows the numbers of distributed and returned questionnaires for each faculty of the AIU.

**Table 3. 4.** ***Undergraduates' Questionnaire Distributed & Returned by Faculty.***

| | Distributed Questionnaire | Collected Questionnaire | Missed Questionnaire |
|---|---|---|---|
| **Pharmacy** | 65 | 60 | 5 |
| **Fine Arts** | 23 | 19 | 4 |
| **Business** | 60 | 52 | 8 |
| **Architecture** | 29 | 27 | 2 |
| **Informatics and Communication Engineering** | 52 | 49 | 3 |
| **Civil Engineering** | 23 | 21 | 2 |
| **Total** | **252** | **228** | **24** |

- ***The Survey questionnaire of Academics***

As conducted in the first phase (the questionnaire of undergraduates), the all of six faculties were included in the investigation. Investigating all faculties was important to obtain findings from different groups, and to compare these findings (see the questionnaire of undergraduates). This survey was conducted in the same way of conducting the questionnaire of the undergraduates (see Figure 3.5).

- **Survey Design**

The data from academics were collected using a survey questionnaire approach. The survey was designed for the second phase of this research using an online survey (Smart-Survey software). The decision was made by the researcher to implement the online survey due to the political crisis confronting Syria; to reduce and manage the risk that might face the researcher during the distribution of a printed questionnaire.

The smart-survey was launched and distributed to the academics of the LAIU via their university's email account, after obtaining permissions from the IRD and the University of Huddersfield. It was launched from 14th January until 14th March 2012. The justification behind launching the survey for two months was due to the poor quality of the Internet in Syria, students' exams, as well as the fluctuating political situation. The survey was designed in English as a result

of the AIU's strategy of teaching in English. Moreover, there were a number of academics who were from other countries whose mother tongue is English.

The purpose of the survey was to understand the academics' expectations and requirements from the LAIU by investigating their interactions with the LAIU, their awareness and satisfaction, and their behaviour. Thus, the survey was divided into 8 sections with an introduction about the research purpose and aim (Appendix G2). The sections (from one to six) were similar to the questions of the undergraduates' questionnaire; including the same questions. In this survey, an additional section (section seven) was added to identify the academics awareness of the ALs' role in supporting the EP. Furthermore, section eight was designed to address the demographic variables of the participants (similar to section seven of the undergraduates' questionnaire).

The questions of this survey were designed following the same structure of the previous questionnaire. It contained closed questions, and multiple responses using a Likert scale. This variety of questions was adopted for the same aim as the undergraduates' questionnaire: to identify dependent and independent variables of the research.

- **Pilot Study**

Ten postgraduates of Huddersfield University piloted the survey. The goal behind choosing the postgraduates for the piloting was because they are familiar with the librarianship domain and research methods and processes. It was useful to gather their perspectives about the survey design and its comprehensibility and accessibility. Furthermore, the survey was piloted by the director of the IRD and five of academics in the AIU. Since the undergraduates' questionnaire was piloted, and since the majority of questions in this survey were similar to the first one, no change or modification was required; it was definitely clear for all pilots and ready to distribute.

- **Survey Sampling and Distributing**

This survey was distributed to all academics (205 members), both part- and full-time. A total of 30 surveys (15%) were returned. The proportion was acceptable because it represented all AIU's faculties, and there was no great differentiation

between the proportions in each Faculty in terms of the numbers of responses. The percentages of the responses were between 11% - 19% of each faculty. Furthermore, it was expected that the average response might be low due to the overloading working time, and as a result of the political crisis in Syria. The slowness or disconnection of the Internet and the mentality of the participants were other causes affecting the responses. Accepting this proportion was crucial to understand the commonalities or/and differentiations between undergraduates and academics requirements. Table 3.5 demonstrates the rate of academics' responses according to their Faculty.

**Table 3. 5.** ***Academics' Questionnaire Distributed & Returned by Faculty.***

| Faculties | Distribution of questionnaire | Collection of questionnaire |
|---|---|---|
| **Pharmacy** | 45 | 6 |
| **Art** | 25 | 4 |
| **Business** | 35 | 6 |
| **Architecture** | 21 | 4 |
| **Information and Communication Engineering** | 56 | 6 |
| **Civil Engineering** | 23 | 4 |
| **Total** | 205 | 30 |

The focus of this study was to investigate the end-users' (undergraduates and academics) perspectives in terms of identifying and understanding their expectations and requirements, their interaction and ISB, their satisfaction. Additionally, the focus was made to discover the challenges and difficulties facing them during their library usage. Table 3.6 shows the main principles articulated in the questionnaires alongside the related questions

**Table 3. 6.** ***The Main Principles of the Questionnaires***

| Principles | Undergraduates' questionnaire | Academics' questionnaire |
|---|---|---|
| **End-users' interaction** | Q1 – Q2 – Q3 – Q4 | Q1 – Q2 – Q3 - Q4 |
| **EUERs and library quality** | Q5- Q6 - Q7- Q8 | Q5- Q6 - Q7- Q8 |
| **EUS** | Q9- Q10- Q11 - Q12- Q13 | Q9- Q10- Q11 - Q 12- Q13 |
| **End-users' ISB** | Q14 - Q15 - Q16 | Q14- Q15- Q16 |
| **Difficulties** | Q17 | Q17 |
| **Providing VRS and its opportunities** | Q18 - Q19 | Q18 - Q 19 |
| **Support learning environment** | | Q20- Q21- Q22 |
| **Demographic variables** | Q20 - Q21- Q22- Q23 | Q23 - Q24- Q25- Q26 |

Both questionnaires followed the same structure of design, covering several points. They enclosed a set of similar questions, while a number of questions were different to fit with different groups of stakeholders.

- ***Secondary Data Analysis***

Secondary data were concentrated and presented in appendix 2 as follows:

- A number of reports and articles published by the University itself on its website and others browsed on other websites. The documents provided were important to provide rich insight to the university's culture and policy;
- A number of statistics were collected from the LAIU including the attendance of the library, the access of e-/IRs, and the use of e-LISs and other facilities. These statistics were crucial to investigate the EURs, ISB, and EUS with the LAIU;
- Statistics of AIU's Facebook page that reflected the 'likes' of users were analysed covering the period (January-June 2013). Presenting and analyzing these statistics provided a view of the impact of social media networking in increasing the numbers of ALs' users.

After investigating the methods and techniques of collecting quantitative data, the analysis and presentation of these data are discussed in the next section.

#### 3.2.8.2 *Quantitative Data Analysis*

The data collected from both questionnaires were analysed using Statistical Software Package for Social Science 18.0 (SPSS). The questionnaires comprised two types of questions: dimension questions and personal information. For the undergraduates' questionnaire, the collected data were analysed in a number of phases. Firstly, the responses were appropriately recorded and categorized, then, the data were entered into the computer via statistical package PASW version 18.0. The data were analysed using two statistical procedures: explanatory analysis and statistical tests. On the other hand, the smart-survey used to collect data from the academic provided frequencies analysis directly. For further analysis, the data were transferred to PASW software, version 18.0, in order to conduct statistical tests, and to find the differences and compare between the variables. Finally, Excel Microsoft office was used, in both questionnaires, to demonstrate the results using its chart features, while tables presented using Word Microsoft office.

Before showing the statistical methods, it was useful to define the extension of coding regarding responses to items of dimensions. In this study, a typical scale was followed. For instance, "most important, important, I do not know, less important, and unimportant". As a result, the responses were coded accordingly: most important = 1, important = 2, I do not know= 3, less important = 4 and unimportant= 5. The following shows how to define the extension of these scales in order to measure the response to each item. The extension was determined by 5-1 = 4 to identify the length of each scale. The research computed 4 / 5 = 0.80. Thus, the upper limit for each cell was determined by adding 0.80 to the code of agree, neither, disagree and strongly disagree. Table 3.7 demonstrates the range for each scale.

**Table 3. 7.** ***The Demonstrations' Range of Options Scale.***

| | | | |
|---|---|---|---|
| **1.00 to 1.80** | Excellent | Most important | Always |
| **1.81 to 2.60** | Good | Important | Often |
| **2.61 to 3.40** | No opinion | I do not know | No opinion |
| **3.41 to 4.20** | Fair | Less important | Seldom |
| **4.21 to 5.00** | Poor | Unimportant | Never |

Since the data of interest were ordinal, then it was not appropriate to apply parametric approaches, thus non-parametric methods were implemented. In this context, non-parametric tests were adopted: Chi-square, Wilcoxon rank sum test, Mann-Whitney test and the Kruskal-Wallis one-way analysis of variance by ranks.

- **Chi-square-** was used to compare between observed and expected frequencies.
- **Mann-Whitney-** was used to rank data for two groups and the hypothesis evaluated whether the median of the difference scores for the two groups equals zero;
- **Kruskal–Wallis one-way analysis of variance-** was used to test whether the samples belong to the same distribution. It is applied to compare more than two independent groups of samples. The null hypothesis is that the populations of underlying samples have the same median. When the Kruskal-Wallis test leads to significant results, then at least one of the groups is statistically different from the other. The test does not spot where the differences occurs or how many differences in fact happen

The collected data were analysed using a number of statistical tests. The findings of the quantitative analysis are presented later (Chapter 4). The following sections discuss the methods and process of collecting and analysing qualitative data.

### 3.2.9 Qualitative Research

A quantitative approach was adopted alongside the quantitative approach to expand and deepen the investigating and the understanding of the real-world situation, and collecting rich and textual data. In this context, semi-structured interviews were conducted with the librarians and administrators of the LAIU

in order to collect in-depth data about the LAIU's functions, the librarians and administrators' perspectives of the LP, and the end-users in relation to their requirements, ISB, and satisfaction.

The next sections discuss the design, pilot, and delivery of the semi-structured interviews conducted for both the librarians and administrators of the LAIU.

#### 3.2.9.1 *Qualitative Data Collection*

In this study, the decision was made to conduct a semi-structured interview due to:

- Conducting an official discussion on a decided topic by collecting in-depth qualitative data from the respondents (librarians and administrators);
- Creating a flexible general structure by the researcher herself based on a range of questions. The flexibility was in terms of formulating further individual communications with respondents, and its ability to clarify a number of themes in order to understanding the respondents' perspectives, thoughts and experiences
- Covering the topic of discussion comprehensively and answer the questions deeply;
- Combining diverse types of questions in the same interview (opened and closed questions).

- ***Face-To-Face Semi-Structured Interviews***

Face-to-face interviews for both librarians and administrators were carried out for a number of reasons (section 3.2.9), in the same processes and order, through the following stages. See figure 3.6.

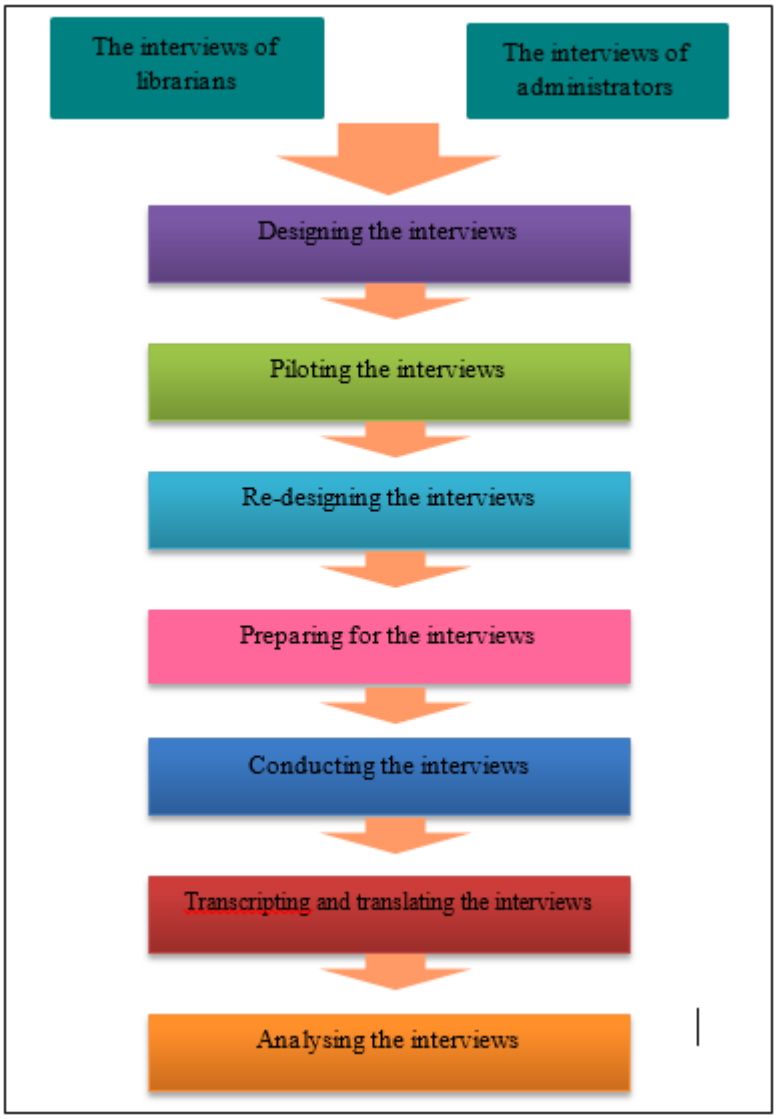


***Figure 3. 6.*** **The Processes of Collecting Qualitative Data.**

- **Designing The Semi-Structured Interviews**

Face-to-face semi-structured interviews were designed to collect detailed data from two stakeholders (the librarians and the administrators of the LAIU). The aim of the interviews was discussed above. In this study, the interviews were designed based on reviewing a considerable amount of related literature (Brophy, 2006; Bryman, 2008; Corbetta, 2003; King & Horrocks, 2010; Opdenakker, 2006; Robson, 2002; J. A. Smith, 1995; Teijlingen & Hundley, 2001). Indeed, the interviews were designed to take into consideration providing a general introduction describing the purpose of the study, the purpose of the interview, and the outcomes of the collected data. The interview was designed starting with personal information introducing the interviewees themselves in

order to reduce stress and increase confidentiality. For more convenience, it was built to gather a general overview of the LAIU. The purpose was to make the interviewees more comfortable to share their stories. The body of the interviews was designed to collect the core data by implementing essential questions that answer the research questions (Appendix H1 & H2).

The interviews were generated to gather the data of “How” and “What” questions in order to explore their perspectives in depth. Furthermore, the indirect questions such as “Do you think?” and “Would you like” were also used to encourage respondents to tell their stories and share their experience responsively, and to express and reflect their perspectives spontaneously. On the other hand, the questions with just “Yes” and “No” answers were avoided to motivate the interviewees responding using their own words and expressions. However, the interviews were concluded with the question “Would you like to add any further information?”, closing questions were undertaken to slow-down the interview before leaving the respondents

The semi-structured interviews were designed to take approximately 50-60 minutes. The drafts of the interviews were written in English first, to be checked by the supervisors; then, they were translated by the researcher into Arabic in order to conduct the interviews straightforwardly and comfortably with the interviewees. Since two copies of the interviews were adopted (Arabic and English), the researcher compared the interviews and by two other researchers in the same domain of research who speak both Arabic and English. The comparison was made to evaluate any differences between them. The interviews for both the librarians and the administrators were correlated in several points. For example, what their expectations of the end-users’ needs are, which kinds of training courses they conducted, and what their suggestions of the development are. However, they differed in other points. For instance, the librarian interview focused on the e-/LISs and e-/IR provided, while the administrator interview emphasized the library management system adopted and its strengths and weaknesses.

- **Piloting Interviews**

The semi-structured interviews were piloted to clarify any ambiguous questions, and to expand the validity of the collected data. It was conducted in order to revise, modify, or omit unacceptable questions. The interviews were scrutinized by the supervisors and by four colleagues who have studied library and information science. Moreover, the librarian interview was tested with two librarians of the AIU, while the administrator interview was piloted with one administrator of AIU. The respondents were informed from the beginning that the aim of conducting these interviews was for piloting. The participation in this process was voluntary.

Piloted interviews were conducted using face-to-face methods. Notes were taken during the interviews for further improvement. The interviews were recorded using a digital voice recorder (OLYMPUS WS-110) for a high quality recording. They were transcribed into Arabic verbatim, and then translated to English. The collected data were analysed thematically. The pilot showed that there was a requirement to reword or reformat several questions. Also, it was necessary to clarify, modify, or/ and add a number of questions that the researcher had not taken into consideration, such as investigating the importance of linking the LAIU with Facebook. Furthermore, the respondents were asked to give feedback about the interview questions, processes, and the atmosphere. Even though piloting was conducted in this study, its findings were ignored because the goals of the piloting were to realise and determine the weaknesses of the interview design and questions, and to develop them as required.

- **Preparing for the Interviews**

Initially, the permission to conduct the interviews was obtained from the University of Huddersfield (section 3.3.2). In addition, the agreement of the director of IRD was obtained to facilitate the interviews. The director of the IRD was the “gatekeeper”, who has the authority and knowledge about the respondents’ abilities and responsibilities. He selected the respondents involved in, and made the initial contact with them. He assisted the researcher in

accessing the phenomena under investigation, and in identifying and motivating the community members for more participation.

Due to the political crisis facing Syria at that time, and because of the high risk confronting the researcher through her journey to the University, the gatekeeper scheduled the interviews for two days; thus, the interviews were conducted in 21st and 22nd May 2012. He divided the interviewees into two groups. Each group consisted of five members. He determined the times and places as shown in table 3.8 below. An announcement was sent to all of the respondents by their official email, and to the researcher as well to inform them about the time and place.

***Table 3. 8. Schedule of Interviews.***

| Days | Respondents | Locations | Time |
|---|---|---|---|
| Monday 21/05/2012 | P1 | Internet lab | 8:30 |
| | P2 | | 9:30 |
| | P3 | | 10:30 |
| | P4 | | 11:30 |
| | P5 | | 12:30 |
| Tuesday 22/05/2012 | P6 | Automation Unit | 8:30 |
| | P7 | Automation Unit | 9:30 |
| | P8 | Internet lab | 10:30 |
| | P9 | Internet lab | 11:30 |
| | P10 | Internet lab | 12:30 |
| | P11 | The director's office | 13:30 |

- **Conducting the Interviews**

Despite the main principle of qualitative research being saturation, the saturation principle was ignored due to the small number of respondents involved in the library. Eight out of nine librarians participated. It was important to investigate the experiences of the librarians who were working in the different unites and branches of the library. Just one librarian was neglected as she was in a training period, and she did not have sufficient experience to share. In the case of administrators, just the two administrators were working in the ATSU; thus, it was important to investigate their experiences and thoughts. Additionally, interviewing the director of IRs department was essential for sharing his experience and knowledge about the LAIU, especially as he was

working as an administrator as well, and as he controlled all human resources and library's branches involving in the Information Resource Department (IRD).

Initially, the researcher introduced herself to the interviewees, and explained the purpose of the research and the interview. She identified the aims of collecting data, which would be used solely for academic purposes. She summarized the purpose of the generated findings. Furthermore, ethical issues were taken into consideration (section 3.3.2). The interviewees' permission was taken for conducting and recording the interviews. Before starting the interviews, each interviewee read and accepted the information sheet and signed a consent form (section 3.3.2.2) for convenience and to make them aware of their rights throughout the interview.

The interviews were conducted and recorded in Arabic using a digital voice recorder (OLYMPUS WS-110) to increase the voice quality and to capture the richness of the conversation. The librarian interviews were conducted in the Internet Laboratory of the Central Library of the AIU, while the other interviews for the administrators and the Director of IRD were conducted in their offices. Each interview lasted approximately fifty to sixty minutes. Further questions emerged during the interview to clarify a number of ambiguous issues.

In summary, the interviews were designed and organised following several stages, starting with identifying the research aim and objectives, selecting the interview technique, designing the interviews, identifying the interviewees, piloting, conducting and recording the interviews, in addition to analysing and reporting the findings (section 3.2.9.2).

#### 3.2.9.2 *Qualitative data analysis*

The processes of analysing qualitative data started with transcribing and translating conducted interviews. Similar processes of data analysis were carried out for both groups of interviews. The interviews were entirely transcribed into Arabic verbatim, and then translated to English using Microsoft Word. Ethical issues were taken into consideration at this stage as well (section 3.3.2.3). Transcribing and translating the interviews assisted the researcher in

understanding the meaning of the interviews' contents. Moreover, interpreting and reporting the findings was necessary to present the impressions and the subjectivity of the respondents.

In this study, NVivo 10.0 software was adopted to analyse semi-structured interviews, following a thematic analysis approach to identify, analyse, interpret, and report the main concepts and patterns of qualitative collected data. The data were coded by creating preliminary keywords detecting the themes. Furthermore, inductive codes were created through gathering and preliminary understanding of the data. The codes were generated initially from the research questions and the data collected. Moreover, a number of codes/themes and sub-themes emerged through the process of coding (appendix I). The codes or 'nodes' as they are referred to in NVivo, were modelled in order to express the themes and the relationships between them. Nodes were constantly retrieved and developed in order to present the reliability and validity of the analysis.

Through the analysis process, the researcher retrieved the recorded interviews in order to address the emotional impact of the interviewees. The analysed data has interpreted and the findings has presented concentrating on the themes regarding answering the research questions. Even though the qualitative analysis was employed for organizing, coding and interpreting the data, several memos were created and attached to a number of nodes to remind the researcher with notes and concepts of interest (section 3.1.8.2). Additionally, since NVivo 10.0 software provided the opportunity for modelling and frequencies, a number of numerical analyses, namely frequencies, were correspondingly applied in the interview analysis in order to identify the percentage of librarians versus administrators, or male versus female and so on.

The next part discusses the trustworthiness of the research in terms of reliability and validity.

### 3.2.10 Trustworthiness of research

Trustworthiness of research refers to the terminologies of validity and reliability that reflects the significance of the research. Testing the process of collected data is important to evaluate and judge the quality of the research regarding the

reliability and validity (Bell, 1999; Hines & P, 2006). Validity means that the methods adopted in the research should explore or assess what it is presumed to explore or assess, while reliability investigates the accuracy of the data produced by implementing these research methods (Cryer, 2000; R. Kumar, 1999).

A discussion of reliability and validity was undertaken to guarantee the optimal credibility and trustworthiness of the research.

### 3.2.11 Reliability

Particular attention was paid to consider the reliability of this study. According to Kirk and Miller (1986), reliability is "the extent to which a measurement procedure yields the same answer however and whenever it is carried out" (p.19). For quantitative data, Cronbach's Alpha (α) is the most common statistical instrument used to assess internal consistency reliability of test or scale (Aron, Aron, & Coups, 2005; Tavakol & Dennick, 2011). The value of Alpha coefficient is expanded from 0 to 1. The majority of researchers accept the range of 0.7 to 0.9 (Aron et al., 2005; Hair, Black, Babin, Anderson, & Tatham, 2006; Tavakol & Dennick, 2011). In this study, the reliability of the pilot of the undergraduates' questionnaire was assessed by adopting Cronbach's Alpha, using PASW version 18.0. Table 3.9 demonstrates a number of the reliability findings of the undergraduates' 'pilot questionnaires

***Table 3. 9. Cronbach's Alpha Test***

| Scale | Cronbach's Alpha |
|---|---|
| The importance of selecting e-IRs | .769 |
| Finding information | .809 |
| Preferring e-IRs | .735 |
| The importance of the e-LIS | .797 |

Furthermore, the reliability of the academics' pilot survey was not determined due the survey was distributed to the whole number of the academic of the AIU, and because there was a major similarity of questions between both questionnaires. On the other hand, qualitative data were planned to recheck,

reword, remove or add some questions on small selected groups to measure the consistency and stability of the research. Additionally, reliability was taken into consideration in this research through designing, sampling, collecting, recording, analysing and interpreting the data (Lewis & Ritchie, 2003) (sections 3.2.8 and 3.2.9).

### 3.2.12 Validity

Assessing validity is an important element of any academic research. M Saunders et al. (2007) claims that validity is "concerned with whether the findings are really about what they appear to be about" (p.149). Since this research was undertaken implementing a mixed methods approach, the findings were integrated and complemented each other in order to decrease weaknesses and increase the validity (Bryman, 2008). In this context, the validity of the findings was improved by exploiting the strengths of each applied method (Greene, Caracelli, & Graham, 1989). Furthermore, Assessing the validity was essential to enhance the research by investigating diverse characteristics of the situation from different stakeholders' perspectives for inclusive understanding (Arksey & Knight, 1999). The research processes reflected the flexibility of preparation, explication, piloting and modification that reinforced the research validity (Teijlingen & Hundley, 2001). It was crucial to illustrate the research questions and the purpose of involving them in this research.

For the quantitative data, the questionnaires were designed and structured logically. They were associated with the research objectives. They were designed to reveal the meaning of the research questions (Bryman, 2008). The questionnaires' sampling improved the validity. It assisted in generalizing the findings for the LAIU and other SPUs in the same position (Lewis & Ritchie, 2003). On the other hand, for qualitative data, both interviews were designed and piloted. The validity was influenced by adapting the translation-driven choice, which was based on re-checking, consulting and piloting the translation in order to reduce probable weaknesses (Birbili, 2000).

Critically, all questionnaires and interviews were revised and consulted. Piloting the study was important to clarify ambiguous questions or ideas. For more validation and accuracy, the feedback from the respondents and other

colleagues was gathered. Since the comparison was done via different stakeholders' perspectives, corroboration and triangulation were taken into the consideration in order to increase the validity (Silverman, 2000).

## 3.3 Ethical Considerations

### 3.3.1 Introduction

In this part, ethical issues are taken into consideration to add more value to the research. A brief summary outlining this chapter is provided.

### 3.3.2 Ethical issues

Ethical considerations arise commonly through involving human subjects in research. The terminology of "ethics" derives from the Greek expression "ethos", indicating characters or customs. Ethical considerations point out the significance of the questions which reflect judgemental and personal perspectives (Hitchcock & Hughes, 1989); however, they are realised in qualitative research rather than quantitative (Henn, Weinstein, & Foard, 2006). They can arise and influence at any stage of the research or from any related issues (Cohen, Manion, & Morrison, 2000; Henn et al., 2006). The principles of ethical issues differs among authors (Hammersley & Traianou, 2012; Miles & Huberman, 1994; Orb, Eisenhauer, & Wynaden, 2000); however, Oliver (2003) categorises ethical issues into three groups regarding the time of conducting the search (before, during, and after gathering data). Since it is claimed that ethical issues emerge at any time of the research, the researcher was aware of considering ethical issues emerging at all research stages. Initially, all the resources, used in this research such as e-journals, e-books, printed journals and books, were referenced accurately based on APA 6th referencing style.

Even though the ethical considerations of any research emphasises the relationships between the researcher's activities and his/her themes or people (Gary, 2004), researchers draw more attention to the participants rather than themselves in the design stage. Indeed, ethical issues are realised more in social research that deals with people (Bassey, 1999). Thus, the main focus, in the current study, was on recognising and controlling the ethical issues at the stage of data collection. On the other hand, the ethical issues related to the researcher herself were taken in concentration through all the research. The researcher did

not face any challenges or barriers in terms of ethical concentrations of culture and religion; nevertheless, a number of studies have had difficulties and reservations about conducting academic studies in Arab countries related to the aforementioned issues (Al-Fattal, 2010; Kruckeberg, 1996; Salha, 2011).

Briefly, a number of ethical considerations were taken into consideration to determine and guide the research by adopting ethical protocols throughout the whole research process, in order to reduce harm to both the participants and the researcher herself, and increase the confidentiality and security. Hence, a number of ethical considerations were articulated such as MRS code of conduct 2005, information sheet and informed consent, confidentiality and anonymity, and security and privacy.

#### 3.3.2.1 *MRS code of conduct 2005*

In this research, seeking permissions to involve participants was an important principle. Two permissions were obtained from the University of Huddersfield. Permissions were gained to collect data from the stockholders of the LAIU (Appendix D & E). Since the research was conducted in Syria, it was necessary to adopt the ethical guidelines created by the Syrian MoHE. In addition, it was essential to follow the ethics of the AIU as a private university. The researcher presented the permissions to the Director of IRD at AIU, and also obtained his permission to interview the librarians and administrators. Indeed, all interviews were recorded using a voice recorder (OLYMPUS WS-110) to pay full attention to the interviewees, their answers and behaviour, and to increase the validation (D. Burton & Bartlett, 2005; David & Sutton, 2011).

#### 3.3.2.2 *Information Sheet and Informed Consent:*

Undertaking the principles of the “information sheet and informed consent” was essential to reduce the risk of harm to both the participants and the researcher (Curtis & Curtis, 2011). In the quantitative context, the participation of the stakeholders was voluntarily. Initially, the researcher introduced herself and provided them a short oral description in tandem with a written information sheet (the introduction of the questionnaires) about the research objectives, purposes, time required to conduct the questionnaires and the outcomes of the

collected data. However, both questionnaires contained an introductory description of the research aim, purpose and outcomes; informed consents of the questionnaires were obtained. For the questionnaire of the undergraduates, the informed consents were gained orally due to the enormous number of distributed questionnaires, while they were obtained by emails from the AS.

In contrast, for the interviews, the researcher contacted the director of IRD, "gatekeeper," who identified the potential respondents, and provided the researcher with access to the library's community (Henn et al., 2006). He selected the respondents, the date and the places to conduct the interviews (section 3.2.9.1). As in the previous stage, the researcher introduced herself and provided a short explanation regarding the research objectives, purposes, time required and the outcomes of the collected data. Furthermore, she provided the interviewees a written information sheet (Appendix F). Subsequently, she gained the interviewees' permissions by requiring their signature on the written informed consent to start conducting and recording the interviews for more accuracy and credibility (King & Horrocks, 2010). She informed them about their right to have a copy of the recorded data, and their right to reject any question or withdraw from the interview at any time without the need to justify their decisions. Additionally, she provided them with her contact details for any further information. Thus, the informed decisions of the respondents were performed regarding these information (Curtis & Curtis, 2011; Henn et al., 2006).

#### 3.3.2.3 *Confidentiality and Anonymity*

The researcher was aware of the importance of adopting confidentiality and anonymity. Hence, all participants were informed that the collected data would be used solely for academic purposes, and not to harm them (Curtis & Curtis, 2011; Hennink et al., 2011), and would be used fairly and legally. This provided the researcher with the opportunity to deal with the participants easily and honestly. The researcher sought to avoid doing them any harm physically or mentally. Since the nature of the research was far from any socially sensitive issues and merely reflected their work experience, it was easy for them to share their work experiences and relate their stories.

Protection data were another important issue that was taken into account. The researcher drew more attention to control and maintain the personal information of all participants involved in this study. For instance, in the questionnaires, personal information, such as the name and email address, was optional for increased confidentiality, while the identification information of the interviewees was ignored and symbols were replaced (P1, P2, P3, so on). Certainly, participants were informed that all their personal information would be ignored through transcribing, collecting, analysing and reporting processes. Furthermore, the interviews were conducted individually for more confidentiality. The researcher met each interviewee separately to obtain his/her perspective without other's influence. The interview was carried out based on open-ended questions and the interviewee had the opportunity to express his/her perspective comfortably.

#### 3.3.2.4 *Security and Privacy*

Security and privacy were other issues articulated in terms of considering the ethical issues of the research. As mentioned above, the collected data was used solely for academic purposes. For instance, in the distributed questionnaires, the demographic data such as age, gender, and type of study was taken into consideration to identify to what extent these variables affect other variables, while other personal information such as name and email address was ignored for more privacy. Also, security and privacy issues were considered in the processes of conducting the interviews. Since the data collected for this research could not be transcribed instantly, the researcher kept all the tape recordings in a safe and secure place until she was able to transcribe them. Moreover, the researcher paid attention to controlling and maintaining the personal information of the involved participants. The issue of integrity was also considered in terms of stating the independent position of the researcher, and reporting respondents' perspectives without any bias to any group.

On the other hand, the researcher was aware of her personal safety issues. Due to the political crisis facing Syria, the researcher paid attention to the transportation issue. Since the AIU is located out of Damascus, on the international road linking Damascus and Daraa, the researcher moved to and

from the University many times via the University transportations, where there were regular buses to facilitate the academic staff, employees and students, moving from different areas in Damascus (from 7.30 am to 5.00 pm).

## 3.4 Summary

In this chapter, a number of principles relating to methodological issues were discussed. This section summarises the main viewpoints of the chapter as follows:

- **The adoption of multi-methodologies and strategies:** The processes of making the decision, in terms of selecting the most appropriate methodology answering the research questions, were outlined and determined. The decision was made to adopt the case study approach combined with the mixed methods approach. The tools of the SSM were implemented for several reasons;
- **Pragmatism paradigm**: this research was formulated undertaking the pragmatism paradigm due to its flexibility in combining different methods, and its nature of viewing the real-world of the situation under the investigation;
- **Deductive and inductive reasoning approaches**: they were embraced to provide efficient evidences to support the research questions and assumptions and to interpret emerged results;
- **Different methods of collecting data**: The quantitative data were collected using a printed questionnaire to gather data about the undergraduates, while a survey questionnaire was distributed to collect data about the academics; aiming to investigate and understand the EUERs, ISB, and Satisfaction. On the other hand, the qualitative data were collected by conducting face-to-face semi-structured interviews with the librarians and administrators of the LAIU; aiming to collect in-depth data about the librarians and administrators' perspectives of the library performance, and about a number of issues relating to the end-users' use of the library;
- **Different methods of analysing data**: the collected data from both questionnaires were analysed statistically using SPSS software 18.0. Three non-parametric tests were adopted to investigate the relationships between

variables. Excel and Word were used to present the analysed data in charts and tables. In contrast, the qualitative data were thematically analysed using NVivo 10. 0;

- **Increasing the value of this research**: The validity and reliability were checked and assessed to increase the significance of the research by testing the processes of collecting data;
- **The consideration of ethical issues:** ethical issues were considered at different stages of the research. The principles of the ethical issues were considered thoroughly in terms of espousing MRS code of conduct 2005, providing an information sheet and informed consent, ensuring confidentiality and anonymity, and security and privacy.

The next chapter discusses the findings of the quantitative analysis. The results of both questionnaires for the undergraduates and academics are articulated.

# Chapter 4
# Analysis of End-Users' Questionnaires

## 4.1 Introduction

Chapter 3 presented a full picture of the research methodology adopted in the current study, highlighting the paradigm, strategy, design, and methods used in collecting and analysing the data. Additionally, ethical issues were taken into consideration. This chapter presents and interprets the findings of both questionnaires distributed to the end-users who were involved in this study. The end-users consisted of undergraduates and academics, both full and part time. The purpose of these questionnaires was to understand the EUERs of LAIUs. Understanding EUERs was achieved by investigating their interaction with the LAIU's services and resources, determining their requirements, evaluating their satisfaction, measuring the LP regarding their perspectives, determining their ISB, and identifying the main problems facing them through their use.

Furthermore, it was important to investigate the awareness of the academics toward e-LISs and identify their roles in supporting and motivating their students. Demographic data were also taken into consideration in terms of age, gender, level of study/experience, and faculties. To investigate to what extent demographic variables can affect end-users in terms of their use of the LAIU, a number of non-parametric tests (Chi-square, Wilcoxon rank sum test, Mann-Whitney test and the Kruskal-Wallis) were conducted to determine a statistical degree of significance (section 3.2.8.2).

The data were analysed by applying PASW software 18.0 to analyse and present results, while Excel 2010 was used to formulate the figures, and Word 2010 was utilized to format the tables of the PASW's results.

## 4.2 Participants' Profile

Participants' Profile of end-users was taken into consideration as an important part of the data collection. Names of participants were ignored as part of privacy and confidentiality (section 3.3.2). The focus was made on the participants' gender, age, status/teaching experience and faculties as they might affect responses. The profile of participants is demonstrated in table 4.1.

**Table 4.1** ***Participants' Profile.***

| Undergraduates | | | Academics | | |
|---|---|---|---|---|---|
| **Statistic Data** | **Categories** | **Percent** | **Statistic Data** | **Categories** | **Percent** |
| **Gender** | Male | 58.3% | **Gender** | Male | 51.72% |
| | Female | 40.8% | | Female | 48.28% |
| **Age** | 18-22 | 65.8% | **Age** | Less than 30 | 6.90% |
| | 23-27 | 26.3% | | 30-39 | 27.59% |
| | 28-32 | 5.3% | | 40-49 | 44.83% |
| | 33+ | 1.2% | | 50-59 | 13.79% |
| | | | | 60+ | 6.90% |
| **Users' status** | 1st year | 14.0% | **Teaching experience** | 1-5 years | 25.00% |
| | 2nd year | 21.5% | | 6-10 years | 21.43% |
| | 3rd year | 27.2% | | 11-15 years | 32.14% |
| | 4th year | 21.5% | | 16-20 years | 14.29% |
| | 5th year | 14.5% | | More than 20 years | 7.14% |
| **Faculties** | Business | 22.8% | **Faculties** | Business | 21.43% |
| | Fine Arts | 8.3% | | Fine Arts | 14.29% |
| | Pharmacy | 26.3% | | Pharmacy | 14.29% |
| | Civil Engineering | 9.2% | | Civil Engineering | 14.29% |
| | Architecture | 11.8% | | Architecture | 14.29% |
| | Informatics and Communication Engineering | 21.5% | | Informatics and Communication Engineering | 21.43% |

Table 4.1 presents the demographic variables of the participants. It shows that the majority of undergraduates were male (58.3%), while approximately half of the academics was female. The largest group of undergraduates, 65.8%, was aged 18-22. This was expected, as it is the normal age of university enrolment, whereas the largest group of academics, 44.83%, belonged to the group aged 40-49. In addition, the smallest groups of undergraduates, 1.2%, was aged over 33, while the lowest group of academics, 6.90%, were aged less than 30 and over 60. Furthermore, the majority of the undergraduates who participated were in their third academic year of study (27.2%), while undergraduates who were in the first and fifth year of study formulated approximately 14%. In contrast, the largest group of academics (32.14%) had 11-15 years' experience in teaching, whilst the smallest group of academics comprised those

who had more than 20 years of experience. The highest proportion of undergraduates was those who were studying in the faculty of Pharmacy (26.3%), while the lowest percentage was for the undergraduates who were studying Fine Art with AS at 8.3%. Contrary to this, the highest proportion of academics was those who were teaching in the faculty of Business and Informatics and Communication Engineering with 21.43% for each, while it was 14.29% for academics who were teaching in each of Fine Art, Pharmacy, Civil Engineering, and Architecture.

## 4.3 The Interaction between End-Users and LAIU

The first section of both questionnaires was designed to identify the relationship between end-users and the LAIU. The main focus of this section is to investigate to what extent the participants interacted with their library, and what their alternative sources for obtaining information were.

### 4.3.1 The Attendance of the LAIU

In terms of understanding end-users' interaction within the LAIU, both participants' groups (undergraduates and academics) were asked if they used to attend their LAIU. Figure 4.1 reveals the frequencies of attending the LAIU resulting from Q1.

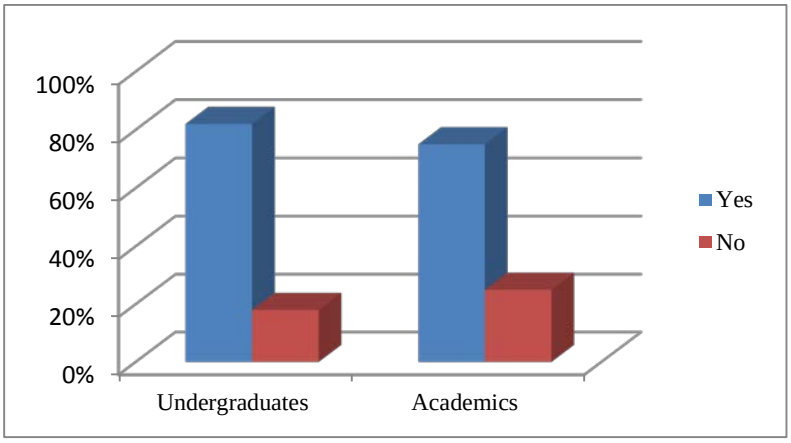


***Figure 4.1.*** **End-Users' Attendance to the LAIU (N=228 for undergraduates & N=30 for academics).**

Figure 4.1 shows the majority of participants used to attend their library. More than 80% of undergraduates and approximately 75% of academics used to attend their LAIU. In contrast, less than 25% for both undergraduates and academics did not use the library at all. It was expected that end-users would visit the LAIU as long as obtaining information was required to meet their needs. On the other hand, for those who did not

attend the library, that might reflect a lack of their skill in researching, or they may prefer to use alternative sources to obtain information.

Personal information can give an indication of how the underlying questions can vary from one independent variable group to another. Therefore, the differences in the underlying responses due to the personal (independent) variables were tested by: [1] the Mann-Whitney test to compare two independent groups of samples, and [2] The Kruskal-Wallis for more than two groups. See Table 4.2.

**Table 4.2.** ***Undergraduates Vs. Academics regarding the Library Attendance***

| Independent Variable | Test | Undergraduates P-value | Academics P-value |
|---|---|---|---|
| **Gender** | Mann-Whitney | .369 | .440 |
| **Age** | Kruskal-Wallis | .253 | .004** |
| **Level of study** | Kruskal-Wallis | .082 | .008** |
| **Faculty** | Kruskal-Wallis | .132 | .303 |

*Note*. *Significant at the 0.05 level of significance

**Highly Significant at the 0.01 level of significance

*** Very Highly Significant at the 0.001 level of significance

Mann-Whitney and Kruskal-Wallis tests were conducted separately to compare the differences between attending the LAIU and the independent variables of the participants. The Mann-Whitney test revealed that there was no significant difference (p-value=. 369 and =. 440) between male and female towards attending the LAIU for undergraduates and academics respectively. This was expected in the Syrian educational and cultural context, as there was no distinction between male and female in terms of the right to learn. Furthermore, the Kruskal-Wallis test illustrated that there was no significant difference for both undergraduates and academics in terms of faculty with (p-value=.132 and p-value=.303) respectively. On the other hand, significant differences were found by conducting the Kruskal-Wallis test just for academics in terms of age, teaching experience with respect of (p-value= .004 for age and p-value= .008 for teaching experience).

However, the Mann-Whitney and Kruskal-Wallis tests were employed in this study to compare the differences between attending the LAIU and independent variables for both undergraduates and academics separately; it was interesting to investigate if there

were significant differences between them in terms of attending the LAIU. Thus, the Chi - square test was performed to test the differences between them. See Table 4.3

**Table 4.3** ***Undergraduates Vs. Academics regarding attending the LAIU***

| | Chi-square | P-value |
|---|---|---|
| **Attending the LAIU** | .924 | .321 |

*Note*.*Significant at the 0.05 level of significance

**Highly Significant at the 0.01 level of significance

*** Very Highly Significant at the 0.001 level of significance

The result demonstrated in table 4.3 that undergraduates and academics were very likely to have the same proportion attending the LAIU as the test showed no significance (p-value=. 321).

The frequencies of attending the LAIU were considered an indicator for measuring the EURs and EUS. Q2 of both questionnaires, which were focused on rating the attendance of the LAIU. Figure 4.2 illustrates the frequencies of patrons' attendance.

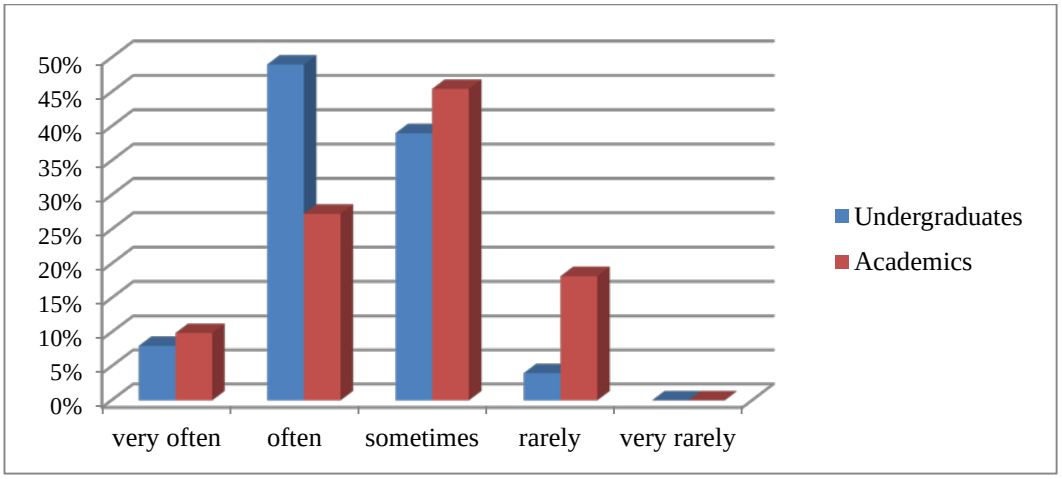


***Figure 4.2.*** **Frequencies of End-Users' Attendance (N=188 for undergraduates & N=22 for academics).**

Figure 4.2 demonstrates statistically to what extent participants interacted with their library in relation to how many times they used to attend it. The result showed that undergraduates were frequent in attending the library more than academics. It appeared that approximately half of the undergraduates "often" attended their library, while it was less than 30% of academics. That reflected that the requirements of undergraduates were more than the requirements of academics. On the other hand, academics were used to attend the LAIU "sometimes" with more than 45%, while approximately 35% of

undergraduates attended the library "sometimes". This showed that academics attend the library because they are required to obtain specific information or are influenced by time constraints. In contrast, less than 5% of undergraduates and over 18% of academics visited the library rarely. This can reflect the importance of the LAIU in responding the EUERs, especially for undergraduates. Furthermore, to gauge the time spent weekly in the LAIU, Q3 was asked to identify how many hours the participants spent per week in visiting their academic library. Figure 4.3 depicts the time spent in terms of visiting and using the LAIU's resources and services.

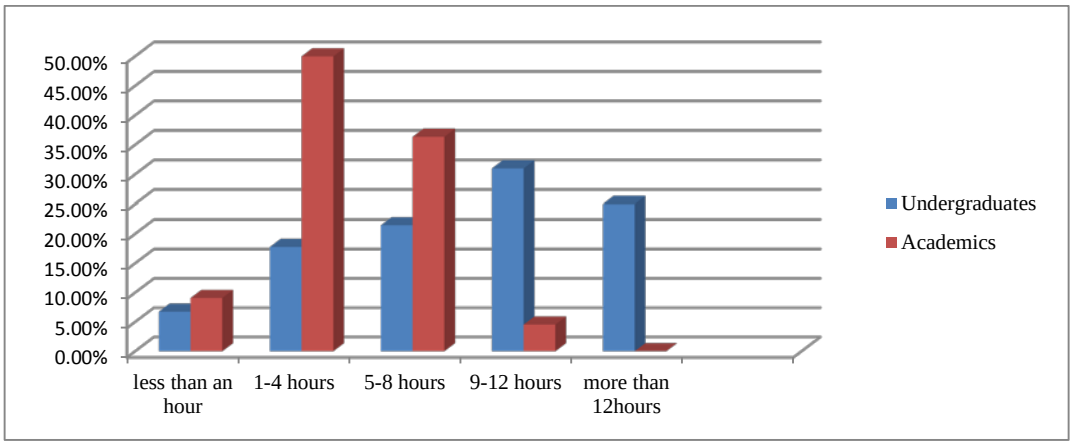


***Figure 4.3.*** **Time Spent Weekly in Attending the LAIU (N=188 for undergraduates & N=22 for academics).**

According to Figure 4.3, the findings show that undergraduates used to spend a longer time compared with academic. More than 31% of undergraduates visited the library between 5-8 hours weekly, while it was less than 5% for academics. Furthermore, approximately 25% of undergraduates visited the library for more than 12 hours, whereas it was not used for more than 12 hours by the academics. In contrast, 50% of academics tended to spend (1-4 hours) per week, while approximately 15% of undergraduates used to attend the LAIU (1-4 hours). This was expected since undergraduates attended the LAIU more frequently. They might consider the library as a place to study; using e-catalogues, and different IRs and services. Furthermore, it was anticipated that undergraduates used to spend a long time in terms of searching for specific information and preparing for exams and assignments, while academics might be busy teaching, marking and doing other duties.

### 4.3.2 Alternative Sources for Obtaining Information

For the non-users library, Q4 was asked to identify their alternative sources in terms of obtaining required information. Figure 4.4 presents common alternative sources to gain information by non-users.

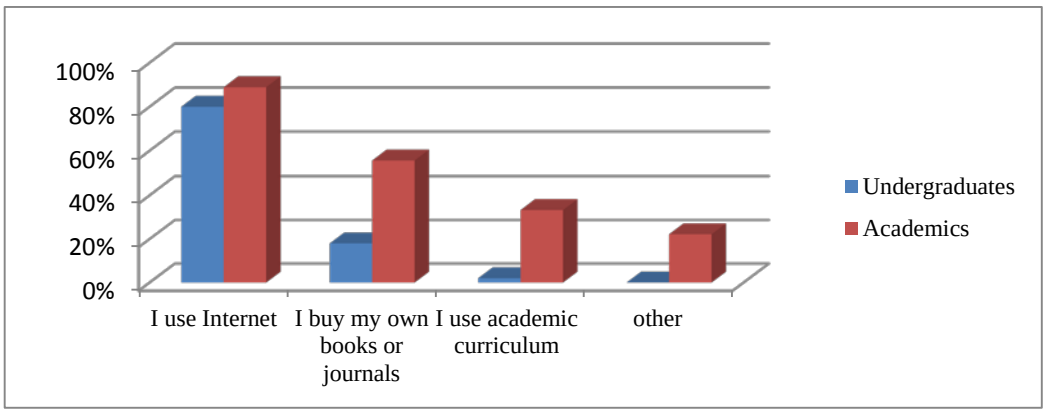


***Figure 4.4.*** **Alternative Sources in Obtaining Information (N=40 for undergraduates & N=9 for academics).**

Figure 4.4 demonstrates that academics used to utilise alternative sources to obtain required information more than undergraduates; however, the Internet was considered the most important source to gain information with more than 75% of each of them. They might believe that the Internet is a fast and cheap tool to access and acquire unlimited available information. Moreover, more than 55% of academic non-users preferred to buy their own books and journals instead of attending the library, while the percentage was less than 20% for non-users of undergraduates. Academic curriculum was another source to gain information; approximately 33% of academic non-users relied on the academic curriculum to gain the information. This might be because they were the authors of curriculum or might participate in authoring. On the other hand, Just 2% of undergraduates' non-users reported that the academic curriculum was their alternative for gaining information. Furthermore, approximately 22% of academic non-users mentioned that they used other sources without further explication. The non-use of the LAIU's resources and relied on other alternative sources may be because of a limitation of the marketing or the LP in general, and/or lack of the awareness of the library's role in supporting the EP.

## 4.4 End-Users' Requirements (EURs)

Since ALs have been established to meet the end-users' requirements; especially in the academic context, it was important to investigate EURs of the LAIU in order to increase the level of satisfaction and promote the LP. However, a part of these findings was published in the 6th **Qualitative and Quantitative Methods in Libraries International Conference, they are represented as a significant part of the findings.**

### 4.4.1 End-Users' Requirements of the LAIU

Literatures have addressed a number of requirements that should be met by the ALs to support end-users, especially in their EP. Hence, Q5 was recorded to determine the requirements of both participants' groups of the LAIU, which are necessary to support their EP. Figure 4.5 depicts the participants' requirements of the LAIU.

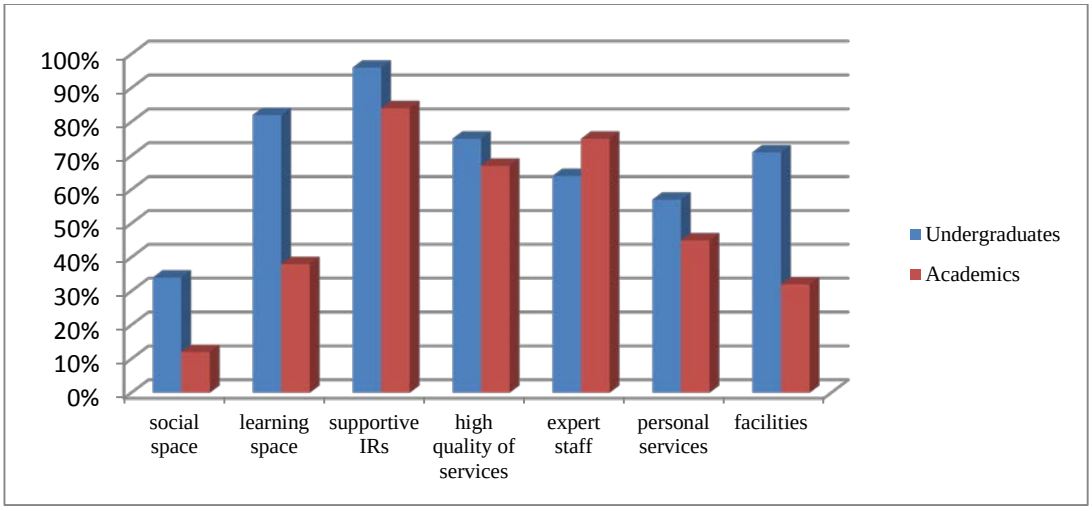


***Figure 4.5.*** **End-Users' Requirements of The LAIU.**

Figure 4.5 illustrates that the requirements of the LAIU for both categories of end-users was high in terms of providing supportive IRs, experts and high quality services; these requirements were more than 60% for both participants' groups; however, undergraduates were a slightly more in demand in terms of requiring supportive IRs and high quality services, while academics demonstrated more demand in relation to offering expert staff. This might be because academics were less familiar with the LAIU's services and resources than the undergraduates, or due to limitations of their time. Furthermore, personal services were required by both participants' groups; however, it was somewhat demanded by the undergraduates more than the academics

with respect of 57%, and 45% respectively. This shows that undergraduates might require consulting, guiding, training and instructing, rather than academics, to achieve their assignments and projects. Additionally, this might be related to their attitude in terms of rapidly obtaining information. It was not surprising that the requirements of the undergraduates, for social and learning spaces and technological facilities, were the double of the academics' requirements. This might reflect the undergraduates' perspective toward the LAIU as a place to see friends, discuss, read, search, use facilities and obtain information.

### 4.4.2 End-Users' Requirements of IRs

Making a decision to select an e/book or e/journal among hundreds of e/IRs is a difficult task. Hence, Q6 were addressed to identify a number of elements required in terms of selecting e/IRs. The elements (accuracy, accessibility, cost, understandability, and year of publication) were addressed in the literature review as important elements for meeting the EURs and increasing the satisfaction. Figure 4.6 presents to what extent these elements were required by the participants' groups to select the e/IRs.

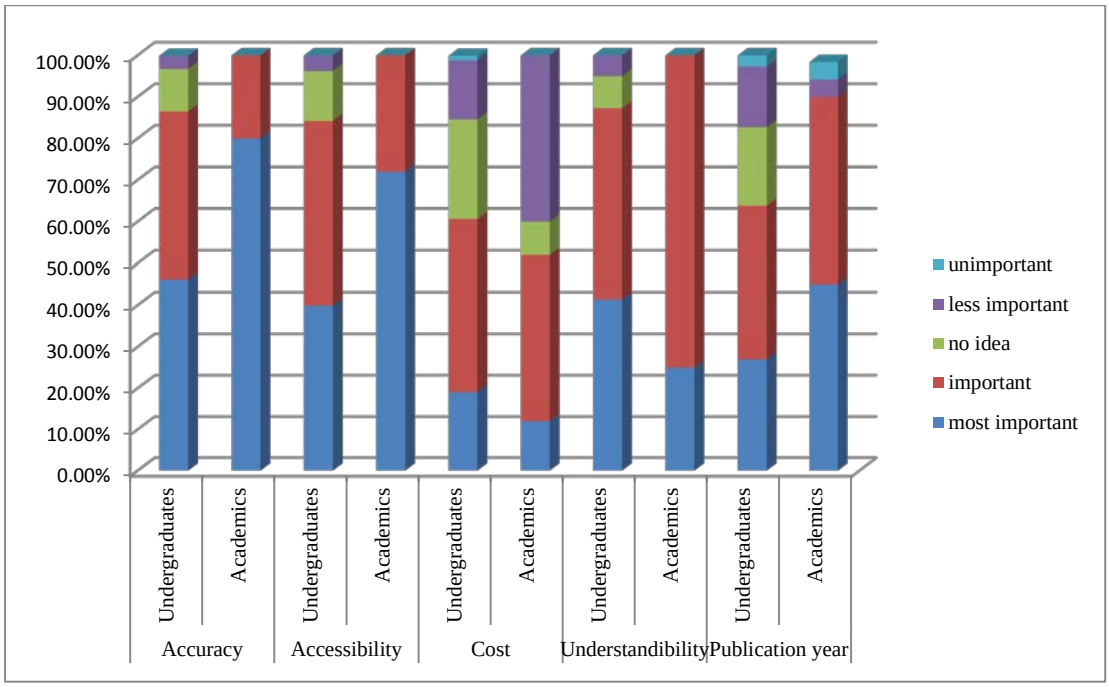


***Figure 4.6*. End-Users' Requirements of IRs.**

Figure 4.6 reveals that participants took into consideration a number of elements through selecting IRs; however, the level of importance differed between both groups. Academics showed more interest than undergraduates in considering 'accuracy,

accessibility and the year of publication. They reported these three elements as very important: 80%, 72% and 45%, respectively, while for undergraduates, they were 46%, 40% and 27% respectively. On the other hand, undergraduates demonstrated more interest in 'understandability' than academics. Approximately 41% of undergraduates believed that understandability was a very important element to select IRs, while it was just 25% for academics. Academics might require very accurate, accessible and up-to-date information in order to conduct research and prepare lectures, while undergraduates may need easy-to-understood materials in order to complete their assignments, other academic homework and to attain better grades. 'Cost' was a less important element for both groups, although it was less important element for academics with 40%, while it was approximately 14% for undergraduates. The reason behind this might be focusing on the information and its value more than its cost. Furthermore, it might be because the LAIU provided free e/IRs for all its end-users; thus, they did not take the cost into consideration as an important element to select the e/IRs.

In the same context, Mann Whitney and Kruskal-Wallis tests were performed in this section to explore the significant differences between end-users in terms of determining their requirements of IRs. See Table 4.4.

**Table 4.4.** ***Undergraduates Vs. Academics regarding the End-users' Requirements of IRs***

| Variable | Response | Test | Undergraduates p-value | Academics p-value |
|---|---|---|---|---|
| **Gender** | Accuracy | Mann Whitney | .072 | .686 |
| | Accessibility | | .004** | .810 |
| | Cost | | <.001*** | .574 |
| | Understandability | | .120 | .178 |
| | Publication Year | | .110 | .052 |
| **Age** | Accuracy | Kruskal-Wallis | .007** | .372 |
| | Accessibility | | <.001*** | .847 |
| | Cost | | .203 | .104 |
| | Understandability | | .018** | .305 |
| | Publication Year | | <.001*** | .207 |
| **Level of study / Teaching experience** | Accuracy | Kruskal-Wallis | .012** | .162 |
| | Accessibility | | .031** | .619 |
| | Cost | | .043** | .566 |
| | Understandability | | .373 | .306 |
| | Publication Year | | <.001*** | .338 |
| **Faculty** | Accuracy | Kruskal-Wallis | .053 | .633 |
| | Accessibility | | .008** | .457 |
| | Cost | | .669 | .908 |
| | Understandability | | .010** | .256 |
| | Publication Year | | .717 | .189 |

*Note.* *Significant at the 0.05 level of significance
**Highly Significant at the 0.01 level of significance
*** Very Highly Significant at the 0.001 level of significance

As revealed by the data in Table 4.4, gender, age, teaching experience and faculties groups show no significant difference for the academics in terms of accuracy, accessibility, cost, understandability and publication years. In contrast, for the undergraduates, gender, age, level of study and faculty groups showed a significant difference (p-value= .004, <.001, .031 and .008) respectively, in interpretation with respect to accessibility. However for accuracy, the significant difference was noted due to the age and level of study (p-value= .007 and .012). In addition, gender and level of study groups resulted in a significant difference (<.001 and.043) for the cost, while age and faculty groups show a significant difference (p-value= .018 and .010) for understandability. Finally, with respect to publication, age and level of study groups

resulted in a significant difference (p-value=<.001). It appears that the level of significance provided by Mann Whitney and Kruskal-Wallis was different from one personal variable to another based on the undergraduates' needs of the information required.

### 4.4.3 End-Users' Requirement of e-/LISs

Since providing a set of e/LISs are required to meet the EURs and to support the EP, Q7 of both questionnaires were asked to select all used e-/LISs that meet their requirements and reinforce their EP. Figure 4.7 demonstrates participants' requirements of e-/LISs.

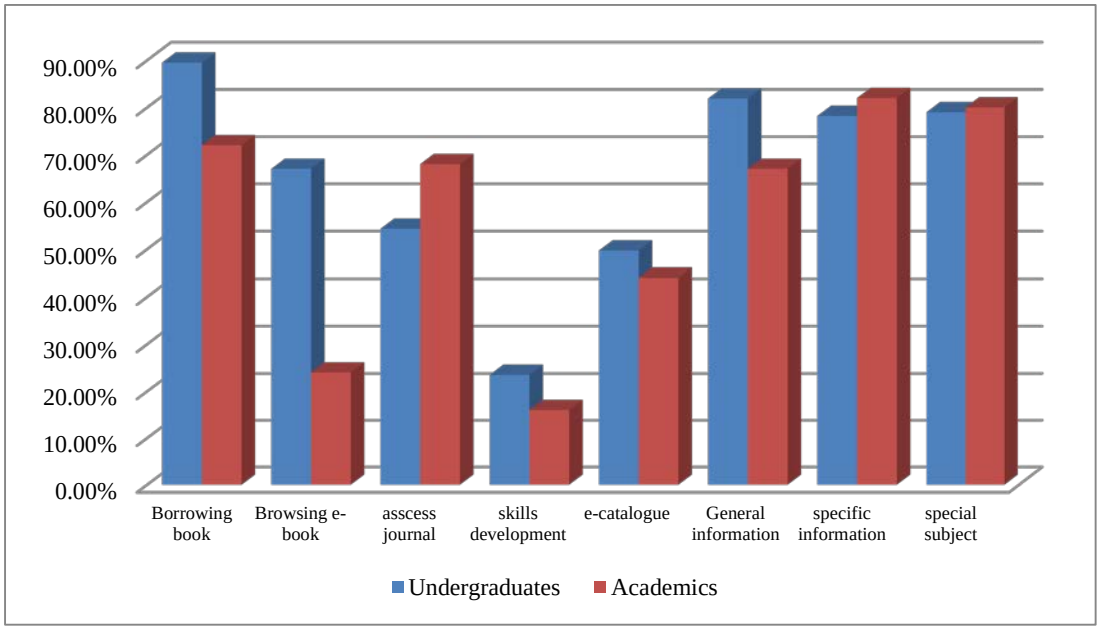


***Figure 4.7.*** **End-Users' Requirement of e-/LISs**

According to Figure 4.7, participants used a number of services that were required to support their EP. There was an agreement between both participants' groups that 'borrowing printed books, accessing e-journals, obtaining general and specific information were the most used services with respect of more than 70% for each service for each group. Furthermore, 'skills development' was poorly rated with less than 20% for both groups. This view might show that the requirements, in term of providing LISs, for both groups were slightly similar. On the other hand, the widest gap between the undergraduates and academics views occurred in the category of 'browsing e-books' with more than 75% for the undergraduates, while it was 24% of the academics. This might reflect that undergraduates were more familiar with using technology and

electronic facilities than academics. Hence, more e-/LISs were used, the more they were needed in reinforcing the EP.

### 4.4.4 The Use of LISs

In Q8, both participants' groups were asked to rank a set of e-/LISs provided in the LAIU; from the most to the least usage, using numbers (1= the most usage- 9= the least usage). Table 4.5 shows the rank of e-/LISs in terms of how often participants used them.

**Table 4.5.** ***The Rank of the Use of LAIU Services***

| The use of | The rank by Undergraduates | The rank by Academics |
|---|---|---|
| Borrowing printed books | 1 | 1 |
| Browsing e- books | 2 | 4 |
| Reference service | 3 | 3 |
| Accessing e-journal and database | 4 | 2 |
| Borrowing printed journals | 5 | 5 |
| Printing | 6 | 7 |
| Photocopying | 7 | 6 |
| Inter-library loan | 8 | 9 |
| Books reservation | 9 | 8 |

As shown in Table 4.5, there were no noteworthy differences between the ranks of the e-/LISs for both groups of participants. For both undergraduates and academics, the 'borrowing printed books' service was the most used service; 'Reference services' came third; and 'borrowing printed journals' service was fifth. Interestingly, printing, photocopying and book reservation ranked as the least used services for both end-users. The significant differences between undergraduates and academics in relation to ranking the e-/LISs were for 'Accessing e-journal and database' and 'borrowing e-books'. 'Accessing e-journal and database' were ranked in second place for the academics, while it came in the forth place for the undergraduates. This can be as a result of the academics' needs to obtain up-to-date information in their specializations, while undergraduates might require obtaining basic and detailed information from primary sources in order to prepare for their assignments or exams. The use of the e-

/LISs can reflect the EURs in terms of obtaining information. The most end-users used services, the more these services are then required.

In order to determine if there were differences between end-users in terms of using the e-/LISs provided by the LAIU, the Chi-square test was conducted. Table 4.6 summarizes the results of comparing the proportions of both participants' groups.

**Table 4.6.** ***Undergraduates Vs. Academics regarding The Use of e-/LISs***

| Services | Chi-square | P-value |
|---|---|---|
| Borrowing printed books | 5.038 | .025** |
| Browsing e-books | .073 | .788 |
| Borrowing printed journals | 6.180 | .013 |
| Access to e-journals and database | 42.073 | <.001*** |
| Inter-library loan | .098 | .754 |
| Reference service | 5.467 | .019** |
| Printing | 3.357 | .067 |
| Photocopy | 25.941 | <.001*** |
| Books reservation | .003 | .953 |

*Note.**Significant at the 0.05 level of significance
**Highly Significant at the 0.01 level of significance
*** Very Highly Significant at the 0.001 level of significance

The data from the Table 4.6 showed a significant difference between the undergraduates and academics with respect to borrowing printed books (p-value<. 025) and the use of a reference service (p-value=. 019). Additionally, a very highly significant p-value<. 001 is noted for access to e-journals and database, and the use of photocopying.

## 4.5 End-users' Satisfaction (EUS)

However, a part of these findings was published in three conferences (Restoum & Wade, 2013a, 2013b), they are represented in this research as important findings to discuss, as follows:

### 4.5.1 EUS with Finding Information

Since the ALs are considered an essential place to collect, store, access and use e-/IRs aiming to respond to EUERs, end-users were expected to show interest in terms of searching, finding and using e-/IRs. Hence, Q9 were asked to identify the participants satisfaction with finding the information required. Figure 4.8 illustrates their satisfaction with finding information.

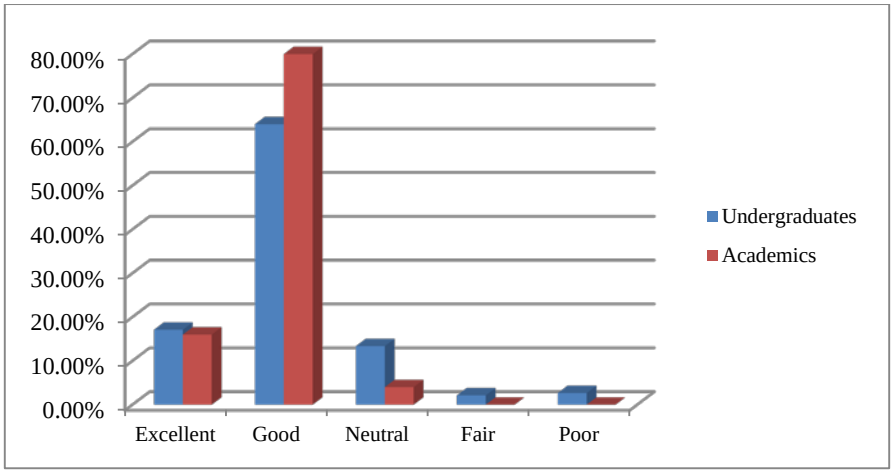


***Figure 4.8.*** **End-users' Satisfaction with Finding Information.**

According to Figure 4.8, the majority of participants were satisfied with the LAIU in terms of finding information. The findings show a slight difference between undergraduates and academics in terms of rating 'finding information' for both levels 'excellent' and 'good'. Approximately 65% of undergraduates rated the LAIU as 'good', whereas the percentage was about 80% for academics. Furthermore, 'finding information' was rated 'excellent' for both undergraduates and academics with a percentage of less than 20% for each of them. These findings might be a result of the enrichment of e-/IRs, the availability and accessibility to these e-/IRs for end-users, and/or it might be due to the participants' skills and ability to find e-/IRs. Apparently, academics were more satisfied than undergraduates. This might be because they were less demanding and interacted less with the library.

### 4.5.2 EUS with Using Information

Since the questionnaires investigated EUS in terms of finding information, it was crucial to diagnose to what extent end-users were satisfied and able to use this information. Q9 was asked to determine the EUS with using information. Figure 4.9 demonstrates the EUS in terms of using information.

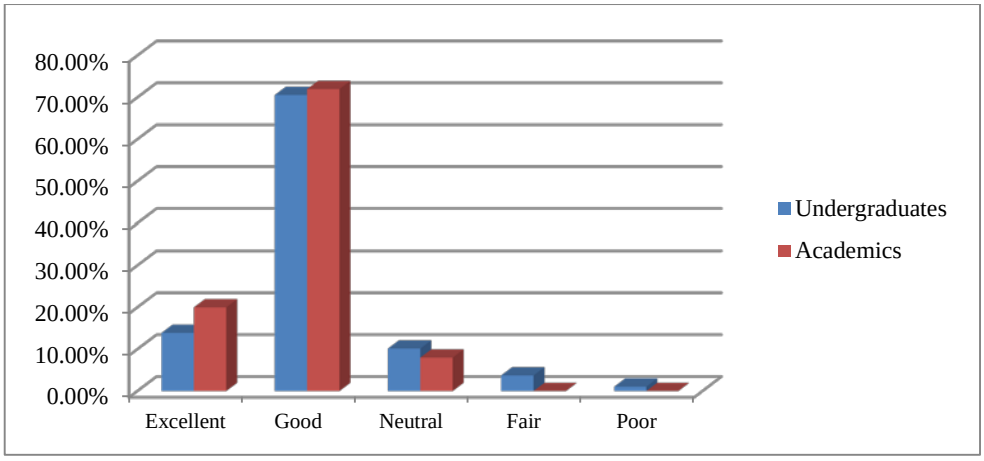


***Figure 4.9.*** **End-users' Satisfaction with Using Information.**

Figure 4.9 shows that the majority of both groups of participants were satisfied with using information. There was a slight difference between undergraduates and academics in terms of rating using information as 'good'. Approximately 71% of undergraduates rated using information as 'good', while it was 72% for academics. Moreover, 20% of academics deemed that it was 'excellent', whereas less than 14% of undergraduates considered it 'excellent'. In turn, less than 5% of the undergraduates rated using information as 'fair', while non-of-academics rated using information as 'fair'. The reasons behind these findings are potentially the same reasons as the previous findings (finding information).

Furthermore, Mann-Whitney and Kruskal-Wallis tests were conducted to compare the difference between the rate of finding and using information and independent variables of the end-users. See Table 4.7.

**Table 4.7.** ***Undergraduates Vs. Academics Regarding Finding and Using Information***

| Variable | | Test | Undergraduates P-value | Academics P-value |
|---|---|---|---|---|
| **Gender** | Find information | Mann-Whitney | .227 | .347 |
| | Use information | | .348 | .347 |
| **Age** | Find information | Kruskal-Wallis | .067 | .005** |
| | Use information | | .340 | .014 |
| **Level of study/ teaching experience** | Find information | Kruskal-Wallis | .043 | .079 |
| | Use information | | .590 | .006** |
| **Faculty** | Find information | Kruskal-Wallis | .003** | .331 |
| | Use information | | <.001*** | .605 |

*Note*.*Significant at the 0.05 level of significance
**Highly Significant at the 0.01 level of significance
*** Very Highly Significant at the 0.001 level of significance

Table 4.7 revealed that the Mann-Whitney test did not show a significant difference in terms of gender for both undergraduates and academics (p-value= .227 and .347 respectively). Additionally, it did not demonstrate a significant difference for both participants' groups regarding gender (P-value= .348 and 3.47 respectively). On the other hand, the Kruskal-Wallis test resulted in a highly significant difference in terms of finding information regarding age groups of the academics (p-value= .005), while there was no significant difference for undergraduates in the same category. Furthermore, the Kruskal-Wallis test discovered a highly significant difference of teaching experience in terms of using information (p-values= .006), while level of study groups did not show significant difference. Hence, gender, age and the level of study were not significant factors for undergraduates in terms of finding and using information. In contrast, the Kruskal-Wallis test discovered a highly significant difference in terms of using and finding information between faculty groups for the undergraduates (p-values= .003 and <.001 respectively); while no significant difference was reported for academics. These results were interesting since the library may vary in terms of providing the resources to the faculties within the university.

### 4.5.3 EUS with Staff

The majority of participants interacted directly with the library's staff. This interaction can reflect their satisfaction level with the existing staff. Hence, Q10 was articulated to investigate the participants' satisfaction with their library staff. See Figure 4.10.

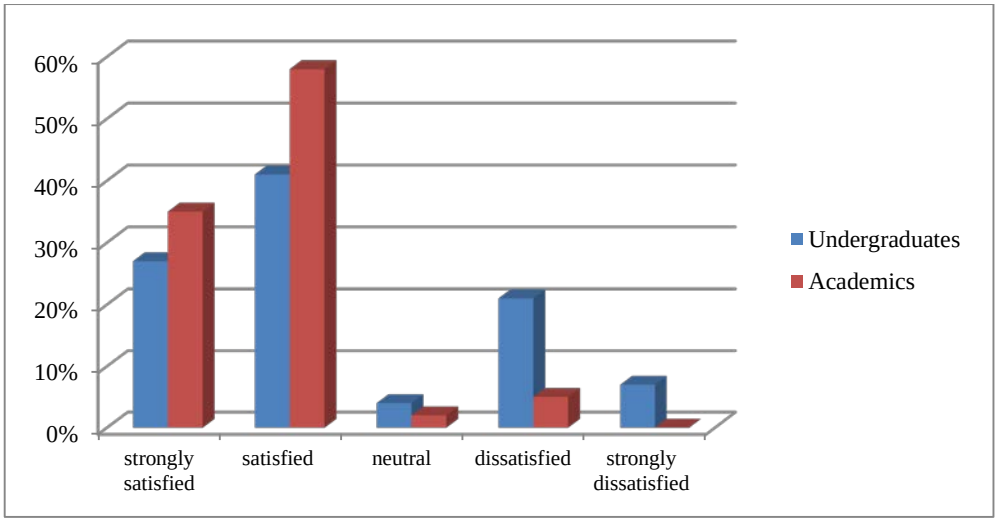


***Figure 4.10*. End-Users' Satisfaction With Library Staff**

According to Figure 4.10, academics were more satisfied with the library staff compared with undergraduates. 35% of academics were strongly satisfied with the library staff, while just 27% of undergraduates were strongly satisfied. Furthermore, 58% of academics were satisfied with the library staff, against 41% of undergraduates. As the previous finding (section 5.4.1) demonstrated that academics were more demanding for expert staff than undergraduates, meetingthese requirements increased their level of satisfaction sequentially. On the other hand, 21% of undergraduates were dissatisfied with the library staff, while just 5% of academics were not satisfied. The increase of the dissatisfaction level by the undergraduates rather than academics might be because of their direct interaction with the library staff, or library staff might deal differently with the different groups of end-users; staff might be more responsive to academics comparing with undergraduates.

### 4.5.4 EUS with the LAIU as a Place

Participants were asked (Q 11) to determine to what extent they were satisfied with their library in terms of its location, and spaces. Figure 4.11 demonstrates the participants' perspectives about the library as a place.

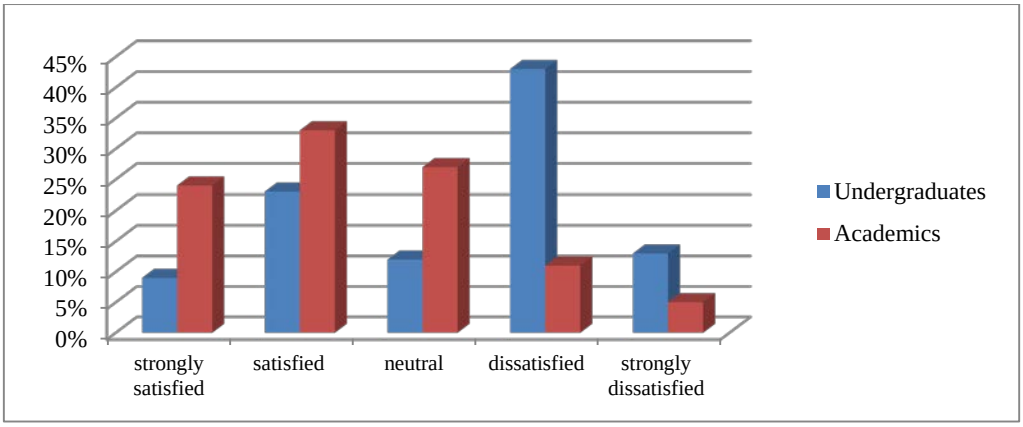


***Figure 4.11*. End-Users' Satisfaction with the Library's as a Place**

Figure 4.11 demonstrates that academics were more satisfied with the library place than undergraduates. The proportion of academics that were strongly satisfied with the library place was twice the number of undergraduates. 24% of academics were strongly satisfied with the library place, in turn; just 9% of undergraduates were strongly satisfied. On the other hand, 43% of undergraduates were dissatisfied with the library as a place, while just 11% of academics were dissatisfied. Interestingly, 27% of academics were neutral about the library place, whereas it was 12% for undergraduates. Undergraduates were less satisfied than academic. This might be because they spend a long-time in the library (section 5.3.1), and interacted more with the library and/or they used it for different purposes.

### 4.5.5 EUS with Technology and Facilities

In terms of assessing the EUS of the LAIU, both groups of participants were asked (Q12) to identify to what extent they were satisfied with their library regarding the provision of technology and facilities. See Figure 4.12.

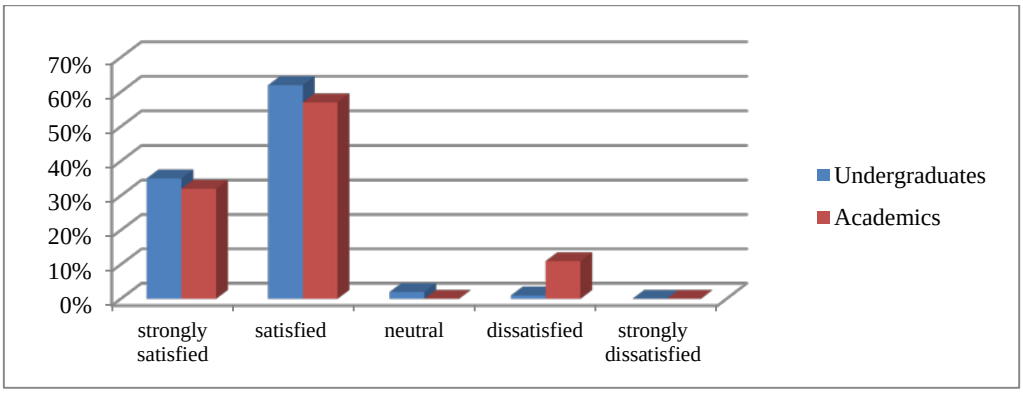


***Figure 4.12*. End-users' Satisfaction with Technology and Facilities.**

As seen in Figure 4.12, undergraduates were more satisfied than academics regarding the satisfaction with technology and facilities provided, although there was a slight difference between undergraduates and academics in the categories of 'strongly satisfied' and 'satisfied'. Undergraduates were strongly satisfied with a respect of 35%, and satisfied 62%, versus 32% and 57% of academics respectively. It was surprising that 11% of academics were dissatisfied with the technology and facilities. The academics' dissatisfaction can be due to a lack of technology or facilities offered in the library, or it might be as a result of lacking the skills to deal with the technology and facilities. On the other hand, the library might be able to meet the undergraduates' requirements in terms of providing suitable and appropriate technology and facilities that can support their EP.

### 4.5.6 EUS with LISs

Both groups of end-users, involved in the research, were asked (Q13) to show to what extent they were satisfied with the quality and efficiency of the LISs provided. Figure 4.13 presents the participants' satisfaction with the LISs.

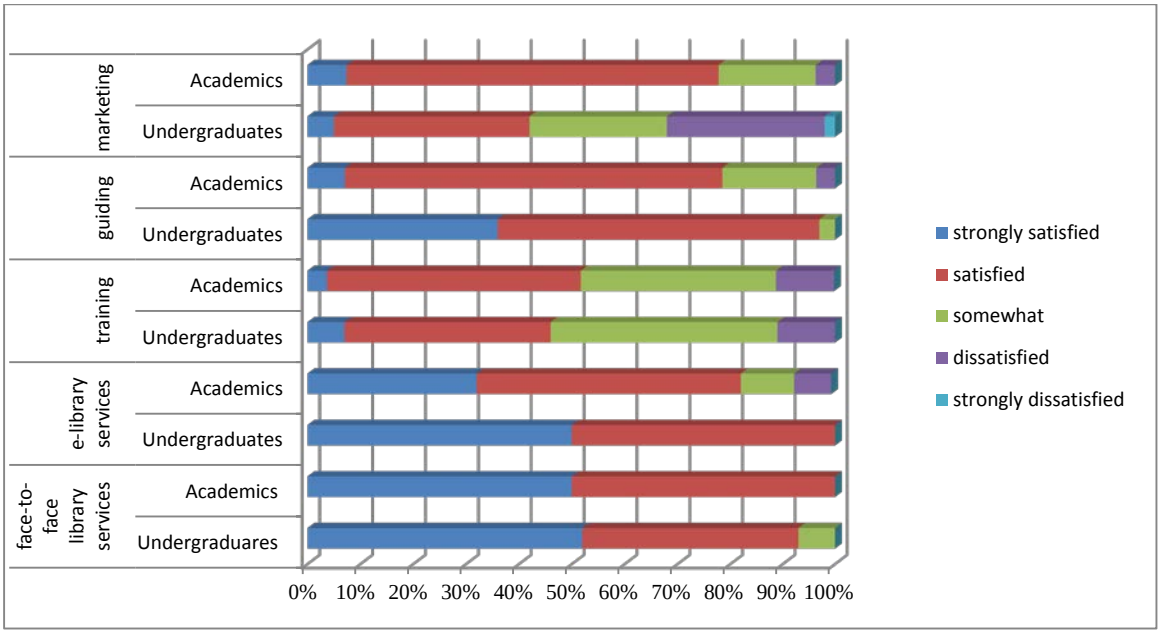


***Figure 4.13.*** **The Satisfaction with the quality of the LISs.**

According to Figure 4.13, generally, undergraduates were more satisfied with the LISs provided by the LAIU than academics. Undergraduates were strongly satisfied with 'face-to-face', 'e-Library Services', and 'guiding' more than academics with 52%, 50%, and 36% for undergraduates respectively, while it was less than 50% for

academics for each service. However, academics were satisfied with 'marketing' more than undergraduates, with 70% for academics, and 37% for undergraduates. On the other hand, there was a slight difference between both groups in relation to the satisfaction with providing 'training'. Less than 10% of both groups were strongly satisfied with training, and approximately the same percentage was for who dissatisfied. Hence, however LAIU provided good quality of basic/e-LISs, there is a need to improve the quality of some e-/LISs for better performance and to increase the level of their satisfaction.

## 4.6 End-Users' ISB

LAIU provides two types of LISs: traditional (face-to-face) and electronic (online) services. Thus, participants were asked (Q14) to determine the behaviour of both participants' groups in terms of seeking information. Figure 4.14 reveals the participants' attitudes toward using e-/LISs.

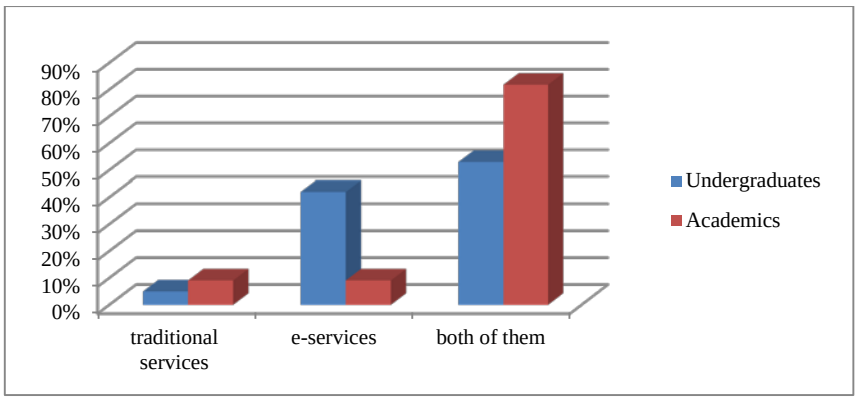


***Figure 4.14*. Participants' Attitudes toward Using e-/LISs.**

As shown in Figure 4.14, the majority of both groups of participants sought to gain information using traditional services in tandem with e-services, although the proportion of academics was higher than undergraduates with approximately 82% for academics and 53% for undergraduates. On the other hand, undergraduates tended toward using e-services more than academics. 42% of undergraduates preferred using e-LISs, while this was approximately 9% for academics. The ratio of using only traditional services was low for both groups; less than 10% for both of them. Hence, the participants might be aware of the benefits that can be gained from using different types of services, such as reducing time-consumption and increasing the accessibility and availability of information. Undergraduates might prefer using e-services because

they belong to the digital generation, while academics might still be afraid of using technology. The reasons for preferring each service were investigated in Figures 5.15 and 5.15.

Since a number of differences were discovered between the undergraduates and the academics, it was significant to explore if there were any distinctions between them in the trend of their preference for traditional or digital LISs. See Table 4.8.

**Table 4.8.** ***Undergraduates Vs Academics Regarding Preferring e-/LISs' Types***

| | Chi-square | P-value |
|---|---|---|
| **Preference of traditional/electronic service** | .594 | .441 |

*Note*. *Significant at the 0.05 level of significance
**Highly Significant at the 0.01 level of significance
*** Very Highly Significant at the 0.001 level of significance

As can be seen in Table 4.8, both groups of the participants were very likely to have the same proportion in preference of LISs as the test was not significant (p-value=. 441).

### 4.6.1 Preferring Traditional Services

The participants who preferred using the traditional type of LISs were asked (Q15) to determine all reasons behind their preference. Figure 4.15 reveals the reasons of the participants for selecting the traditional services.

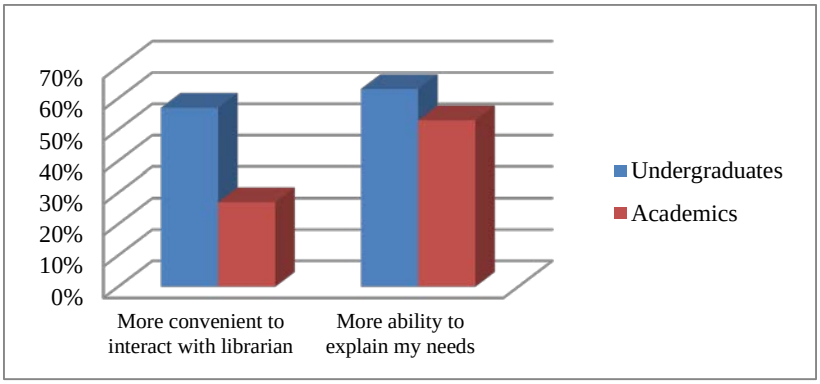


***Figure 4.15*. Reasons for Preferring Traditional Services.**

According to Figure 4.15, over 50% of both participants' groups preferred using the traditional services since they pointed out that they were more able to express their

needs and requirements of LISs and information materials. In contrast, participants had a different perspective about preferring traditional services in terms of convenient interaction with the librarians. Approximately 60% of the undergraduates responded that the convenient interaction with the librarian was an important reason to use the traditional face-to-services, while less than 30% of the academics believed in that.

### 4.6.2 Preferring E-LISs

Participants were asked (Q16) to select all related reasons behind their preference for e-LSs. Figure 4.16 depicts the purposes for choosing e-LISs.

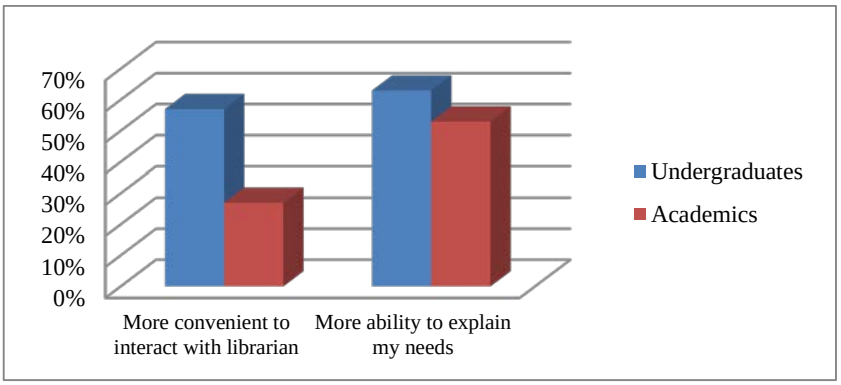


***Figure 4.16.*** **Reasons for Preferring Online Services.**

Figure 4.16 shows that both groups of participants preferred using e-LSs due to their availability, accessibility and convenience. The ratio between undergraduates and academics in terms of 'accessibility' and 'convenience' was close: 66% and 48% of undergraduates respectively, and 60% and 44% of academics respectively. Availability was another reason for preferring e-LISs; 70% of undergraduates believed that availability was a reason to prefer e-LISs, while just 47% of academics considered this a reason for using e-LISs. In contrast, the widest gap between undergraduates and academics views occurred in the category of 'Keeping me updated' with 60% of undergraduates, while it was 23% of academics. Saving time and effort was not chosen by academics as an essential reason to prefer e-LISs, and it was in the lowest average of the undergraduates with 15%. Hence, end-users' behaviours in terms of seeking information might be associated with their requirements. The aim of using e-LSs can be to obtain a considerable amount of information quickly and conveniently.

## 4.7 Difficulties and Challenges of Using LISs

Both groups of participants were asked (Q17) to determine all difficulties and challenges facing them through their use of the LAIU, which can **affect the library's performance**. Figure 4.17 reveals the main difficulties confronting participants regarding using the LAIU.

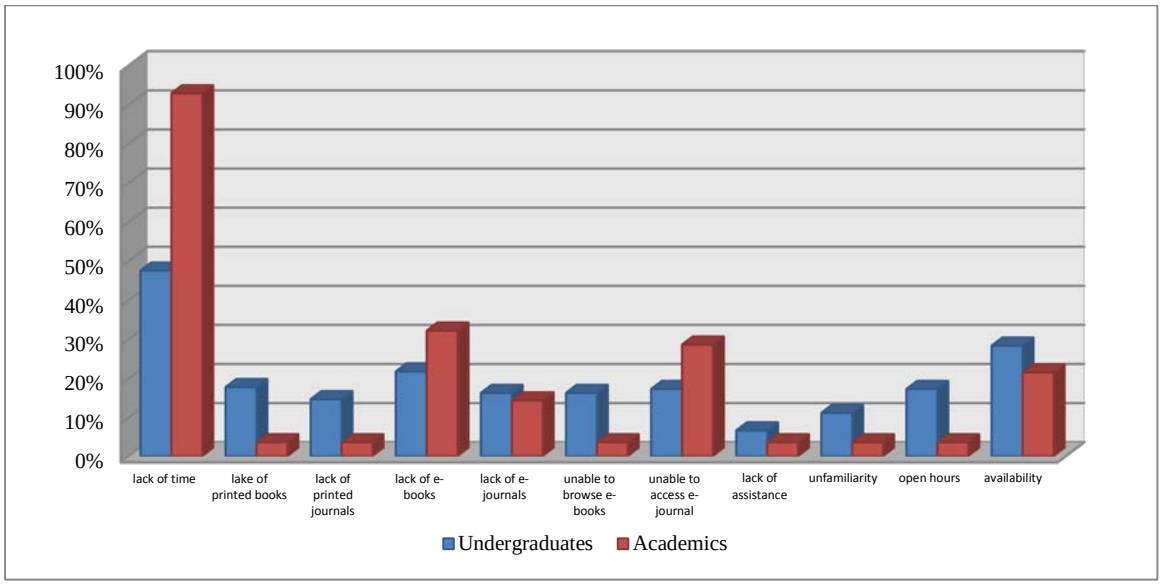


***Figure 4.17.*** **Difficulties of Using the LAIU.**

As can be seen in Figure 4.17, the main challenge facing both groups of participants was lack of time; despite it being a more problematic issue for academics with 92%, it was still approximately 48% for undergraduates. Furthermore, the lack of e-books was identified as the second difficulty facing the participants, with approximately 32% of academics and 22% of undergraduates. On the other hand, there were differentiations between the undergraduates and academics' opinions regarding the categories of 'lack of printed books', 'lack of printed journals', 'inability of browsing e-books', and 'opening hours'. For undergraduates, it was less than 20% for each of 'lack in printed books', 'lack of printed journals', 'browsing e-books', and 'opening hours', whereas academics reported approximately 4% for the four category mentioned. Participants might not find enough time to attend the LAIU as a result of their teaching and learning load (working/studying for a long time). Difficulties and challenges related to providing e-/LISs could be due to the slowness of the Internet and/or other technical problems. Another reason might be because the LAIU did not subscribe to a sufficient number of related databases.

Both undergraduates and academics faced a set of difficulties and challenges related to their use of the LAIU, its e-/services and e-/IRs; thus, it was crucial to discover the significant differences between end-users in terms of the difficulties and challenges that they faced. Hence, the Chi-square test was performed to investigate the difference between the undergraduates and academics. See Table 4.9.

**Table 4.9.** ***Undergraduates Vs. Academics Regarding Difficulties***

| | Chi-square | P-value |
|---|---|---|
| **Lack of time** | .924 | <.001*** |
| **Lack of printed books** | 4.225 | .040* |
| **Lack of printed journals** | 2.91 | .088 |
| **Lack of e-books** | 1.015 | .314 |
| **Lack of e-journal** | .157 | .692 |
| **Unable to borrow e-books** | 1.987 | .159 |
| **Unable to access to e-journals** | 3.839 | .050 |
| **Lack of assistance** | 4.442 | .020* |
| **Unfamiliar with LSs** | 1.738 | .187 |
| **Open hours** | 3.839 | .050 |
| **Unable to visit the library anytime & anywhere** | 8.649 | .003** |

*Note.* *Significant at the 0.05 level of significance
**Highly Significant at the 0.01 level of significance
*** Very Highly Significant at the 0.001 level of significance

According to Table 4.9, there was a highly significant difference between undergraduates and academics regarding the lack of time (p-value<. 001). Moreover, the difference between both groups of participants with respect to the lack of printed books, lack of assistance and inability to visit the library any time and anywhere were significant (p-value= .040, .020 and .003) respectively, meaning that both groups show different perspectives. For the rest of the difficulties, both groups showed the same trend (p-value>. 05).

## 4.8 Reference services

In this research, attention was drawn to the reference service provided as one of the services most capable to meet the end-users' requirements.

### 4.8.1 Reference Services Types

Q18 were asked to select all types of reference service preferred by the end-users of the LAIU. Figure 4.18 displays the participants' perspective of using reference services types.

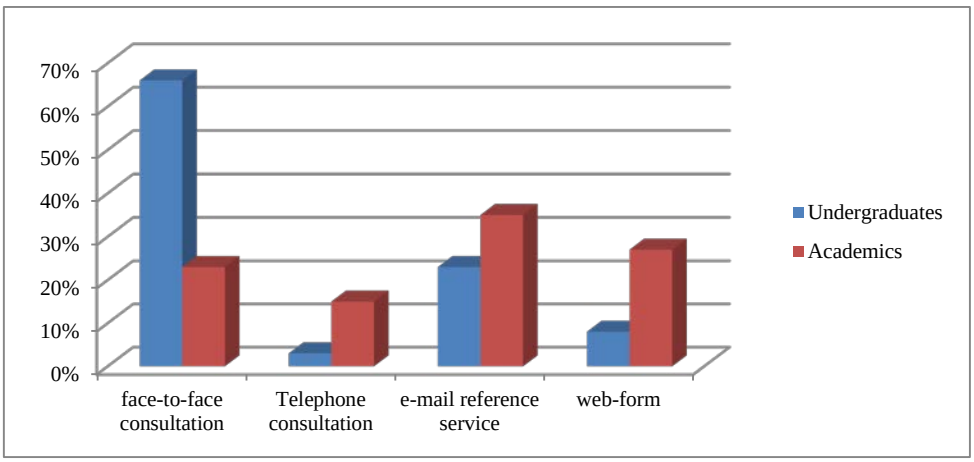


***Figure 4.18.*** **Participants' Perspective of Using RSs' types.**

Figure 4.18 demonstrates different types of reference services preferred by the end-users to be used at the LAIUs. The majority of undergraduates, more than 65%, pointed out that they preferred providing the 'face-to-face' format of the reference services, while less than 25% of the academics preferred using 'face-to-face' reference service. The lowest percentage was for using 'telephone consultation'; however, it was used by academics more than undergraduates, with approximately 15% for academics, and less than 5% for undergraduates. Using emails for submitting inquiries came in the second place with more than 20% for undergraduates, and approximately 35% for academics. Hence, as it appears from the data, undergraduates preferred to use direct interaction with the librarians, using a face-to-face reference service, while academics preferred to utilize VRSs. The main reason for undergraduates to prefer direct inquiries might be due to their presence physically in the Library.

### 4.8.2 The Opportunities of using VRS

Supposedly, providing VRSs can increase the EUERs. Thus, participants were asked (Q19) to determine all advantages could be obtained by providing them. Figure 4.19 illustrates the opportunities that might be obtained by offering VRSs within the LAIU.

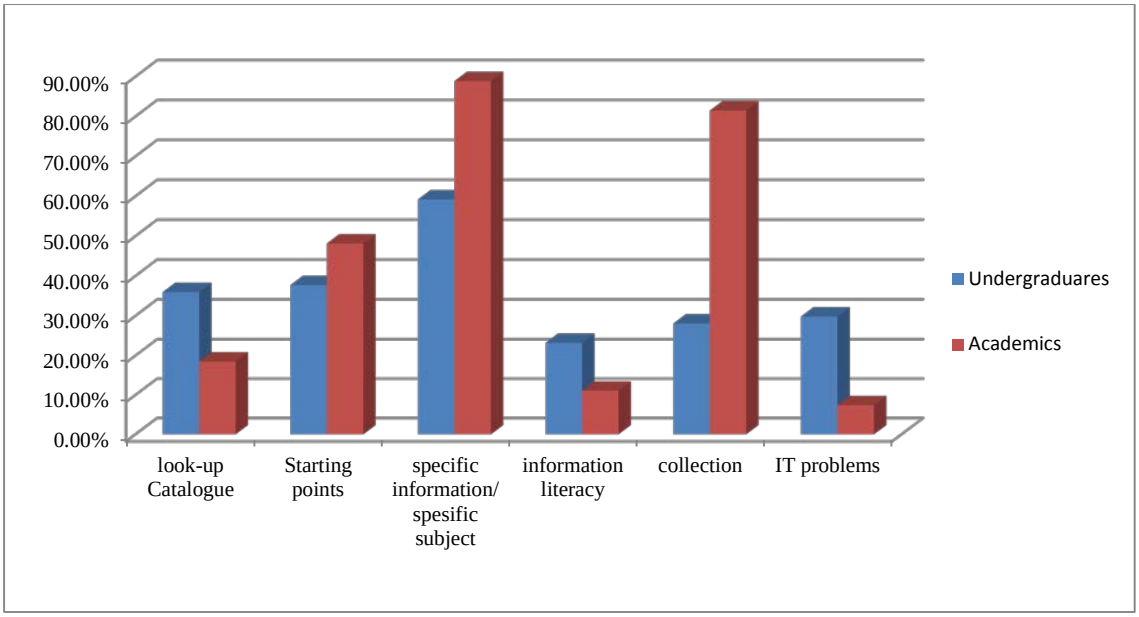


***Figure 4.19.*** **The Opportunities of Providing VRSs**

As can be seen from the data in Figure 4.19, participants believed that providing VRSs could be helpful for meeting their requirements. The most likely opportunity was in obtaining 'specific information/specific subject'; however, academics showed a higher percentage than undergraduates, with more than 85% for academics, and approximately 60% for undergraduates. Furthermore, the belief that VRSs would assist in requesting for the collection and e-IRs was greater with the academics than undergraduates with over 80% for academics and less than 30% of the undergraduates. On the other hand, using VRSs in solving problems and difficulties related to IT recorded higher rate with undergraduates than academics with approximately 30% for undergraduates, whilst less than 10% for academics. This reflects that the requirements and ISB of undergraduates differs from academics' requirements and ISB.

Further analysis using a Chi-square test was conducted to determine if there were differences between end-users in terms of benefiting of using VRSs. See Table 4.10.

**Table 4.10.** ***Undergraduates Vs. Academics regarding opportunities of providing VRSs***

| Opportunities | Chi-square | P-value |
|---|---|---|
| Information literacy | 2.943 | .086 |
| Collection | 23.092 | <.001*** |
| Solving IT problems and difficulties | 7.565 | .006** |
| Looking-up and use catalogue | 4.955 | .084 |
| Starting points for assignment | .234 | .629 |
| Special information of special subjects | 4.219 | .121 |

Note: *Significant at the 0.05 level of significance

**Highly Significant at the 0.01 level of significance

*** Very Highly Significant at the 0.001 level of significance

As seen in Table 4.10, there was a very highly significant difference between undergraduates and academics regarding collection (p-value<. 001), and a highly significant in terms of solving IT problems and difficulties (p-value =. 006) perceptively. On the other hand, VRSs were not statistically significant for information literacy, looking-up and use catalogue, starting points for assignment and special information/special subjects. Thus, the activation of the VRSs within LAIU will support the EP by assisting end-users in requesting and inquiring for e-/IRs, and helping them in solving IT problems and difficulties.

## 4.9 Academics' Role in Supporting EP

Section 7 of the academics' survey was conducted to investigate the academics' role in supporting EP by enriching lectures using the library's e-/IRs and motivating undergraduates to use their LAIU. Q20 was asked to explore the awareness of academics, participated in this study, in relation to using the library e-/IRs to support the EP. Figure 4.20 reveals to what extent academics used the library e-/IRs reinforce their lectures.

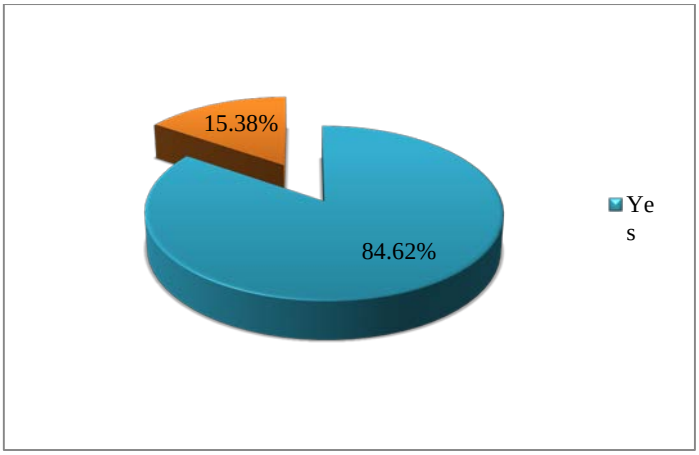


***Figure 4.20.*** **The Use of Library e-/IRs in Supporting EP (N=26).**

Figure 4.20 reflects the awareness of the participating academics of the importance of using library e/IRs in supporting the EP. Approximately 85% of them used the library e-/IRs to enhance their lectures, while less than 16% did not use the library e/IRs to reinforce their lectures. For participants who did not use the library e-/IRs to reinforce the lectures, they may be use other sources to support them such as buying books, using the internet, and/or relying on academic curricula (section 5.3.2).

Furthermore, academics were asked (Q21) to determine whether they encouraged their students to use the library and benefit from its resources and services. Figure 4.21 presents the academics' awareness of motivating their students to use the library.

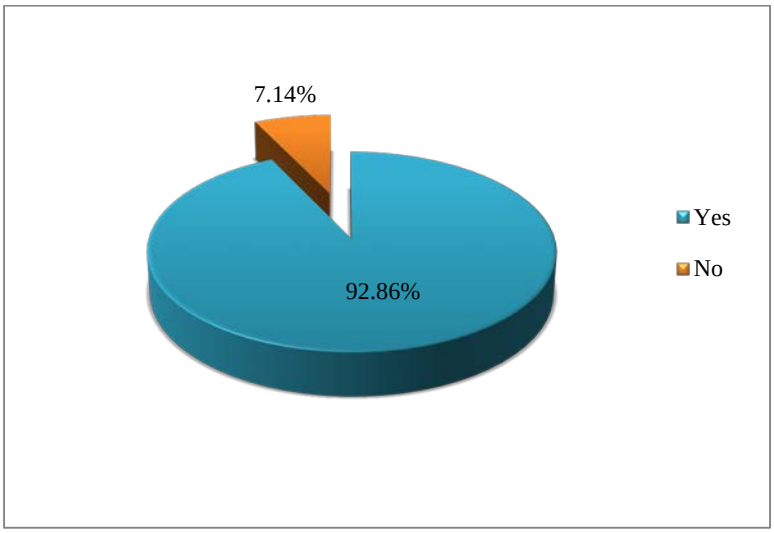


***Figure 4.21.*** **Motivating Students to Use The Library E/IRs (N=28).**

As can be seen in Figure 4.21, the majority of the academics who participated in this study believed that motivating students to use LAIUs' resources and services was crucial to support the EP. Approximately 93% of academics encouraged their students to use and access the library e-/IRs, while approximately 7% of them did not consider the importance of motivating students to take advantage of their library. Thus, the majority of the academics were aware of the importance of the library's role in supporting the EP by linking the EP and the academic curriculum with the academic library e-/IRs and services.

In addition, all the participants of academics were asked (Q22) to determine how they motivate their students to use their library. Figure 4.22 presents the methods of motivating students to use library.

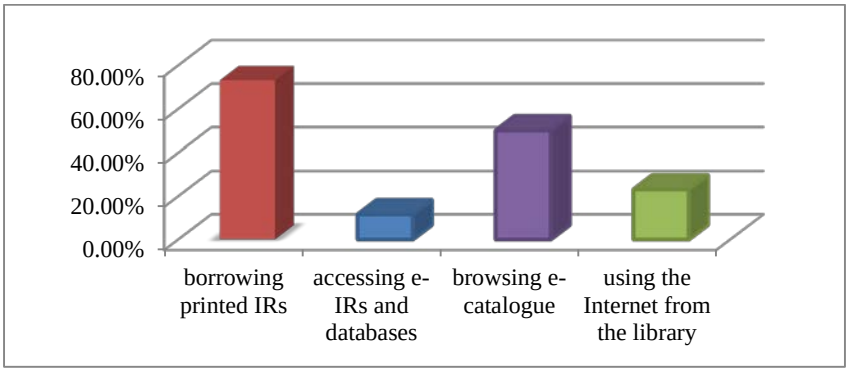


***Figure 4.22.*** **Academics' Methods of motivating students to use the LAIU (N=26)**

Figure 4.21 demonstrates academics' methods of motivating students to use the LAIU. Borrowing printed IRs recorded the highest percentage with approximately 73%. Browsing e-catalogue came in the second place with 50%. On the other hand, accessing e-IRs and databases had the lowest percentage with less than 12%. Furthermore, motivating students to use the Internet facilitated by the library to support the EP was not significantly adopted by academics. Less than 24% of academics motivated their students to use the LAIU by advising them to use the Internet facilitated by the library.

## 4.10 Summary

This chapter has presented the primary results achieved by analysing data from two questionnaires distributed to the sample of study (undergraduates and academics) in LAIU in Syria. The profile of participants has been presented regarding their gender, age, level of study/experience, and faculties. The results show that:

- **High proportion of attendance**; however, undergraduates attended the library more frequently and spent more time in the library than academics. Furthermore, there were significant differences in attendance of the academics at the LAIU regarding their age, teaching experience. On the other hand, the Internet was the most frequently used source to gain information for the library non-users.
- **Difference in demands:** undergraduates were more demanding than academics in terms of requiring appropriate social, personal and learning space, further e-/LISs and facilities; while academics were more concerned with the quality and recency of e-/IRs. Moreover, there was a significant difference in terms of finding information regarding age groups of the academics, and a significant difference of teaching experience in terms of using information; there was a significant difference in terms of using and finding information between faculty groups for the undergraduates.
- **Different levels of satisfaction**: the findings demonstrate a decrease of the satisfaction levels in terms of the library staff and place, although academics were more satisfied with the library staff and library's place compared with undergraduates. On the other hand, undergraduates were more satisfied than academics regarding technology and facilities. Participants showed satisfaction with the face-to-face and e-library services. Significant differences between the undergraduates and academics with respect of borrowing printed books, the use of reference services, access to e-journals and databases, and the use of photocopying facilities.
- **Difference in difficulties:** There were significant differences between undergraduates and academics regarding lack of time, lack of printed books, lack of assistance and inability to visit the library any time and anywhere.

- **Academics' awareness:** The majority of academics were aware of the importance of supporting the EP. They motivated their students to reinforce their learning process using different methods.

For further understanding, the next chapter presents and discusses the qualitative analysis of semi-structured interviews conducted with the librarians and the administrators of the LAIU.

# Chapter 5
# Analysis of Library Staff's Interviews

## 5.1 Introduction

The previous chapter presented the findings of the quantitative data using questionnaires to collect data, and PASW software to analyse this data. The data was collected from two stakeholders' groups (undergraduates and academics). This chapter discusses the analysis of data gathered from eleven face-to-face semi-structured interviews, conducted with the library staff of the LAIU, and categorised into two groups (librarians and administrators). The group of librarians contained eight librarians covering all the LAIU's branches, while the group of administrators included the two administrators, and the director of IRD. Similar processes of data analysis were applied to both groups. The purposes of the interviews were to explore the real situation of the LAIU based on the library staff's perspectives. The thematic analysis approach was carried out in terms of analysing the qualitative collected data. Inductive codes were created through gathering data and a preliminary understanding of the data itself (Section 3.2.9.2). This chapter investigates the library staff's perspectives in relation to EUERs, end-users' ISB, EUS, and LP. They sought to explore the influence of social media on the LAIU. The next sections are focused on supporting EP, and the role of the library staff. The final section investigated the implementation of SWOT analysis to understand the real situation of the LAIU and to find an appropriate approach to develop it.

## 5.2 End-users' Expectations and Requirements (EUERs)

Based on literature, EUERs have changed due to a number of reasons (section 2.2.3). The main aim of the ALs has concentrated on meeting the EUERs. Integrating ALs into academic institutions and the EP has reinforced the role of ALs in supporting EP and meeting academic requirements of end-users. In this study, understanding the EUERs was an important issue to be investigated. The focus was to determine the EUERs via:

- Investigating key EUERs regarding the library staff's perspectives;
- Exploring the change of the EUERs as considered by the library staff;

- Determining the differences with EUERs between undergraduates and academics regarding the reasons of seeking information, and between undergraduates themselves regarding demographic variables;
- Considering the library staff's methods and strategies for understanding and meeting these requirements.

Indeed, LAIU considered that the core priority of ALs is to meet EUERs. In this context, LAIU provides a number of effective e-/LISs and a set of efficient e-/IRs and databases, a number of library staff, and other equipment and facilities (appendix B). Additionally, connecting LAIU to academic institutions enhances EP and results in meeting EUERs. The respondents confirmed this assumption. They believed that the association between LAIU and EP meet EUERs by reinforcing curricula through providing sufficient number of e-/IRs and cooperating with academics:

"*The most important task of the library is to meet the needs of teaching and learning. That means the integration between it and the activities of the educational environment…This means acknowledging curricula and all disciplines. That means to increase the communication between the library and the educators*". (AK, Male, Director, 40+ year old).

Based on this view, meeting EUERs, especially for academic requirements, is the key goal of the LAIU. Meeting the requirements of end-users, for both undergraduates and academics, were taken into consideration.

Hence, it is important to identify the main EUERs regarding the library staff's perspectives in order to understand the EUERs; and on the other hand, determine the gap between what end-users really required and what library staff thought it is required.

### 5.2.1 EUERs of the LAIU

EUERs have been widely changed due to the use of technologies in the librarianship domain and because of the change in the education system. It is assumed that the librarians of LAIU were aware of the changes that occurred in ALs' environment, librarians' roles, and in EUERs as well. Hence, it was important to investigate whether the respondents were aware of the real EUERs or not. Thus, respondents were asked to determine the EUERs in terms of searching and obtaining information. They indicated that the key EUERs are obtaining updated and accurate information, and accessing a

bulk number of databases rapidly and effortlessly. Interestingly, they stated that there are distinctions between the EUERs regarding the purpose for requiring information *and the status of the end-users:*

*"Students in general look to obtain quick answers and information. Students need information in order to graduate. It is possible that the academics need accurate information or general information about a specific subject*". (C, Female, Librarian, 20-30 years old)

It was believed that the role of librarians has expanded with the adoption of ICT in the librarianship domain. They considered that end-users, especially undergraduates, required help from expert librarians in guiding, assisting, training and teaching them how to use the library, how to search for and find the required information and how to develop their skills and research strategies:

"*I am helping students in accessing information, training, and guiding them. The majority of users expect me to help them during their journey searching and using the library*". (G, Female, Librarian, 20-30 years old)

From the respondents' perspectives, end-users require library spaces and the location should be quiet and convenient. They determined that end-users, especially undergraduates, considered the library as a fundamental place for study and discussion. Undergraduates expected that the LAIU would provide various types of spaces such as silent places for study and social areas for discussion, using multimedia or meeting friends, in addition to providing group-meeting rooms for further discussion. In the LAIU, the spaces of the central library and its branches were not adequate to meet this expectation. Although the library provided three computer labs attached to the library, nonetheless that was not sufficient to meet all the end-users' expectations:

"*The library is located in the faculty of Business building on the second floor, in a good location, but it is not enough to meet our EUERs. Nowadays, they expect that library should offer a social space in order to meet their friends, discuss and use Facebook and other social media, as well as another space just for study*". (G, Female, Librarian, 20-30 years old)

With the adoption of Horizon (library management system), e-catalogue and other ICT; the library staff, especially administrators, found themselves facing new challenges,

and new expectations and requirements. Thus, providing a flexible system with a vital surface, which responds to the EUERs in the simplest and most intelligent way, was required. Undergraduates' expectations and requirements have taken precedence, as they are the largest segment of end-users attending the library:

> *"The interface must be simple and easy to meet users' requirements. The most important thing is how end-users see and interact with the system. The system should be flexible, fast and easy. Horizon system offers that. It has been adopted by a huge number of libraries all over the world and it has a very good reputation"*. (M, female, Administrator, 20-30 years old).

LAIU provides a number of on-site services alongside online services (appendix B). The assumption was made that all LAIU's branches would provide the same e-/LISs; however, EURs were diverse depending on faculties. Indeed, The provision of e-/LISs differentiated between branches according to the EUERs, although the basic services were similar. A number of services were required in several branches rather than others; this depended on the faculties' specialization. Table 5.1 demonstrates the e-/LISs provided at each branch of the LAIU.

**Table 5.1.** ***The Requirements of e-/LSs Regarding LAIU's Branches***

| Services | Central library | Library of pharmacy | Library of Civil | Library of Information & Communication Engineering | Library of Business | Library of Fine Art & Architecture |
|---|---|---|---|---|---|---|
| Circulation | X | X | X | X | X | X |
| Online Catalogue | X | X | X | X | X | X |
| CAS | X | X | X | X | | X |
| Reference Service | X | X | X | X | X | X |
| SDIS | X | | | X | | |
| Scanning | X | | | X | | X |
| Photocopying | X | X | | X | X | X |
| Book Reservation | X | | | X | | |
| Translation | | | X | | | |

Table 5.1 presents the key e-/LISs provided by the LAIU's branches, which were based on the EURs as identified by the librarians. For instance, the faculty of Fine Art and Architecture (FAA) was required to provide a high quality scanner in order to scan pictures in a high-resolution level:

"*As you know, studying Art means using several pictorial resources. So, the library found that it is necessary to provide a high-quality scanner which produces images with high resolution and in a short time*". (S, Female, Librarian, 30-40 years old).

Providing a translation service in other library branches might not be necessary, since the majority of e-/IRs are in Arabic and English, and as the education system in the AIU is based on English. On the other hand, it was expected that some e-/LISs such as "Book reservation" might not be remembered by a number of librarians during the interviews conduction, while they are offered (appendix B).

Meeting EUERs is required during and after graduation by adopting appropriate functions, services and technology regarding the EUERs, and according to the nature of the library. Moreover, developing end-users' skills to help them immerse in the job market became necessary:

"*We are seeking to provide our services for students before and after graduation. Assisting them to get the skills required to get jobs and to develop themselves is important*". (S, Female, Librarian, 30-40 years old).

Briefly, respondents, to an extent, were aware of the change that occurred into the ALs' environment that impacted on their EUERs. From their perspective, end-users require precise and up-to-date e-/IRs. These e-/IRs are required to be accessed easily via a flexible dynamic LMS. Experts were required as well to guide, train, and develop end-users' skills. Offering convenient and various spaces are required as well, especially by undergraduates for different purposes. Furthermore, e-/LISs should be provided based on the requirements of each faculty and end-users' group. Responding to the EUERs should be through and after graduation.

As the respondents determined the main EUERs, it is questionable that how did they identify these expectations and requirements? What were their methods and strategies to identify them? The next section answers these raised questions.

### 5.2.2 Strategies to Understand EUERs

In terms of understanding EUERs, it is important to question: "Are end-users able to determine their requirements?" Critically, the investigation demonstrated that not all end-users were able to determine their requirements. The inability to identify their

requirements was due to limitations in search skills and strategies, and/or due to a lack of understanding the tasks performed:

*"Sometimes users are unable to determine their requirements. For students, some of them ask for a book title. Although there are many books in the same subject with different titles, they insist on the same title. Actually, they have a lack of searching skills or strategies*". (O, Female, Librarian, 20-30 years old).

Understanding EUERs is the first step in meeting the requirements. Librarians seek to understand EUERs by adopting different methods. The most commonly used method is a direct communication and interaction with end-users. Asking end-users several questions, to identify their requirements and their purpose for seeking information, is necessary. Furthermore, communication via email was another important approach to understanding the EUERs:

*"We rely on the communication with our users to understand their expectations and requirements, either through direct or indirect communication, or via emails. We adopt face-to-face discussions and communication*". (C, Female, Librarian, 20-30 years old).

Another indicator that assists in understanding EUERs is the frequent use of the e-/IRs. It is assumed that the more e-/IRs are used, the more they are required. Providing requested items via acquiring e-/IRs is a crucial approach to meet the EUERs. Additionally, distributing regular questionnaires is essential to understand the EUERs relying on the end-users' feedback. Thus, adopting different methods can assist in understanding and meeting EUERs, thereby increasing the level of the EUS:

"*We identify their requirements through the information required, through the frequency of book and topic use, or the less used…Furthermore, questionnaires help greatly in understanding the expectations and requirements of the users and measuring their satisfaction level with services provided or evaluating their need for new services"*. (F, Male, Librarian, 20-30 years old).

Work experience increases the library staff's ability to understand EUERs. They become more able to distinguish between different requirements of end-users. For instance, academics were interested in obtaining information that reinforced their teaching or for personal purposes in specific domains. Hence, providing pro-active services such as CAS and SIDs leads to better achievements:

"*Weekly, I send emails to all faculty members. Now, I have a good experience and clear ideas about the educators' requirements, even about their interests. So, we filter data and send it to people who are interested in it*". (AK, Male, Director, +40 year old).

The assumption that meeting EUERs can increase the level of the LP is confirmed. All respondents agreed that raising the level of the LP by improving the e-/LISs and e-/IRs was an essential approach to meet the EUERs. In addition, providing expert librarians who are able to help, guide, teach and train end-users is another approach to respond to EUERs:

*"Enhancing the level of library services and providing enough information resources will meet users' needs. Training is not enough to solve all problems that might face them. Each librarian has to teach users how to deal with problems and how to develop their skills*". (O, Female, Librarian, 20-30 year old).

To summarise, although the EUERs have changed with the adoption of information technology in the ALs, end-users expected and required providing a set of resources, functions and services. New expectations and requirements have arisen regarding expanding the librarians' role, restructuring the library's spaces, offering e-/LISs and e-/IRs, and providing a flexible LMS. Furthermore, the EUERs varied between the end-users' groups regarding the purpose for requiring information, their status, and their faculties. Despite the fact that a number of end-users were unable to identify their requirements in the LAIU, library staff implemented several methods to understand, and therefore, meet the EUERs.

Since requiring information is a stage of the ISB, it was important to investigate the end-users' ISB. The next section discusses information-seeking attitudes of the end-users in the LAIU.

## 5.3 End-Users' ISB

Seeking information comprises a number of activities and behaviour that are performed in order to obtain required information. Investigating end-users' ISB was crucial, as recognising the need for information shapes the initial stage of seeking information.

In this study, the ISB of the end-users were investigated according to:

- The frequencies of attending the LAIU;

- The difference in ISB among the end-users' groups;
- The difference of ISB among the same group of end-users;
- The methods adopted to seek information.

The frequency of end-users' attendance fluctuated upon the time based on end-users' needs to use the library; although undergraduates were in more regular attendance. Their number increased during examination and assignment periods. Thus, adopting statistics and conducting studies can be useful to investigate the numbers of end-users who and when they attend the library, and what their purposes are:

"*The numbers of library visitors differ from one month to another. They increase before or during exam periods especially for students who become more frequency to attend the library. Statistics also show the reasons for using the library, either for borrowing, studying, searching or reference inquiries*". (FA, Female, Librarian, 30-40 years old).

Seeking information can take different forms according to which group the end-user belongs to. This statement is connected to the end-users' requirements regarding searching and obtaining required information (Section 5.2.1). There were differences between the end-users' groups regarding the nature of information required, and the purposes and methods used. For instance, the general attitude of undergraduates was to use e-IRs, as e-IRs are an effective way to obtain large amounts of information rapidly, while academics tended to use printed resources to gain specific and specialized information:

"*Students want information just for doing their assignments, so they prefer online databases such as Springer and EBSCO because they provide students with rapid results. For academics, they need deeper and more specialized information. They pay more attention to recent editions of books*". (M, Female, Administrator, 20-30 years old).

The length of time spent in the LAIU is another principle for identifying the difference in ISB between undergraduates and academics. It was apparent that undergraduates spent more time when compared with academics, even though there were a number of academics who attended the library for a long period of time when they carried out particular sessions in the library:

"*Students stay in the library for a long time. For academics, they usually come for a short time to borrow books, but they might stay for a long time when they attend the*

*library with their students to deliver a lecture*". (FA, Female, Librarian, 30-40 years old).

However, the librarian C did not recognise any variances between the undergraduates and the academics' requirements; she indicated that the end-users' ISB differed between themselves, according to their specializations:

"*I do not think that there are any differences between the needs of students and academics because the research is the same for both of them. We cannot separate the students' needs from the academic academics' needs. It varies depending on their specializations, where we see that the students of informants, arts and architecture are more interested in information available via the Internet to follow up such as designs and software, while pharmacy students rely primarily on the basic references as constitution of medicines*". (C, Female, Librarian, 20-30 years old).

Interestingly, four librarians stated that the majority of undergraduates tended to obtain the required information by using Google and other search engines; as accessible, available, and rapid methods to gain information, although the LAIU provides an adequate collection of e-/IRs that support their curricula:

"*There are a lot of students who prefer using Google more than using the library information resources. The reasons are the accessibility, availability and capability of obtaining information, although we provide users with very important information resources and books that are unavailable on Google*". (K, Male, Librarian, 20-30 years olds).

It is to be expected that undergraduates are familiar with using ICT, Internet, social media and other technical applications more than academics, since they were born in the Internet generation and were accustomed to using the technologies in their daily-life:

"*I relate to this generation of students who belong to the digital generation. Therefore, I know that our generation is more familiar and more integrated with technology. For example, we are very interested in the internet and different social media like Facebook*". (K, Male, Librarian, 20-30 year old).

To summarise, end-users' ISB has changed due to a number of reasons. They were varied between the end-users' category regarding the time spent in the LAIU, the purpose for using the library, and the methods used to gain the required information. Furthermore, the attitudes of end-users differed between end-users in the same category with regard to their specializations. It is clear that the ISB of the current generation of

undergraduates came to rely on using the Internet and different searching engines in terms of seeking information.

As the relationship between EUERs and EUS has been articulated in the literature, it was crucial to investigate to what extent the end-users of the LAIU were satisfied with their library services, functions and resources. This investigation can determine to what extent the EUERs were met as well. Next section focuses on exploring EUS in terms of providing high quality e-/LISs, valuable e-/IRs, supportive assistance, substantial space and facilities, and expert staff.

## 5.4 EUS

EUS is an important principle, which can reflect to what extent ALs are able to meet EUERs and support their EP and interests. Thus, providing a sufficient number of e-/IRs, and efficient e-/LISs and other features enhance the level of the LP and, therefore, the level of the EUS.

EUS can be measured by exploring the relationship between meeting EUERs and satisfying end-users. Respondents confirmed this assumption. They agreed that providing the required e-/IRs, high quality e-/LISs and other features would consequently lead to satisfying end-users. Since two models of satisfaction were adopted in the literature; Material and Emotional model, offering a sufficient and valuable collection of printed and electronic IRs is the approach to achieve Material Satisfaction Model, while the Emotional Satisfaction Model can be determined by initiating direct communication and interaction between end-users and librarians:

*"I think that they are 85% satisfied. The library is seeking to meet its users' requirements by providing all requested items. Meeting their needs means satisfying them. We are communicating with them and asking them about their satisfaction with the services, collections and databases. Furthermore, accessing databases on- and off-campus was a positive principle in satisfying them*". (A, Male, Librarian, 30-40 years old).

Providing and delivering e-/LISs are the basis of ALs. The more the LAIU is able to offer high quality of e-/LISs, the more end-users will be satisfied. This assumption was explored regarding the respondents' perspective (Section 5.5.4). Measuring the level of service quality relies on the use of these services. In the LAIU context, the librarians were asked to determine the most library services that reflected EUS with the LP. There

was an agreement amongst the librarians that end-users were more satisfied with online services, such as accessing databases and browsing the e-catalogue, than with on-site services; however, circulation and reference services were the on-site services that most reflected their satisfaction.

Engaging library experts, who are able to manage and deliver e-/LISs and e-/IRs, is another important principle to increase the level of satisfaction. It is essential to provide experts, who are able to communicate, assist, guide, and understand EUERs, especially with the dissemination of information (Section 5.5.5). In addition, statistics and surveys are important indicators to measure the level of EUS:

*"I would like to say that it is very good. We help and guide end-users to obtain their required information and most of them are satisfied with the results. Their repeat visits to the library are evidence of their satisfaction with the services provided, and the statistics show that*". (G, Female, Librarian, 20-30 years old).

Furthermore, respondents' awareness of the change of the EUERs and the change in library's environments is crucial. Their awareness can be the initial point of recognising the need in order to enhance the level of the satisfaction by improving the level of LP (Section 5.5):

"*The level of satisfaction with the library is very good. The limitations of borrowing books and references caused some dissatisfaction, but we solved this problem by providing scanning and photocopying services and by increasing the number of books that can be borrowed from three to five"*. (S, Female, Librarian, 30-40 years old).

Since the end-users belong to the digital age, offering appropriate information technology can increase the level of their satisfaction. Hence, adopting an efficient LMS (Section 5.5.6), a well-designed website, and other features such as labs, computers and Internet (Section 5.5.7) are important for improving the LP, and therefore, increasing the level of EUS:

*"The operating system we use is Horizon, the library management system. We have three labs with computers and the Internet is available for all our users. Furthermore, the library website is designed very well to give all information and to meet end-users' needs. Moreover, we post announcements on the university and library website. Ultimately, users are very satisfied"*. (M, Female, Administrate, 20-30 years old).

On the other hand, the locations of the central library of AIU and its branches were a problematic issue. Each branch of the LAIU is positioned in a different faculty according to its discipline. Although this separation was useful in terms of being close to the end-users regarding their specializations, dividing the library into six segments has a number of disadvantages, such as having a small space for each branch, and shelving printed IRs in different places; thus, end-users, especially undergraduates, were dissatisfied with their library in terms of space. There was an expectation to provide spaces for academic and social purposes:

"*My library is placed on a total space of 120m2. It is just one big room in the faculty of Informatics and Communication Engineering. It is very crowded during assignment periods and before exams. Students are not satisfied with the library space. They expect us to provide a space for study and another space for social activities"*. (F, Male, Librarian, 20-30 years old).

Opening hours was another problematic issue that was identified by the librarians. Opening hours can negatively affect EUS by limiting the usefulness of the e-/IRs, equipment and services. On the other hand, offering online services such as e-catalogues, and subscribing e-libraries and databases were crucial to expand the utility of the e-LIS, providing e-IRs at any time, and anywhere. Based on the librarians' perspective, the end-users were dissatisfied with the opening hours of the physical library; however, they were quite satisfied with the availability and accessibility of e-IRs and e-LISs:

"*First, I want to mention negative points: Time factor is a weak point. The library opened for a short time from 8:00 to 4:00... I would like to say that it is possible now to access a large amount of information, regardless of the library opening hours by offering our online services. Actually, that was a satisfactory element for end-users and for us as well"*. (S, Female, Librarians, 30-40 years old).

Concisely, in the LAIU context, there is a correlation between meeting EUERs and EUS. The more the library is able to understand the EUERs, the more the level of satisfaction is promoted. Also, the relationship between EUS and the level of LP is linear, whereby the increase of the level of LP increases EUS. Improving EUS is correlated with providing an adequate level of e-/LISs, sufficient e-/IRs and databases, expert staff, efficient LMS, adequate and convenient spaces, and appropriate ICT and equipment.

In the next section, the LP of the LAIU is investigated by identifying the main factors and indicators affecting it.

## 5.5 LP

LAIU provides a set of services, resources, and functions for its end-users. Investigating the ability and operation of the LAIU was essential to recognise the gap between what is provided and delivered, and what is expected and required. Interestingly, there is no specific indicator to measure the LP, since measurement is a subjective task, based on each user's experience and background. Thus, identifying a number of principles determined by the LAIU's staff were the indicators to measure the LP. Hence, it was fundamental to realise the library's ability to achieve its goals and objectives, following international standards, and providing appropriate and valuable e-/IRs, e-/LISs and other features according to its EUERs.

### 5.5.1 Achieving Library Goals

Identifying to what extent the LAIU was able to achieve its goals is crucial to assess the LP. Respondents determined that the main library goal is to meet EUERs. Hence, the LAIU seeks to meet its EUERs by offering a set of valuable printed IRs, and providing convenient access to e-IRs that support the end-users' curricula (Section 5.5.3). Furthermore, providing a number of e-/LISs (Section 5.5.4) underpinning the EUERs is an important objective to achieve the goal of the LAIU, in addition to providing other features and functions that attain the anticipated goal:

"*Our goal is to help our end-users to take advantage of the library and its resources in as little time and with as little effort as possible. Secondly, it is to help our end-users to access their required information. In my opinion, as long as the end-users get what they want, our services are good*". (FA, Female, Librarian, 30-40 years old).

*"What we are trying to do is meet our users' needs. We provide a set of valuable information resources, access to e-libraries, and several services. Our aim is to respond to our users' needs and satisfy them. We are working with some lecturers to support their textbooks and pedagogies"*. (AK, Male, Administrator, 40+ years old).

Hence, embedding distinct and clear visions and goals can assist in increasing the level of the LP through pursuing, and working constantly to achieve the desired goal.

### 5.5.2 Following International Standards

Following international standards is an essential instrument to assess the level of ALs' success. A set of standards should be embraced by the ALs to help meet their EUERs, such as the number of IRs offered, the number of library staff members who are involved, the amount of budget spent, the frequency of end-users' attendance, and the quality of library services provided.

Critically, standards should be followed that are commensurate with the library goals and objectives, aiming to add value to the library. According to the respondents, pursuing these standards is a necessity to increase the LP. Hence, LAIU is pursuing the standards of the SHES through providing five-printed IRs for each end-user. Further standards are followed for the subscription to e-libraries and databases in terms of offering an adequate number of e-books, and providing scientific and full-text articles. Furthermore, dealing with publishers and suppliers is another criterion that is considered essential with regard to factors such as reputation and price:

"*Actually, we follow the standard of the Ministry of Higher Education regarding the number of resources, which is that each student should have 5 books. In contrast, for databases and e-libraries, we have standards: e-information items should be scientific, full-text. We have standards to deal with publishers such as the price, reputation, and based on the subjects and if it is compatible with our database system*". (O, Female, Librarian, 20-30 years old).

Budget is a crucial principle that can affect the LP. Allocating and spending money according to the library policy can be problematic if the library policy does not have a clear mission. Having an indistinct mission means having a lack of strategy for purchasing IRs and results in spending money ineffectually. In the LAIU context, it was important to invest a sufficient amount of money for purchasing valuable IRs, and expanding the value of the LAIU. Determining the priorities and preparing them in advance was based on the LAIU's police regarding the disciplines, the number of students, and the type of IRs. The allocation and spend of the budget depended on the visions and suggestions of the Director of IRD and other librarians involved in the library. Critically, eight of respondents deemed that the budget invested in the LAIU was regarding the university policy:

"*Budget is a very important factor that is taken into consideration when we purchase items. Budget differs based on the kinds of resources, facilities, the price of*

*resources, and the number of students in each faculty. The difference in dividing the budget is based on the university policy and its trend. We have invested a lot of money. I think we need to invest more money to enrich our information resources."* (AK, Male, Administrator, 40+).

Adopting international standards for cataloguing and classification can increase the level of the LP in terms of unifying the library procedures. LAIU adopted MARK2, Anglo-American Cataloguing Rules (AACRs) and Dewey decimal classification which are espoused by an enormous number of academic libraries all over the world:

"*They are good services. We adopt international standards like MARK2, Dewey decimal classification and Anglo-American Cataloguing Rules (AACR). We have good information resources and collections, a good online catalogue, and statistics*" (K, Male, Librarian, 20-30 years old).

Another standard followed by the LAIU is adopting the number of librarians according to the library and the collection size, and the frequencies of attending and using the library. Hence, the number of librarians should be varied from one branch to another in proportion to responding to the library and its end-users' requirements. Seemingly, respondents were aware of the lack of the librarians' numbers, and to the importance of providing experts who are able to improve the level of the LP:

"*I think it is necessary to have more than one librarian in each branch of the library. Based on international standards, the number of librarians will be linked to the size and number of library collections and users. We are just 2 librarians working in the central library and this is not enough".* (C, Female, Librarian, 20-30 years old).

Briefly, following local and international standards is a significant factor to enhance the LP; it is assumed that the level of EUS will increase by providing unified library procedures, an adequate number of e-/IRs and allocating an appropriate budget. Furthermore, engaging an insufficient number of librarians can negatively affect the end-users' decision to use the library, if they do not find expert librarians who guide and assist them, or if they do not receive adequate help.

### 5.5.3 E-/IRs

Providing a sufficient number of e-/IRs is an important criterion to measure the level of the LP. The availability of and accessibility to appropriate and valuable e-IRs, and the provision of updated editions in both printed and e-/IRs are robust components to meet EUERs, and therefore, to satisfy them:

*"The existence of important references to be used by students, the existence of collections that meet the needs of end-users in the field of pharmacy, and the continuous provision of new editions of the IRs are very important"*. (FA, Female, Librarian, 30-40 years old).

The variation of e-/IRs provided (different languages, types (printed and electronic) and sources (books, journals, and databases, so on) can increase the LP by supporting end-users' curriculum and assisting them to achieve their academic tasks. The provision of e-/IRs should be acquired according to a predetermined strategy and specific procedures that formulate the acquisition processes. LP can be enhanced by obtaining end-users' feedback on the library information collection and by purchasing appropriate inquiries and suggestions:

"*The library contains a mixture of printed and electronic books and references, a number of databases, dictionaries, encyclopaedias, directories and catalogues. References are classified by topics and mostly in English, as well as Arabic, French, Spanish, German and Italian. The acquisition process is helpful to know the users' requirements toward the library information resources and to get their comments*". (C, Female, Librarian, 20-30 years old).

*"There is a form within any branch of our libraries. Any user can fill in the form and we will seek to provide all requested items, if we see it is an important item and it is not included in the libraries*". (K, Male, Librarian, 20-30 years old).

To summarise, there is a correlation between providing appropriate e-/IRs and improving the LP. The constant provision and flexible access to e-/IRs, consistent with the library strategy and policy, increases the level of LP.

### 5.5.4 E-/LISs

One of the key roles of ALs is to provide high-quality and varied services in order to meet their EUERs, and respond to the EP's demands. Thus, offering a wide range of library services, both on-site and on-line, is required to enhance the LP. Furthermore, providing free or inexpensive e-/LISs can be a vital factor in attracting end-users to use their LAIU:

*"Our library provides an internal and external circulation service. We also provide reference services, Internet service, photography, scanning and printing services and current awareness service. These are the most important services we provide… very important for students"*. (FA, Female, Librarian, years old)

Assessing the quality of e-/LIS is a significant indicator to measure EUS (section 5.4). It can be done by gathering statistics for end-user attendance, adopting direct observation, conducting questionnaires and/or obtaining end-users' feedback. In the LAIU context, five of the librarians agreed that the LAIU provided a 'good' quality level of library services, while three of them thought that it was 'very good'. The librarians' perspectives reflected the LAIU's capability of meeting the EUERs (section 5.2), and the level of satisfaction:

"*I suppose that they are good services. In my opinion, the more users get what they want, the more the library services are good. We have statistics measuring users' numbers and resources used, which reflect the users' satisfaction. We use questionnaires that are carried out by the university. Such questionnaires include an assessment of all services provided. They are distributed randomly. Last year, library services were ranked as the best services provided*". (FA, Female, Librarian, 30-40 years old).

"*I think that it is very good. We seek to obtain our end-users' feedback… in the circulation service we increased the numbers of books borrowed and the loan period to meet the users' needs*". (C, Female, Librarian, 20-30 years old).

The awareness of the need for developing e-/LISs and adopting appropriate information technologies can increase the level of service-quality; in turn, this increases the level of EUS by meeting their expectations and requirements:

"*There is a need to develop some services and to add new services when that is necessary. For these reasons, I did not say they are excellent. The distributed questionnaire shows that the effectiveness of our services was positive, and the level of users' satisfaction was very good*". (G, Female, Librarian, 20-30 years old).

To summarise, providing a set of varied e-/LISs was required in the LAIU to increase its LP. Furthermore, the relationship between the quality of the e-/LISs and the EUS is linear, whereby the increase of the e-/LISs' quality increases the level of EUS. Measuring the level of the quality was important in order to improve the quality of the e-/LISs, and to raise their value and deliver these services in an efficient way. Adopting different approaches to measuring the e-/LISs' quality is crucial; however, there is a need to enhance the e-/LISs, and offer new services that respond to the education demands.

### 5.5.5 Qualified Staff

The involvement of experts who are able to understand EUERs is an essential principle to promote the LP. Offering e-/LISs is inadequate without approaching these services in an efficient way by experts. In addition, it is significant to involve adept administrators who are able to cope with an implemented LMS:

"*We have a good staff for both programmers and librarians who have a desire to work in this field for simple reasons. The reasons are for developing themselves and for research purposes"*. (AK, Male, Administrator, 30-40 years old).

The role of the library staff has expanded with the adoption of information technology in the ALs' field. Thus, the engagement of expert becomes a necessity. Hence, it is essential to deliver e-/LISs, and guide, educate, and assist end-users (Section 6.9) in terms of finding and using the information required and in developing their skills:

"*Our roles as academic librarians are to meet the users' requirements, teaching users the strategies of research to access information, guiding, using the internet, searching in books, instructing them how to use references and electronic library, informing them of the library and circulation rules and about everything new, and making suggestions. My major role is guiding them to the information, whether printed or electronic, databases or images, as well as training students at the beginning of every semester"*. (S, Female, Librarian, 30-40 years old).

Furthermore, library staff, in the digital age, has further roles such as dealing with suppliers and publishers, according to specific standards determined by the library and University:

"*We meet the users' requirements via providing our libraries with all items requested and other information resources. In addition, we liaise with reputable publishers and suppliers. We are dealing with suppliers. We have subscribed to a number of online databases and libraries such as Springer, HINARI, and EBSCO*". (K, Male, Librarian, 20-30 years old).

In the ALs, administrators (technicians) work as a part of the library staff to deal with the problems related to adopting ICT, prepare reports and statistics, improve the library's website, and helps them cope with all related issues. The aim of involving the administrators in the LAIU is to increase the library's capability of meeting its EUERs:

"*As a technician, I am responsible for everything related to the library system like errors in the system, preparing reports... Furthermore, our roles include preparing statistics, developing the library website, and advertising on the university and library*

*websites. We are responsible for things related to students' requirements, as well as posting on the university website"*. (M, Female, Administrator, 20-30 years old).

Critically, engaging a limited number of library staff with inefficient experience can decrease the LP by decreasing the ability to meet the EUERs, and the ability to provide further services. This therefore can have an impact on the EUS:

"*We don't have enough librarians involved in our library. I know that our staff is doing the best, but involving just one librarian in each branch of the library is not enough. This influences our library; the librarian is unable to respond to all users, and this can put him under pressure. Correspondingly, users will be dissatisfied. This can lead to miss a number of our users*". (G, Female, Librarian, 20-30 years old).

Briefly, the engagement of expert staff is essential to enhance the level of the LP, thereby meeting the EUERs. Integrating a technician with librarians becomes important to deliver e-/LIS efficiently and to respond to end-users' needs in an effective way. The limitations of providing an adequate number of expert librarians affects the LP overall.

### 5.5.6 LMS

LMS is a vital investment in ALs. Adopting the LMS in the ALs aims to provide crucial functions, accurate processes and easy usage. It offers a fundamental infrastructure to deliver library services such as acquisitions, circulation, and serials. Hence, embracing an appropriate LMS, which can cope with the library and its users' requirements, is necessary.

In the LAIU context, Horizon 8.0 is employed to deal with the LAIU functions such as acquisition, circulation, cataloguing, searching. The director of IRD stated that it is a noteworthy LMS to be adopted. It has been implemented in the LAIU since 2007 combined with Windows 7, which is the software most commonly used in Syria. He stressed that the LAIU is the pioneer university in Syria of both private and governmental universities in embracing Horizon and motivating others:

"*Horizon offers all required functions. The system is designed to provide solutions for libraries. The required modules of Horizon run very well in our University, such as acquisition, circulation, cataloguing, searching and serials, even the interfaces. Horizon helps a lot in the Claiming, following-up and auto-lettering... We are the first university that has used this system. We encouraged others to use what we use. The system is well-known in America and part of Europe. This indicates that it is successful*". (AK, Male, Administrator, 40+).

Although Horizon 8.0 was considered a successful LMS, several limitations restricting the LP were articulated. In the LAIU context, Portal, reports and search options were determined as being major limitations affecting the system. Hence, the need to upgrade Horizon 8.0 was required in order to overcome these limitations. Critically, the inability of upgrading Horizon 8.0 to Symphony (the updated version of Horizon) was articulated as a major challenge facing the LAIU because of the current political crisis confronting Syria. The respondents were aware of the impact of the political crisis on the LAIU's improvement. Since updating the LMS to Symphony was not possible, the suggestion was made to adopt open source (UV-Find) as an alternative solution. It was impossible, under the current circumstances, to spend an enormous portion of the budget to update the existing LMS:

"*We are not looking for another system. The current situation imposed on Syria did not allow the company to update the version of the system to 'Symphony', which addresses the issues of the OPAC and portal in a very good way. This program is located at the University of King Abdullah in Jordan and the American University in Al-Sharjah. It contains a great solution. We are trying to find the best alternative solution that can be used"*. (AK, Male, Administrator, 40+).

A number of reasons were behind suggesting UV-Find. The key reasons were that it is free open source, available online and is fully compatible with Horizon. It is used in a considerable number of ALs over the world. Moreover, the administrators conducted a study that demonstrated that a large number of academic libraries are effectively using UV-Find:

*"It is compatible with Horizon. When you want to look for a solution or a program to support an existing program, you try to be fully compatible. Many libraries are providing Horizon 8.0 or Symphony. The simple reason is that they want to add value to the system, which the company is unable to add it free. We selected UV-Find because many libraries prove it. Moreover, it offers more advantages than disadvantages".* (AK, Male, Administrator, 40+).

To summarise, adopting LMS, which is able to meet the LAIU and its EUERs, is essential to administrate the library process and procedures. Respondents were aware of the need to update Horizon 8.0 to improve the level of the LP. In addition, they were aware of the challenges that faced them during the current political crisis. Thus, the suggestion was under discussion to adopt UV-find as alternative software that is used globally and is compliant with Horizon 8.0.

### 5.5.7 Library Spaces and Equipment

Providing a high-level of LP should include providing an appropriate environment to deliver high quality of e-/LISs and access sufficient amount of e-/IRs. Offering various convenient spaces serving different purposes and function is important. The standard conditions of the library architecture are indispensable principles to meet the EUERs. Facilitating ALs with essential equipment such as computers, labs, and other facilities is required to improve the LP:

"*We increase our library performance by providing a quiet and comfortable environment, by providing appropriate physical conditions of lighting and air-conditioning. In addition, we have three labs, more than forty computers, the Internet and staff to assist students solve technical and research problems"*. (FA, Female, Librarian, 30-40 years old).

The library location and size are important principles that should be taken into consideration before designing ALs. Locating ALs in a convenient place is essential. Furthermore, determining the ALs' size should be based on specific standards regarding the number of students enrolled in the university and the information collections. In the LAIU context, the majority of librarians (six out of eight) believed that the central library and its branches offered a convenient environment for end-users to read and study. In contrast, two librarians stated that providing a convenient space for reading or studying did not sufficiently meet the EUERs. They believed that providing social spaces is required as a result of changing the EUERs: (Section 5.2.1).

*"As you know, the expectations of the end-users have changed. This means they are looking at the academic library from a new perspective. They expect that the role of the academic library in the digital age has extended. Adding social features and space to the library is very important*". (S, Female, Librarian, 30-40 years old).

Briefly, enhancing the LAIU's performance is based on setting specific goals and strategies, following local and international standards, providing an adequate number and flexible access to the e-/IRs. Furthermore, it relies on allocating an adequate budget, engaging a sufficient number of librarians and technicians, providing varied e-/LISs, adopting LMS, and facilitating the library location and structure. Hence, there is a linear relationship between improving the LP and meeting and satisfying end-users; the more the LAIU provides the above-mentioned principles, the more it will be able to increase its performance. In addition, the more the LAIU increases its performance, the more it will be able to meet its EUERs and increase the level of its end-users' satisfaction.

For further understanding, the next section discusses the e-/LISs provided by the LAIU in more detail.

## 5.6 Library Services Provided

Providing a varied and high quality e-/LISs is one of the main functions of ALs. Adopting ICT in the ALs field has affected the provision of the e-/LISs. These implementations led not only to changes in the types of services provided, but also, led to an increase in their quality, and the ability to meet the EUERs:

> "*Providing library services through using new technologies has become faster and easier. More options are offers…that led to meeting the users' needs*". (A, Male, Librarian, 30-40 years old).

Based on the results, the library provides a set of services. These services are articulated in appendix K. From the librarians' perspective, end-users were satisfied with the services provided (Section 5.4); however, they had several comments on providing a number of services, such as reference services, marketing and training. The focus of this study was to discover the librarians' perspectives on these services that were observed as important services in terms of reinforcing the end-users in their EP, and the weaknesses of providing them can affect the LP.

### 5.6.1 Reference Services (RSs)

Providing RSs aims to respond to end-users' inquiries in different subjects and topics supporting them in their EP. All librarians responded to this study considered it a fundamental service that meets the EUERs:

"*Providing reference services in academic libraries is very important. I think that guiding and directing users are essential parts of reference service. Reference services include assisting users to find a particular book, a particular search, and, to use the library catalogue or classification system*". (FA, Female, Librarian, 30-40 years old).

Providing RSs is done by adopting a number of methods and channels. In the LAIU context, RSs were provided using phone, email and face-to-face inquiries. In contrast, a number of the librarians (five out of eight) were aware of the need to provide other types of RSs. They suggested and/or deemed it necessary to adopt "Ask a Librarian" and Chat Reference Service.

The inquiries varied from requesting specific information to asking for the library collection, rules, general information and/or research strategies. Since the end-users' requirements were different, their inquiries differed according to their specialization and interest:

"*The questions are about certain scientific and specialized topics. The questions are about library rules, library use, Circulation rules, computer use, the library website, cataloguing, Databases, Research strategies, specific search. Furthermore, there are also students who are interested in languages like French or English*". (C, Female, Librarian, 20-30 years old).

The next section discusses the librarians' perspectives on marketing as an important service that should be provided to publicise the library services and resources.

### 5.6.2 Marketing

Providing e-/LISs and e-/IRs is not sufficient, unless it is valued by presenting them for better delivery and use. In the LAIU context, the value of providing 'marketing' was considered. It is performed by informing and updating end-users about the library's rules, IRs, library services, and other events and issues:

"*Marketing is very important. Firstly, through emails; we send emails to all faculty members to inform them about new books, about events, about new databases, or new services. Secondly, through the University website. Thirdly, by dealing with the users who attend the library most frequently*". (F, Male, Librarian, 20-30 years old).

The majority of the respondents considered that providing CAS and SDIS were essential approaches to promote the marketing of the LAIU. Moreover, Facebook and other social communication networks (SCNs) were considered crucial approaches to market the library and were influential in attracting and updating end-users.

#### 5.6.2.1 *Facebook as a Marketing Approach*

Facebook is considered one of the most common methods currently used for communications. It was embraced within the LAIU to market existing and/or new library features (Section 5.7). From the respondents' perspective, it was recognised that exploiting Facebook for marketing increases the current of browsing the university and library websites:

"*Facebook is used by all people as we know. It is a good place to communicate with users. The main objective of creating a page on Facebook is to identify the library and its contents, and then it will not be difficult to browse the university or the library*

*website. We are always looking for the best ways to deliver the information to our users. Facebook is inevitably used by the majority of students"*. (AK, Male, Administrator, 40+).

The adoption of the Facebook is crucial to keep the end-users up-to-date with the library issues by announcing and hosting the latest news and events of the library on the library page on Facebook:

"*By social communication networks, we can update our users with new information, services and collection. Facebook is a very important tool to announce up-to-date news to our users. For example, we announce new services offered and new books to our users through our page on Facebook*". (AY, Male, Administrator, 30-40 years old).

To sum up, connecting the LAIU to Facebook is fundamental in terms of adding the value of social features to the library. In addition, it provides the opportunity to introduce and update end-users about everything new of the LAIU.

#### 5.6.2.2 *CAS and SDIS as Marketing Approaches*

Providing CAS is important to alter end-users about new arrivals of the e-/IRs and/or new e-/LISs. In the LAIU context, CAS is considered a fundamental method to approach marketing in the LAIU, and to support end-users, especially undergraduates, in their EP:

*"Current Awareness Service helps users to find out about any new improvement or it could be a form of marketing for new services or information materials*". (A, Male, Librarian, 30-40 years old).

LAIU adopts SDIS, and considers it a marketing approach that informs its end-users about any new feeding of the library. The provision of the SDIS was confined to the academics and a limited number of students who were interested in pursuing new features of the library. Undergraduates are not the core of providing SDIS because it is difficult to serve the huge number of students enrolled in the AIU:

*"For the SDIS, we send emails to our academics and some students who are interested in new books or new services. We inform them about new catalogues, databases and journals. We send emails to the academics informing them of new issues of journals. Yes, I can say it is marketing, because our aim is to deliver our library stuff to our users*". (C, Female, Librarian, 20-30 years old).

According to the respondents' perspectives, offering an efficient marketing service is valuable in terms of updating and transmitting the library services and features, and

enhancing the LP, thereby satisfying end-users. Introducing the library content increases the availability and accessibility of the library content:

"*Offering a marketing service in an efficient way that helps us to introduce our library more and more. It is an important element to enhance our library performance and increase the library usage*". (O, Female, Librarian, 20-30 years old).

In addition, marketing plays a significant role in supporting the university and library processes in terms of reinforcing the EP and supporting the end-users:

"*Marketing plays an important role in supporting the educational process through marketing our library efficiently, introducing our services and resources, updating our users with what is new, empowering the library's role and linking the curriculum with library sources"*. (G, Female, Librarian, 20-30 years old).

Although considering CAS and SDIS as marketing approaches is crucial to enhance the LP and the EP, several limitations were realised by a number of the respondents.

#### 5.6.2.3 *The Limitations of the Marketing Strategy*

Although different approaches of marketing are adopted within the LAIU, two of the librarians presumed that the marketing service was not provided efficiently. These two perspectives should be taken into consideration to improve the provision of this service. Thus, finding other channels and approaches for marketing is important to introduce the library content and features more efficiently:

"I think we offer many good services, but there is a lack of marketing. For example, the services will be marketed better if we put bulletin boards in different areas of the university, or by doing activities that attract users, or by adding a notice such as 'for more information, please visit the library". (G, Female, Librarian, 20-30 years old).

Another limitation was related to the end-users' attitudes. Not all of end-users were interested in pursuing up-to-date news and events that were hosted on Facebook, the library website or other websites:

"*We use the bulletin board to announce new issues, but the announcements displayed must be more attractive. In addition we inform our users by email, but a lot of users do not regularly check their emails"*. (C, Female, Librarian, 20-30 years old).

To summarise, offering the marketing service adopting different approaches is essential to introduce library features and services. It is considered a crucial service in terms of motivating the end-users to be involved and to taking advantage of their library. On the

other hand, the lack of the marketing affects the level of the LP, which dramatically affects the level of EUS.

The next section discusses offering training as an important service to develop the skills of both the end-users and the library staff.

### 5.6.3 Training

Training is another vital service that should be provided effectively to develop end-users' skills, and to increase career progression of both library staff and end-users. Adopting ICT in the ALs is required to conduct further training workshops in order to educate users regarding new functions of the library and develop new skills. In the LAIU context, providing training was mentioned by the librarians more than the administrators as a result of the direct interaction with the end-users. Hence, they were more able to decide whether they really needed to join training workshops to develop their skills or if the end-users really need training to develop their search strategies and/or other required skills. Furthermore, the years of work experience influenced the interviewees' statements about the need to conduct training workshops. The interviewees with less work experience expected to undertake more training workshops than others who have more experience.

Critically, respondents indicated that they participated in several training workshops to develop their skills and make themselves able to cope with the end-users in an efficient way. Table 5.2 presents a set of training workshops conducted by the AIU with the aim of improving the library staff's interactions with end-users.

**Table 5.2.** ***The Training Workshops Participated In By the Library Staff***

| Interviewees | Indirect library services | Direct library services | LMS | | e-libraries & subscribed databases | Additional training courses |
|---|---|---|---|---|---|---|
| | | | Horizon | Symphony | | |
| AY | | | √ | √ | √ | |
| M | | | √ | √ | √ | IT |
| K | √ | √ | √ | √ | √ | AISO |
| O | √ | √ | | | √ | |
| A | √ | √ | √ | | √ | |
| C | √ | √ | √ | √ | √ | |
| F | √ | √ | √ | | √ | |
| FA | √ | √ | √ | | √ | |
| G | √ | √ | √ | | √ | |
| S | √ | √ | √ | √ | √ | |

A number of training courses were conducted in the LAIU. All respondents joined a set of training workshops on subscribing e-libraries and databases. Furthermore, all librarians participated in the training workshops on direct and indirect library services such as the use of e-catalogues, RSs, circulation, acquisition, classification and indexing. On the other hand, the workshops on LMSs (Horizon and Symphony) were conducted to develop the skills of library staff in order to provide sufficient services and therefore to meet the EUREs and increase the level of the EUS:

*"As a trainee, I joined a training workshop on databases subscription, library system, Horizon… as a trainer, I have participated in a set of training courses such as orientations"* (C, female, Librarian, 20-30 years old).

Furthermore, training workshops are conducted by Vocational Training Centre (VTC). VTC is a dependent unit of the AIU. It provides training workshops separately from the LAIU due to a number of issues related to the budget and other complicated details. It is responsible for providing end-users with the skills required. The objective of the VTC is to promote career development and to train end-users internally and externally. It provides its services based on the EUERs. Hence, the services provided are being changed according to emerging requirements. Furthermore, respondents have attended a number of training workshops, even though they were responsible for conducting training workshops for end-users:

"*Training is provided by the vocational training centre. It is completely separate from the library because of the details, budget, and communication with companies. Agreements have been signed to train students internally or externally... Although, the university has a role to develop users' skills, they should develop their skills according to their needs*". (AK, Male, Administrator, 40+).

Briefly, conducting training workshops is important to develop the end-users' skills in terms of improving their technical and searching skills, building search strategies and career development. Although the LAIU has a strategy for conducting the training workshops, the provision of training varies depending on the emerging EUERs. Interestingly, the library staff are involved in the training in two ways: as trainers and trainees. They are responsible for teaching end-users how to search and how to solve technical problems. At the same time, they join a number of the training workshops in order to develop their communicative and technical skills.

The next two sections discuss the respondents' perspectives on conducted training workshops according to their groups (Librarians or Administrators).

#### 5.6.3.1 *Librarians' Perspectives on Training*

From the librarians' perspective, 'Orientation' is the most important feature of training. It identifies the library's contents and services. The aim of orientation is

to increase the information literacy of end-users in terms of teaching them how to use the library, and how to develop their skills. It is carried out by the librarians at the beginning of each semester to introduce all students, employees and academics to the library. Furthermore, new librarians involved in the LAIU join training workshops conducted by the administrators to inform them about the library and its roles:

"*At the beginning of each semester, we conduct an orientation. Students are divided into groups. We give them an overview of Internet labs, the Central Library, its branches, its services provided, research strategies and access to information. Training courses are conducted for all new librarians to introduce the library, its contents and services"*. (FA, Female, Librarian, 30-40 years old).

It is suggested by the respondents of the librarians who are conducting the orientation increased the end-users knowledge of the libraries and thus the number of inquiries about using the library decreased after conducting the orientations. Hence, conducting training workshops is valuable:

*"Users' inquiries are about information resources, research strategies, circulation roles and library opening hours. In general, the majority of these inquiries occur before conducting the orientation"*. (FA, Female, Librarian, 30-40 years old).

LAIU strives to offer adequate training workshops in order to keep abreast of the technological revolution and to meet the changing EUERs. Furthermore, it is noticeable that providing information literacy workshops can increase the ability of end-users, especially undergraduates, to develop their technical, cognitive and search skills. Respondents explicated that conducting regular training is crucial to develop the users' skills and increase the utilization of the library:

*"Some users have a lack of skills in using computers and searching strategies of databases and books, and even searching on the Internet in general; hence, we conduct training workshops regularly that improve our users' skills and benefit our library... Many students became more able to use the library effectively by themselves after attending these training workshops*". (C, Female, Librarian, 20-30 years old).

Six of the librarians believed that training should be seriously undertaken in the library strategy as an essential component of the development:

"*Development must include improving the library collections, training the users, working on developing the librarians' skills*". (G, Female, Librarian, 20-30 years old).

To summarise, the librarian respondents were aware of the importance of providing training workshops, in order to introduce the library and to develop the end-users' skills for better attainment. However, the majority of respondents believed that training service was provided for both of library staff and end-users in a reasonable way, the perspective of the other two librarians was taken into consideration in terms of there being a need to improve this service. Furthermore, offering orientations at the beginning of each semester was important regarding becoming familiar with the library content and usage, expanding their information literacy, and developing their skills. On the other hand, it was important for the librarians in terms of reducing the number of inquiries after conducting the orientation.

#### 5.6.3.2 *Administrators' Perspectives on The Provision of Training*

The administrators who participated in this study were responsible for providing training services to the potential end-users of the LAIU. Providing training services is crucial to increase end-users' skills and improve their achievements. Thus, the administrator's role, in terms of training end-users, comprises collaborating with the librarians and providing training workshops and information about the library, its services and resources, searching strategies, and technical problem solving. Furthermore, they are responsible for teaching the librarians how to use and cope with newly subscribed e-libraries and databases:

"*We participate in the training workshops of both students and academics. Orientations introduce our library services, strategies and methods of search. Other training workshops are for new online-subscribed databases or any*

*problems that may be confronting employees related to the library system, network and computer errors. When we subscribe to a new library or database, we train the librarians how to use it. We are seeking to develop their skills for better achievement*". (M, Female, Administrator, 20-30 years old).

Furthermore, the administrators believed that training can encourage end-users to be more involved in the library by obtaining adequate information about how to use the library and its features and thereby reinforcing their EP:

"*Through training courses and orientations, we introduce our library, its services and its information resources, as well as explaining that users have to behave like researchers. So, they become more familiar with the library services and resources which enrich their learning process"*. (AY, Male, Administrator, 30-40 years old).

Briefly, the respondents of the administrators were aware of the importance of training for both librarians and end-users. Training the librarians in how to deal with new services and e-libraries can increase the level of the EUS by increasing the librarians' skills and information about the library features and content, thereby providing and delivering information in a more informed manner. Furthermore, it was discovered that there was a relationship between conducting efficient training workshops and promoting the EP. The more training workshops are conducted based on EUERs, the more the EP is reinforced.

Since adopting ICT has affected ALs, investigating the impact of social media networks on LAIU was important to clarify to what extent social Communication Networking (SCNs) has affected it. The next section discusses the impact on the LAIU and its end-users.

## 5.7 LAIU and SCNs

Social media and communication tools have become a part of people's daily life. Increasing the use of SCNs such as Facebook, Twitter, MySpace, Flickr, LinkedIn and YouTube has prompted ALs to adopt them. This implementation was important to access, share and contribute knowledge of interest. Hence, recognising the

importance of linking the library's website with Facebook and other SCNs assists in attracting new users, reducing the cost and improving links with the library:

*"We have created a page on Facebook because it is used widely by all people in Syria. Honestly, we are now tending to favour Twitter. The main objective is a description of the library and its contents on the website. Furthermore, it is free for all our users. Students are familiar with this kind of technology"*. (AK, Male, Administrator, 40+).

Since the new generation of end-users grew up during the ICT revolution, they were familiar with technology and accustomed to using laptops, mobile, iPhones and iPods. The use of technology influenced their daily life and changed their attitudes. Hence, linking LAIU with SCNs increases the number of end-users and the interaction between the library, librarians and end-users themselves. It assists in delivering the e-/LISs dynamically:

"*I belong to this generation of students. Linking the library to social media makes the library more familiar. All students are interested in Facebook. For example, if I am browsing my Facebook account and I see a post from LAIU, I will read it and may like it. We started providing this service last December 2011. Over a short period, about 400 users have joined it. It was a good idea to create a page on Facebook. It is a good way to interact with our users"*. (K, Male, Librarian, 20-30 years old).

Connecting the library with Facebook is crucial to attract and motivate end-users to follow the library page; however, it depends on their attitudes to use it. It is considered a significant marketing approach (Section 6.6.2.1), which updates end-users with new feeds regarding the library, its collection and services, therefore, supports in promoting the LP:

"*By social media, we can update our users with new information, services and collections. We are steadily seeking to improve our services. Now, users can access their academic library off-campus. Facebook is an important tool to announce up-to-date news to our users. For example, we announce new services offered and new books provided by the library page on Facebook to our users*". (AY, Male, Administrator, 30-40 years old).

On the other hand, five of the librarians believed that the association between the library and Facebook is a means of providing VRSs:

*"I believe that linking our library with Facebook is a type of virtual reference service; where we can respond to users' inquiries on our page on Facebook*". (K, Male, Librarian, 20-30 years old).

In the same context, the connection between the LAIU and the SCNs is a fundamental strategy to empower the role of the LAIU in the digital age:

*"Sure, linking the library with social networking such as Facebook and Twitter boosts the role of the library and increases the number of users. It helps in marketing, providing services and collections, and keeping users up-to-date with any developments in the library"*. (S, Female, Librarian, 30-40 years old).

Since the link between the LAIU and Facebook is an effective factor to increase the level of LP, it is considered essential to increase the level of EUS (See 7.4):

"*We provide very good services. We link our library with Facebook, and the marketing is good as well. We got feedback from our users, and it was positive. Users are satisfied and they are happy with using Facebook for academic proposes"*. (O, Female, Librarian, 20-30 years old).

Moreover, it was realised that this connection between the LAIU and the SCNs supports the EP for both the undergraduates and academics by establishing discussion, communication and interaction between them:

"*Linking the library website with SCNs such as Facebook and Twitter is an attempt to reach to tutors and students, thereby reinforcing the educational process*". (AY, Male, Administrator, 30-40 years old).

To summarise, keeping up with the development of ICT has encouraged the LAIU to embrace the SCNs in order to adapt to the development of librarianship and to attract end-users into more interaction with the library. Facebook has been adopted within the LAIU, while adopting other SCNs is under investigation. Furthermore,

the SCNs are considered the means of providing other library services such as Marketing, CAS, and VRSs. The findings present that associating the LAIU with the SCNs is significant to increase the level of the LP, and support end-users in their EP, thereby increasing their level of satisfaction.

## 5.8 Supporting EP

As stated above, the role of the ALs has expanded extensively to meet changing EUERs. This expansion occurred as a result of improving the EP in academic institutions. Hence, it is necessary to adopt innovative ICT that help in enhancing LAIU's environment. Thus, a further role of the ALs has emerged in order to support end-users in their new educational environment. Initial awareness of a substantial role that LAIU should play regarding supporting the EP is important (Section 5.9). There are a number of principles that should be considered in order to support the EP. These principles refer to reinforcing the educational curricula, linking the library with educational objectives and activities, building a significant relationship between the librarians and the end-users and between the librarians and reputable suppliers:

"*The most important task of the library is to meet educational needs. That means the integration between it and the activities of the educational environment. That means knowing the curriculum and all disciplines. This means expanding the communication between the library, students and educators. This also means the communication between the library and publishers*". (AK, Female, Administrator, 30-40 years old).

In terms of supporting the educational pedagogies, providing an adequate acquisition service is another important principle that assists in meeting the EUERs for diverse information (Section 5.5.3). The acquisition process should be performed according to predetermining strategy. End-users should be involved in suggesting and requesting information items. Hence, building the information collection correlated to the EP, and providing rapid access to the e-/IRs is significant to promote the EP:

"*Furthermore, there is an acquisition form; any user can fill it either printed or e-form. We will seek to provide him/her with all items requested… We determine end-user's needs by knowing the user's specialization. We respond to their requests and enrich our library with their requested items. They can fill in the printed or online form, or contact us using our university or library website*". (K, Male, Librarian, 20-30 years old).

Involving academics in the acquisition process is crucial to support the EP by suggesting related items that enrich their curricula and assist undergraduates in preparing their assignments and exams. Moreover, recruiting expert publishers to conduct training workshops and to teach academics the key methods of delivering modules, can empower the library's role of supporting the EP:

"*About 80 publishers have visited the university to train educators how to teach particular books. We have collaborated with the educators to choose the appropriate series of books. We have invited the publishers who are experts in this area to conduct training courses for teachers about teaching methods and tools that should be used*". (AK, Male, Administrator, 30-40 years old).

Librarians play a fundamental role in supporting the educational objectives and activities (section 5.9.1). Finding diverse methods to increase the interaction with the academics and the institutions can reinforce the EP and activate the library's role in terms of supporting students in their academic attainment:

"*Initially, we support the educational process through communication with academics. We had many attempts to increase the interaction between the librarians and the academics. We interact with our staff by emails and conversations, prepare lists of resources for information on a particular subject, and guide students to take advantage of them"*. (C, Female, Librarian, 20-30 years old).

Furthermore, cooperation between librarians and academics assists in supporting the EP. It can be done by conducting a number of lectures in the library or its labs. Additionally, librarians play a significant role in motivating end-users, especially students, to attend the library, and use its e-/IRs and other provided services to enrich academic pedagogies:

"*I know that academics encourage their students to visit the library. Some tutors did their lectures in the library or its computer labs. Lecturers encourage their students to reference their assignment using library information resources. Education curriculums need to be supported through library information resources*". (M, Female, Administrator, 20-30 years old).

On the other hand, the librarian 'O' criticized the fact that there were a number of academics who were not interested in inspiring their students to attend and use the library. Furthermore, changing end-users' behaviour, in terms of seeking information, is another challenge facing the LAIU (section 5.3):

"*Unfortunately, many of our academics do not encourage their students to use the library information resources. Furthermore, the majority of undergraduates prefer searching via Google to get their information in a fast and easy way"*. (O, Female, Librarian, 20-30 years old).

To support teaching materials, it is essential to promote its end-users' skills, increase their satisfaction, and build a solid relationship with the end-users:

"Our library has an important role in supporting the educational process. Textbooks are not enough; you need resources that enrich and support these textbooks, and the library does that. We connect the educational process with the library. We connect the lecturer with the students and with the librarian. We are working on developing end-users skills". (A, Male, Librarian, 30-40 years old).

Offering an adequate marketing service is another significant factor to support the EP by informing end-users about available and accessible e-/IRs and services, thereby using them for EP (exams, assignments and lectures):

"*Our library plays an important role in supporting the educational process, through providing resources that enrich the educational process, and marketing these resources and services for better achievement*". (G, Female, Librarian, 20-30 years old).

Moreover, linking the library to the SCNs affects the EP positively (Section 6.7) by adding the utility of the social features to the EP:

"*Linking the library website with social media such as Facebook and Twitter is an attempt to reach tutors and students in order to support them in their educational environment"*. (AY, Male, Administrator, 30-40 years old).

Furthermore, providing adequate equipment is another principle to support EP (Section 6.5.7) by providing a quiet place to study, Internet, labs and other ICT. Moreover, collaboration with other universities and cultural exchanges should be taken into consideration for supporting EP and improving end-users' experiences:

"*We are also interested in developing library labs that are used by the student and lecturer. Furthermore, communicating with other universities. We have conducted two experiences with two universities from Germany. They were successful"*. (AK, Male, Administrator, 40+).

In the LAIU context, one of the main challenges that faces the LAIU, in terms of supporting EP, is that an enormous number of the end-users prefer borrowing textbooks (curricula) more than other available e-/IRs. Furthermore, recognizing the library just as a place for study and ignoring its valuable collection of e-/IRs can reduce the utility of the library:

"*In all developing countries, and Syria is one of these countries, there is a lack of academic research. Students and academics are looking for the information that just covers their curriculums. Most of them attend the library just to read or study, while our library includes very important and specialized information resources*". (K, Male, Librarian, 20-30 years old).

Concisely, linking the library to academic institutions activates the library's role in terms of supporting EP by integrating the library's contents and services with academic institutions and suppliers. Involving academics in the acquisition process, marketing and associating the library with the SCNs have a significant role in reinforcing the EP. Likewise, supporting end-users in their educational environment requires developing their skills, understanding their ISB, and activating the academics' role. Hence, the relationship between increasing the LP and supporting EP is linear; increasing the level of the LP, increases the reinforcement of the EP.

## 5.9 The Roles of LAIU‘s Staff

Shifting ALs from being a place to store IRs to the format of providing media and adopting technologies has led to a change in the role of ALs and library staff in order to conform to EUERs in the digital age. This trend requires providing professional staff who are able to deliver a set of emerging and/or developed e-/LISs. Hence, embracing expert librarians, technicians, and administrators with advanced skills is essential. In this study, the roles of the library staff were divided into two groups. The first group focuses on the roles of the librarians, while the administrators’ role comprised the second group.

### 5.9.1 Librarians' Roles

Based on this investigation, the librarians of the LAIU played fundamental roles in guiding, training, teaching and assisting end-users (section 5.5.5). The intended meaning of each term is clarified as follows:

**Training-** developing end-users’ skills and capability of using the library, its existing e-/IRs and e-/LISs, by conducting orientations per semester and/or carrying out other workshops.

**Guiding**- directing end-users to the information needed from either the library collection or databases.

**Assisting-** helping end-users in finding e-/IRs on the library’s shelves, in browsing the Internet, and using e-catalogue and other library services.

**Educating**- teaching end-users how to acquire information and create their research strategies.

**Communicating**- interacting with the end-users orally or via email to understand their expectations and requirements.

In this context, the majority of the librarians considered ‘guiding’ (seven librarians out of eight) and ‘training’ (five librarians out of eight) as the most important roles that they must play, as academic librarians, in order to meet the EUERs and support the EP:

*“Sure, our library plays a very crucial role in supporting and reinforcing the learning processes. Our librarians help, guide, and train users how to search for and find specific subjects*”. (O, Female, Librarian, 20-30 years old).

Furthermore, involving the librarians who work in the acquisition unit is important to meet EUERs. Acquisition librarians play an essential role in terms of responding to end-users’ information inquiries, communicating with publishers and suppliers, and subscribing to electronic libraries:

*“We meet our users’ requirements via providing our libraries with all the requested items and other information resources, and via contacting reputable publishers and suppliers... We contact our academics to select the required resources in various specializations”*. (K, Male, Librarian, 20-30 years old).

The librarians’ role, in terms of promoting the EP, can be enhanced by increasing the interaction between the librarians and the tutors, and by providing e-/IRs that enrich and support curricula (section 5.8). Providing required e-/LISs is necessary (section 5.5.4) as well. Since librarians' roles have been extended, educating and involving academics in the library and its content assists in increasing the use of the library and the end-users’ attainments:

“*Meeting the requirements of users is my main role. Through the pre-communication with professors, I prepare lists of library collections in some specializations for some professors, who in turn will motivate students to use the library, supporting curriculum, directing users and teaching them how to get the information with less time and effort”*. (F, Male, Librarian, 20-30 years old).

Interestingly, the role of librarians in terms of meeting the EUERs and supporting the EP is not confined to providing e-/IRs and e-/LISs for undergraduates through

their years of higher education, but in addition, it comprised meeting their requirements after graduation:

"*We strive to provide our students with the services and information resources after graduation. Students can come and benefit from our library even after graduation. We welcome all of them*". (FA, Female, Librarian, 30-40 years old).

On the other hand, two librarians were not precisely aware of which specific e-/LISs they should provide and how they could improve their LP; however, he was aware that it was because of a lack of his skills or knowledge:

"*I think that I am not fully aware of the services that should be provided, maybe because we are not fully ready or I may need to develop my skills more*". (A, Male, Librarian, 30-40 years old).

### 5.9.2 The Administrators' Role

Administrators in ALs play an important role regarding administrating LMSs, improving the library and the university websites, and making them more flexible to use. Linking the library and university websites with the SCNs, and pursuing and updating these websites are additional roles of the administrators to introduce the library and its services and resources:

"*Our role is to administrate 'Horizon'. We have a role in developing the library website, administrating the website, and linking the library website to social networks*". (AY, Male, Administrator, 30-40 years old).

Furthermore, administrators play an essential role in training both librarians and end-users (section 5.5.5), creating reports and preparing statistics:

"*Our department is responsible for training students, tutors and librarians. The workshops are about library services, strategies and search methods. The training is also for a new subscription to an online database or any problems that might confront the librarians related to the library system. Furthermore, we are responsible for preparing statistics and reports*". (AY, Male, Administrator, 30-40 years old).

Another crucial role of the administrators is in supporting end-users in their EP and underpinning their educational curricula by motivating them to use the library and take advantage of its services and resources:

"*Academics were so surprised that we have very good information resources and subscribed databases, although we always send them emails informing them about anything new. Yes, we encourage our staff to use our library by sending emails. Moreover, we encourage them to motivate their students using the libraries as well"*. (M, Female, Administrator, 20-30 years old).

To summarise, an awareness of the changing roles of the library staff is the first stage in ensuring that they play an efficient role. Involving the librarians with the administrators is necessary to respond to the adoption of ICT. The new roles of the library staff strive to support end-users in their EP by meeting their expectations and requirements, even after the graduation.

## 5.10 SWOT Analysis of LAIU

In order to gain an accurate impression about the situation and propose appropriate conceptual models that respond to its needs, SWOT analysis was implemented; based on the respondents 'perspectives. SWOT analysis was significant in terms of sustaining strengths, avoiding weaknesses, and considering the opportunities for improving the LP, and the threats facing their development. Table 5.3 summarises the respondents' perspectives of the key strengths, weaknesses, opportunities, and the threats of the library under investigation.

**Table 5.3** ***SWOT Analysis of LAIU***

| Strengths | | Weaknesses | |
|---|---|---|---|
| Librarians | • Remarkable collection of e-/IRs;<br>• Providing free and good quality of e-/LISs;<br>• Adopting international standards;<br>• Conducting questionnaires to measure the EUS;<br>• Involving end-users in the library functions. | Librarians | • Insufficient number of librarians;<br>• Lack of retrieval search mechanism;<br>• Lack of marketing;<br>• Unallocated budget;<br>• Lack of the end-users' and librarians' skills;<br>• Some services need to improve. |
| Admins | • Professional staff<br>• Adopting Horizon which provides the main functions that meet EUERs;<br>• Activating the Horizon Portal using net, ASP, Oracle database;<br>• Linking the library website with Facebook. | Admins | • The slowness of the Internet;<br>• Horizon 8.0 is limited to searching for images and reporting;<br>• Financial issues with Horizon 8.0;<br>• Horizon is compatible with Z39 protocol. It does not work under other protocols;<br>• Lack of a clear policy and strategic planning. |
| **Opportunities** | | **Threats** | |
| Librarians | • Adopting VRSs;<br>• Providing information experts;<br>• Providing Mobile Library service;<br>• Establishing a forum;<br>• Conducting further training and information literacy workshops;<br>• Supporting users in their EP. | Librarians & Admins | • Political crisis confronting Syria<br>• Limited Internet capability<br>• Issues related to the absence of publishers. |
| Admins | • Updating to a new version of Horizon or more flexible system (e.g. UV-Find);<br>• Developing the "student area" page;<br>• Linking the library website with other SCNs;<br>• Adding social features (like, comment, tag and my reading history). | | |

SWOT analysis was implemented in an attempt to determine the opportunities for development with respect to the perspectives of the respondents, and regarding the EUERs. Thus, a number of the interviewees' statements are provided to demonstrate their perspectives on the current situation of the LAIU as follows.

### 5.10.1 Strengths

Several points were positively addressed by the library staff. Based on the librarians, the LP was efficient (section 5.5). The librarians indicated that the LAIU follows international standards, and provides a set of good quality e-/LISs, e-/IRs, and equipment:

"*We have a good library collection in terms of specialized references and different languages and good librarians... I think that conducting training courses is good. We provide a good quality of library services and we follow the international standards. All the elements mentioned are strong points"*. (C, Female, Librarian, 20-30 years old).

*"We get the feedback from questionnaires which are conducted by the university… the essential services are provided such as circulation, reference services, that is very important and so on*". (O, Female, Librarian, 20-30 years old).

On the other hand, administrators showed that the key strengths were related to adopting Horizon 8.0, developing the Horizon portal, and linking the library website with SCNs (section 5.7), and involving expert library staff:

*"I think that Horizon contains all the points needed in the librarianship domain. Modules cover all things that must be covered in a library management system such as acquisitions, circulation, cataloguing, searching and serial... Linking the library website with social media such as Facebook is important to enhance the library performance*". (AY, Male, Administrator, 30-40 years old).

"*We have good staff, both programmers and librarians, who have a desire to work in this field for simple reasons. The reasons are for developing themselves and for research purposes*". (AK, Male, Administrator, 40+).

### 5.10.2 Weaknesses

Respondents listed a number of weaknesses that confronted the library and its staff. The main weaknesses recorded by both librarians and administrators were the lack of end-users' skills, and the lack of a retrieval search mechanism. In

addition, two of the librarians mentioned that there was a lack of marketing (section 5.6.2):

"*The majority of students want information to be at hand without making any effort, they have a weakness in searching skills*". (S, Female, Librarian, 30-40 years old).

*"The weakness of Horizon 8.0 is the users' portal. It performs the basic functions, but there are other things required for users such as research approach (figuration or integrative research) from one window*". (AK, Male, Administrator, 40+).

Moreover, the majority of the respondents considered that there was insufficient number of the librarians engaged in the LAIU (section 5.5.5). Increasing the number of library staff was not part of the library policy and vision that aimed to reduce the number of employees and tended towards automation:

"*We do not have enough staff. We need to involve additional staff. When we are talking about automation, we should reduce staff, not increase it. The policy of the private sector, and even the public, discourages increasing the number of staff*". (AK, Male, Administrator, 40+).

Indeed, the three administrators addressed a number of weaknesses related to Horizon 8.0. These weaknesses were with regards to searching for images, preparing reports, accepting other protocols than Z39, and other issues related to finance. Moreover, the slowness of the Internet was another weakness that influenced the LP:

*"The weakness of Horizon 8.0 is the users' portal. It performs the basic functions, but there are other things required for users such as research approach.... Dealing with images is limited because it is not designed to search for images. Another point related to the accuracy of data entered: the search result appears differently in each time. Budget is one of the system weaknesses. We distribute the budget for all our faculties. When there are two faculties sharing the same information source, we must add the resource to one faculty budget because the system cannot divide it"*. (AK, Male, Administrator, 40+).

### 5.10.3 Opportunities

From the respondents' perspective, it was essential to offer VRSs such as web-form, "Ask a Librarian" Service, and Chat reference service, with the involvement of the experts who are able to deliver these services. Linking the library website with SCNs, adopting a Mobile library service, and conducting training workshops were required as well. Furthermore, all librarians suggested

that adopting a forum would be valuable to activate discussion and interaction between end-users and librarians, and between them and the academics. They believed that offering all the recommended opportunities would assist in supporting end-users in their EP:

*"I hope to provide advanced services to meet our users' needs. I think that providing VRSs will be helpful. I suggest providing other activities such as a forum and expanding the interaction with the student, will motivate them to use the library"*. (C, Female, Librarian, 20-30 years old).

Furthermore, the librarians perceived that sustaining the development and the provision of the e-/LISs and e-/IRs was essential to meet the EUERs. Additionally, investigating potential problems, solutions, and development strategies should be taken into consideration:

*"We are trying to choose and provide the best according to our users' needs, the available time, the users' suggestions and our understanding of their requirements. We try to avoid problems and develop our services regularly. We adopt technology after studying the pros and cons. Then, we test its effectiveness before adopting it"*. (FA, Female, Librarian, 30-40 years old).

On the other hand, administrators deemed that the opportunities to improve the LP would be through adopting open source software that should be compatible with Horizon 8.0. They were aware of the importance of conducting experimental studies in order to choose the most appropriate alternatives. Furthermore, they believe that upgrading the existing LMS and adding social features would be a crucial opportunity to improve the LP:

*"When you want to look for a solution or a program to support an existing program, you will try to be fully compatible. We are trying to take advantage of previous experiments. We have conducted a study… The simple reason is that they want to add value to the system which the company is unable to add for free. We have chosen UV-Find as it has been experienced in many libraries and its efficiency has been proven. Moreover, its advantages outweigh its disadvantages*". (AK, Male, Administrator, 40+).

Indeed, the administrator, AK, argued that the integration between end-users' accounts, financial and academic, would be crucial to reduce management procedures:

"*I hope that when a new user account is designed, it is designed to be compatible with the financial and academic system. We are now working on three different*

*systems that have been purchased separately. We will be able to view and link between the academic and financial system and the user account (HR system). Now, we take the data of registered students, send it to Horizon and then we update it constantly. I do not think that it is a weakness, but we have to do additional tasks"*. (AK, Male, Administrator, 40+).

### 5.10.4 Threats

Respondents agreed that there were a number of threats confronting their library and its performance. The main threat was the political crisis facing Syria. The political situation in Syria has influenced the LAIU in terms of an inability to update the existing version of Horizon to "Symphony", the slowness and the disconnection of the Internet, the incapability to develop or add new services and enhance the library collection. Another threat confronting the LAIU library was the absence of the publishers' role in the Syrian market:

"*The current situation imposed on Syria does not allow the company to update Horizon to Symphony which addresses the issues of (OPAC and portal) in a very good way. Unfortunately, they are unable to come to Syria; they are not able to activate the new version. I exclude providing a chat reference service for a simple reason: When we talk about chatting, we are talking about a network. To be honest, the network in Syria is generally not able to accommodate people's needs. We live in a country where publishers are not available, so it is necessary to prepare purchase orders*". (AK, Male, Administrator, 40+).

To summarise, adopting a SWOT analysis, based on the respondents' perspectives, helps in clarifying the strong and weak points of the LAIU. This analysis assisted in identifying the approaches for developing the library and enhancing its performance, and finding solutions and alternatives for the challenges facing it.

## 5.11 Summary

This chapter has presented the findings of the interviews conducted with both two groups of the library staff of the LAIU (librarians and the administrators). These findings have been conducted to appreciate the real situation of the LAIU from their respective. The results of this chapter have illustrated to what extent the LAIU was able to understand the EUERs of the LAIU. Identifying the gap between what, exactly, end-users need and what the library staff thought have been discussed. Furthermore, the findings have demonstrated to what extent the

LAIU was able to understand end-users' ISB in order to satisfy them. The findings have reflected the respondents' awareness of the real situation of the LAIU in terms of strengths, weaknesses, opportunities, and threads. The results show that:

- The main aim of the LAIU is to meet EUERs, using a set of methods to understand and respond to the EUERs such as compiling statistics to assess the frequencies of use, obtaining the end-users' feedback, and communicating with them;

- EUERs have changed due to adopting ICT, and changing education and lifestyle. End-users of LAIU were more demanding in terms of obtaining wide and up-to-date e-/IRs. They had new expectations and requirements regarding extending the role of the library and its staff (offering social and other spaces, technological facilities, flexible LMS, further services, and involving technicians in the library);

- The findings show that not all end-users were able to determine their requirements, though for different reasons. On the other hand, there was a difference in the end-users' demands and their need for further services depending on their faculties, their status, and the purpose of requiring information.

- There was a difference between the end-users' groups regarding ISB (the nature of required information, the purposes and methods used to obtain information). Moreover, the time spent in the library was another difference between the end-users' groups; undergraduates spent more time compared with academics, and they more frequently used Google and other search engines. Undergraduates prefer to obtain information using textbooks rather than the library collection;

- In general, end-users were satisfied with the e-/LISs, e-/IRs, and other features; although they were more satisfied with the provision of online services. In contrast, they were not completely satisfied with the library location and the library opening hours.

- The LAIU staff adopted a number of indicators to appreciate the LP, despite there being a lack of library space and location, library staff. Furthermore, there was a need to upgrade the LMS for better achievement.

- There is a transitive relationship between the LP, meeting EUERs, and their satisfaction. Respondents believed that increasing the level of the LP leads to meeting the EUERS; therefore, meeting EUERS increases the level of satisfaction. Evaluating the level of EUS is important to enhance the LP.

- There was a lack in terms of providing marketing service to attract new end-users; in spite of considering CAS, SDIS, and Facebook as methods to promote marketing within the LAIU;

- Conducting frequent training workshops is fundamental to develop the skills of both end-users and the library staff. For the library staff, there is a correlation between undertaking training and experience; the library staff with less experience needed more training;

- Adopting SCNs in the LAIU increases the LP, EUS, and supports the EP. Interestingly, age influences the library staff's interest in adopting SCNs;

- LAIU seeks to support the EP by linking the library to academic institutions and SCNs, increasing the interaction with the academics, motivating and involving them in the acquisition process, and developing their skills;

- From the LAIU staff's perspective, improving the LP is necessary in order to meet the EUERs and support the EP by adopting a Mobile Library Service, forum, and other social media approaches; activating VRSs by providing further methods of VRSs and involving Subject experts; developing the skills of both end-users and library staff, and developing the LMS. Recently, any development has struggled as a result of the political crisis that affects the education sector.

The next chapter is set out to discover the problematic situation of the LAIU, using the tools of the SSM

# Chapter 6

## Finding out Problematic Situation of the LAIU

## 6.1 Introduction

In the last two chapters (4 and 5), the findings of different stakeholders (undergraduates, academics, librarians, and administrators) were presented and interpreted. The findings are discussed according to the research questions and objectives, and supported by the evidence articulated in the theoretical framework of the literature. In this chapter, the tools of SSM are used to evaluate the problematic situation of the LAIU, seeking to improve the situation, relying on the findings of chapter 5 and 6. This chapter identifies the problematic situation of the LAIU. The analysis of culture is implemented to understand the role and the power of each stakeholder and actor. A rich picture is built in order to investigate and summarise the main relationships and activities figuratively, and to explore the complexity of the situation. Finally, a summary highlighting the main points of this chapter is provided.

## 6.2 Identifying Problematic Situation

Applying the tools of SSM was essential to diagnose the problematic situation and generate recommendations regarding improving problem areas. However, identified problems did not mean requiring solutions; it meant understanding the "real world" situation for exploring further models. In this study, four different stakeholders were involved to take a part in this research. Having four different stakeholders can lead to different perspectives and perceptions about the real situation. That was expected, since LAIU contains varied human activities and interactions between diverse features (Checkland and Poulter, 2006).

Identifying the problem situation relies on a case study approach to investigate the activities and issues in-depth (Creswell, 2009). It is identified based on the findings of distributed questionnaires, conducted interviews, and the analysis of the SWOT. The analysis is conducted to articulate the question of "why LAIU is unable to increase the response of EUERs and EUS?". Based on the analysis, several challenges and difficulties confront LAIU. Figure 6.1 demonstrates the areas considered problematic for the LAIU. These challenges and difficulties are classified into four categories:

- Challenges related to End-users (EU);
- Challenges related to LP;
- Challenges related to library staff (LS);
- Challenges related to information communication technology (ICT).

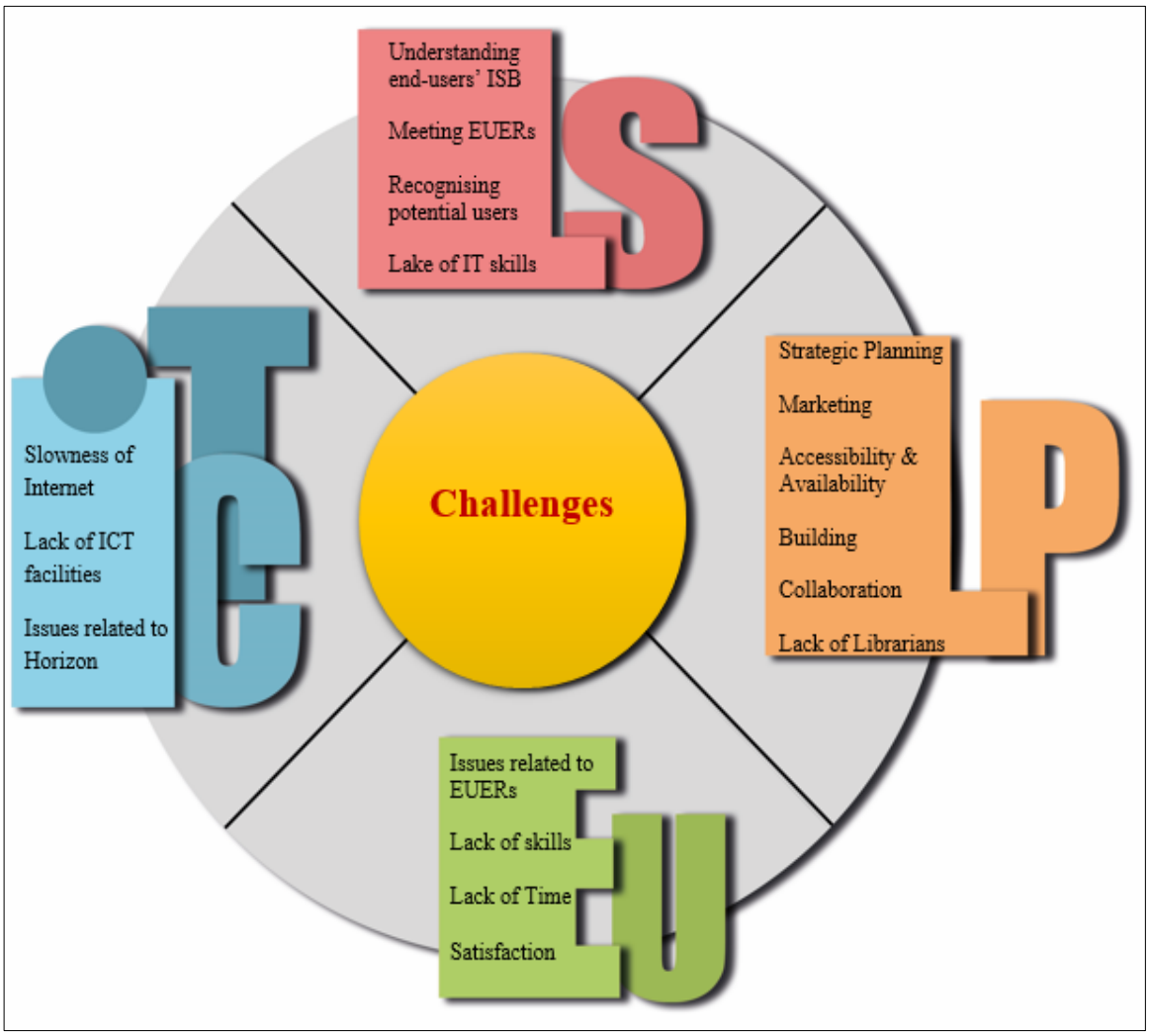


***Figure 6. 1.*** **Areas Considered Problematic.**

As seen in figure 6.1, a number of challenges and difficulties face end-users through their use of the LAIU. A number of these challenges are related to the end-users themselves and their way of coping with their library, while others are related to the LAIU in relation to its staff, performance and ICT.

### 6.2.1 Challenges Related to End-Users (EU)

A number of challenges confront end-users (EU) in terms of their use of their ALs. These challenges are related to EUERs, lack of skill and time, and a decrease of their satisfaction.

#### 6.2.1.1 *Issues Related to EUERs*

The main issue challenging EUERs is the changes of EUERs themselves. Although the main EUERs are academy for supporting academic achievements (section 8.3.1), EUERs have changed due to a number of reasons (sections 2.2.3 & 5.2.1). The current findings show that end-users require the provision of convenient places with social space, and with adequate technical facilities. It is not surprised that the undergraduates required having learning space and facilities more than the academics with more than 70% for each feature. The findings showed that undergraduates have requirements toward their AL more than academics. The need to offer rapid access to a wide range of e-/IRs supporting their education purposes is confirmed. Supportive e-/IRs was highly required from both groups of the end-users (undergraduate and academics) with more than %80. Furthermore, it is required to provide personal services such as VRSs, consultation and instruction. Indeed, these changes challenge both end-users and LAIU in terms of understanding and meeting different EUERs.

Critically, the inability of end-users to determine their exact requirements is the highest obstacle facing both end-users and librarians. Misunderstanding academic tasks leads to having an unclear perception about required information; thereby, end-users will be unable to determine their requirements precisely. Apparently, LAIU's environment is not ready to accommodate these changes. It is more complicated due to the ambiguity of these expectations and requirement.

#### 6.2.1.2 *Lack of Skills*

According to the current findings, end-users have difficulties in using ICT, and searching and finding required information. The lack of end-users' IT skills and searching strategies are articulated from two angles. On the first hand, end-users do not have sufficient IT skills to cope efficiently with emergent technical problems facing them through their use of ICT. Furthermore, they do not have adequate IL and searching strategies. Although the quantitative findings demonstrated that the need of the end-

users to develop their skills was poor rated less than 20% for each of them, the library staff had a different perspective, they assured of the need to develop end-users skills in relation to their IT skills and searching strategy. The lack of the end-users' skills is articulated in literature as a one of important challenges that face both the library and the end-users (Baker & Evans, 2013; Bawden & Vilar, 2006; Brophy, 2007; Crump et al., 2012; Dollah, 2008; Gannon Leary et al., 2008; Poll & Payne, 2006; Rehman, 2012; Restoum & Wade, 2013a; Sidera-Sideri, 2013; Simmonds & Andaleeb, 2001; Vicente, 2004; Webb et al., 2007). Such lack generates an obstacle in finding and using information; therefore, that can be reflected in the EUS (Tagliacozzo, 1977; Applegate, 1993; Restoum and Wade, 2013a, 2013b). On the other hand, developing career skills and responding to the market requirements are other challenges facing end-users (sections 8.3.2 & 8.3.3). There is a need, especially for undergraduates, to obtain sufficient skills that assist them in terms of finding a satisfactory job, and advancing their job position.

#### 6.2.1.3 *Lack of time*

Apparently, end-users, both undergraduates and academics, suffer from overlapping work. Academics do not have plenty of time because of teaching, exam observation, and marking, while undergraduates do not have enough time to attend their library regularly, especially with its limited opening hours, although their attendance is required for achieving their academic tasks. They have lots of work to do in terms of attending lectures and/or labs, doing homework and assignments, and preparing for exams using modules' textbooks. Thus, the lack of time (approximately 90% for academic and 50% for undergraduates) affects their ISB toward using their ALs. The limitation of opening hours is a factor behind the decrease of library attendance and the increase of using e-/IRs and e-LISs. Furthermore, relying on textbooks confines the benefit of the library e-/IRs offered for all end-users in different disciplines. These findings are published by Restoum and Wade (2013a). They are in line with those of Alassaf (2011) who finds that the lack of time and the inadequate opening hours were significant reasons behind the low attendance in SALs.

#### 6.2.1.4 *Satisfaction*

Satisfaction and its relationship with other themes are discussed in section 8.2.4. A number of aspects are determined in terms of increasing the level of EUS. Critically,

measuring and increasing EUS are problematic issues. EUS is differed from one end-user to another; based on his/her knowledge, experience of using the AL, and the group they belong to. Furthermore, it fluctuates according to the end-users' feelings and moods. Following the results, end-users were satisfied with provided resources and services in general, although a number of limitations are determined in relation to the provision of several services and other features (section 4.5 & 5.4). Interestingly, undergraduates were less satisfied with the library space (20%) than the staff; while academics were less satisfied with the provided information technology and facilities with approximately 50%.

### 6.2.2 Challenges Related to LP

LAIU suffers from several challenges and difficulties in relation to their LP. These challenges are due to a lack of planning, a lack of marketing and building, and the absence of collaboration. The accessibility and availability of e-/IRs is another challenge facing LAIU.

#### 6.2.2.1 *Lack of Strategic Planning*

Section 6.2.2.1 discusses the limitations of the LAIU regarding not having tangible written strategic planning that should control the library procedures and performance. The lack of having a tangible written strategic planning can be as result of not having clear vision and goals. The ambiguity of the LAIU's strategy has a negative effect on the LP. It wastes the library's financial resources, effort, and time. Furthermore, it affects acquisition decisions and processes, and services quality. It is difficult for LAIU to set its goals and objectives without having precise strategy determining the library processes and producers, and the librarians' duties and roles.

#### 6.2.2.2 *Lack of Marketing*

Marketing is considered a problematic issue in this study. The perspectives of end-users were conflicted. Academics were satisfied with 'marketing' with 70%, while it was just 37% for undergraduates. Critically, the librarians' perspectives were contrasted as well. The reason behind this contradiction can be considered the absence or vagueness of the marketing strategy that should determine all activities and actions to achieve marketing objectives.

According to the findings, there is a lack of reservation services. This lack reveals the lack of library marketing. Furthermore, the findings of end-users reveal a low percentage for skill development, although the findings of the library staff show that there is an urgent need to develop end-user skills. This reflects the low awareness of end-users toward these provided services. This lack of awareness can be the result of the marketing shortage. These findings agree with those of Alfrih (2010) who shows that Saudi ALs suffer from a lack of marketing services. However, LAIU deems CAS, SDIS, and Facebook crucial approaches to market the library and attract new end-users; there is a need to market LAIU more efficiently and find new channels to achieve that, using different media tools (A. M. Casey, 2004; Sloan, 1998).

#### 6.2.2.3 *Accessibility & Availability*

Providing a set of e-/IRs is not sufficient to meet EUERs and obtain EUS. Organizing and providing easy access to these e-/IRs are important factors to achieve that. However, library staff (LS) considered that one of the LAIU' strengths is the provision of e-/IRs, end-users had another perspective. According to the findings, approximately 29% of undergraduates and 21% of academics had difficulties related to the availability of e-/IRs. Furthermore, approximately 30% of academics and 20% of undergraduates had difficulties in accessing e-journals and e-books. These findings are in line with those of Ahmed (2010), Al-Samir (2009), Alfrih (2010), Restoum and Wade (2013a) who find out that there are limitations in organizing IRs and accessing e-IRs. These difficulties inspire end-users to seek information using other information sources such as the Internet or buying their own books and journals.

The same results are presented by Alfrih (2010) and Brophy (2007), who confirm that end-users change their strategy in seeking information when they face difficulties related to finding or accessing information such as buying a copy of the book, borrowing the same book from colleagues or lecturers, or they might abandon their search. Another challenge in relation to the accessibility and availability is the provision of different e-IRs in varied languages. Providing e-/IRs in different languages requires both end-users and librarians to master languages such as English and German. The limitation of language skills hinders the benefit of the available e-/IRs.

#### 6.2.2.4 *Building*

Providing inadequate building and places is another challenge facing ALs. The findings show that the library building in terms of its size and division into six branches is problematic. The failure of LAIU to meet EUERs, in term of offering social and convenient place with flexible time hours, influences negatively on the EUS. The results are confirmed with 43% of dissatisfied undergraduates, and 11% for academics.

#### 6.2.2.5 *Collaboration*

One of the main challenges facing SALs is the absence of the collaboration between them. Although the LAIU had two successful experiences with two German ALs, the collaboration was stopped based on a decision from the AIU. The findings of the current study support those of the previous studies of Syria (Ahmed, 2010; Al-Samir, 2009; Alassaf, 2011), which show that there is a need to establish a collaborative AL network. Collaboration between ALs can solve a number of challenges related to financial, technical, and other related problems (Ahmed, 2010; Al-Ganem, 2006; Oxnam, 2010; Sheshadri, Manjunatha, Shivalingaiah, & Radhakrishnan, 2011). The limited awareness of the importance of collaboration can be due to the ambiguity of the library strategic planning, and the lack of the librarians' awareness of the collaboration role in improving the e-/IRs and e-/LISs.

#### 6.2.2.6 *Lack of Librarians' Numbers*

The fulfilment of the balance between EUERs and the number of qualified academic librarians is an important challenge facing LAIU. With the work overlapping and the increase of students numbers enrolled in private universities, librarians challenge in responding all inquiries and meet the changing EUERs, especially with the LAIU's strategy in decreasing the number of librarians. Issues related to providing qualified librarians are discussed in section 9.3.5. The findings demonstrate that 28% of undergraduates were dissatisfied and strongly dissatisfied with the librarians, and approximately 7% of them had difficulties in terms of obtaining assessment. Furthermore, 60% of end-users had requirements in relation to providing qualified librarians. These reflect the negative impact of the lack of librarians' numbers on the EUS. Critically, providing sufficient number of qualified librarians is required with the extent of their role in ALs. One librarian in each branch is insufficient to daily serve a considerable number of end-users.

### 6.2.3 Challenges Related to Library Staff (LS)

LS faces several challenges regarding their daily interaction with end-users. These challenges are related to understanding end-users' ISB, meeting EUERs, and recognising potential end-users. On the other hand, LS confronts challenges related to the lack of their own skills.

#### 6.2.3.1 *Understanding End-users' ISB*

Based on the results, end-users' ISB are varied and changing according to their groups, and the purpose of seeking information. Understanding end-users' ISB is a challenging task facing LS; especially with the fluctuation of their interest and mood. Thus, increasing LS's awareness toward end-users' ISB is crucial to understand these ISB, and thereby, meet their requirements. This issue is more problematic with the lack of the number of librarians. Involving librarians in their daily duties limits their ability to observe and recognise end-users' ISB accurately. Furthermore, it is a complex issue with the end-users' inability to explicit their feeling and expressions, and with the lack of end-users' searching and communication skills.

#### 6.2.3.2 *Meeting EUERs*

As the main objective of ALs is to meet EUERs, it is questionable "why does meeting EUERs face serious challenges?". Issues related to EUERs are discussed in section 9.3. Based on the results, LAIU are unable to meet all EUERs because they are changing and sometimes ambiguous. Library staff are unable to identify EUERs for a number of reasons. These findings agree with those of Ahmed (2010) and Al-Samir (2009), who express that librarians had a difficulty in meeting EURs. The inability of end-users to identify their needs is the first obstacle facing the library staff. The change of EUERs, regarding their groups and disciplines, is another obstacle which should be taken into consideration. These findings are in line with those of Budd (2005), Vicente (2004), and Stueart and Moran (2007), who indicate that there are a number of internal and external factors let to the change of EUERS. Furthermore, the findings of Alassaf (2011) show that end-users had different requirements regarding their faculties, level of study, working environment and status. The lack of the library staff's awareness toward the change of EUERs negatively affects the response of their needs. Thus, bridging the gap between what end-users really require, and what library staff thinks is required is the cornerstone in understanding and meeting EUERs.

#### 6.2.3.3 *Recognising Potential End-users*

LAIU, in its endeavour to provide its end-users a valuable set of e-/IRs and e-/LISs, it neglects to take into consideration potential end-users. Neglecting potential is due to the librarians' work overlap and duties. The findings of Al-Samir (2009), Ahmed (2010), and Alassaf (2011) show that librarians struggled with their excessive duties and responsibilities. Recognising and reaching those potential end-users is a challenge in itself. The challenge is in the ability of the library staff to determine and introduce potential end-users, find accurate methods to reach them, and provide appropriate e-/IRs and e-/LIS convenient with their expectations and requirements.

#### 6.2.3.4 *Lack of Librarians' IT Skills*

With the extent of the librarians roles and duties (Section 5.9.1), librarians find themselves in front of a new challenge in relation to the necessity to obtaining new skills, especially IT skills. These findings are consistent with those of Sidera-Sideri (2013), Jordan, Lloyd, and Jones (2002), and Pantry (2000) who find that IT skills are essential for academic librarians. Although the involvement of administrators (Technicians) to be a part of the library staff, librarians find themselves compelled to deal with ICT. This involvement is essential to administrate ICT and to deal with all technical issues (Covey, 2004; Jordan, 1998). What makes dealing with ICT more complex is that librarians have to use ICT to achieve their daily work such as checking in, recording, using Horizon, as well as they need to assist end-users in their use of ICT. Furthermore, training librarians to bridge their IT gaps is another challenge. The library has limited financial resources and limited number of librarians. It is difficult for librarians to find a time to conduct or attend training courses with the overlap work and the extent of librarians' roles, especially with the lack of their numbers. In other words, the absence of any librarian means this branch is unable to serve its end-users during the training period.

### 6.2.4 Challenges Related to ICT

However, adopting ICT within ALs leads to improving their environment and process, it adds a number of challenges regarding facilitating and providing this ICT. The main challenges facing LAIU are the slowness of the Internet, and the lack of ICT facilities. Additionally, LAIU suffers from challenges related to the adoption of Horizon as an LMS.

#### 6.2.4.1 *Slowness of Internet*

The slowness of the Internet is the main challenge regarding ICT barriers facing LAIU. The Internet is restricted by the governmental Internet service provider (the Syrian Telecommunications Establishment). This restriction decreased the quality of the Internet. Moreover, the political crisis facing Syria impacts negatively on the speed of the Internet. The Internet became slower or disconnected sometimes. That decreases the access to e-IRs, and the benefits on e-LISs; especially with the trends of undergraduates to use the Internet for searching and obtaining information. It reduces the support of EP; therefore, it can negatively affect the EUS. These findings are supported by Baker & Evans (2013) who show that the Internet and World Wide Web are the basic-expected-facilities that should be provided in ALs. Thus, it is suggested that speeding up the Internet is crucial to enhance the LP and increase the level of EUS.

#### 6.2.4.2 *Lack of ICT Facilities*

LAIU provides a set of facilities and equipment. This provision is insufficient without a solid strategy determining the standards of the provision. In LAIU context, the number of computers attached into each branch of LAIU is insufficient to serve the number of potential end-users using them. Furthermore, the number of computers available in labs is not compatible with the increasing number of undergraduates enrolled into the university. The lack of ICT facilities is identified in the findings of Alfrih (2010), Ahmed (2010), Al-Samir (2009), and Restoum and Wade (2013a).

Critically, the limitation of opening hours is another barrier challenging LAIU regarding facilities and equipment (section 6.2.1.3). Confining opening LAIU on eight hours daily through lecturers' times decreases the benefit of these facilities. Additionally, following up the improvement in ICT is a real challenge confronting ALs in general. The rapid development of ICT formulates a difficulty in pursuing this development. It is a challenge in terms of requiring more financial expense and extra technical skills to deal with its complexity. The present findings seem to be consistent with those of Jadhav (2011) and AlHarrasi (2012), who reveal a number of financial, technical and human barriers that impact on ALs.

#### 6.2.4.3 *Issues Related to LMS (Horizon)*

A number of challenges and difficulties related to Horizon are articulated; however, it provides a set of functions managing and controlling the LAIU's processes and procedures. Firstly, although the system interface is easily used by the end-users, spell-check is unavailable. The option of "do you mean" is missing. Furthermore, another limitation is related to searching and dealing with images; as Horizon is not created to deal with images. The second challenge is related to the daily use of Horizon by the library staff. The Horizon's interface for the library staff is more complicated than the end-users' one. That requires obtaining sufficient IT skills to cope with it. On the other hand, library staff discovered several limitations regarding dealing with the portal, reports, and finance. Corresponding with one protocol (Z39) is another barrier confining Horizon. Critically, LAIU faces a key challenge in terms of upgrading Horizon. The findings show that LS were aware of the limitations of Horizon. They recognised the need to upgrade it, but adding further functions and components to Horizon is difficult with the political crisis confronting Syria. Hence, the suggestion was to adopt the open sources (UV-Find) as a free open source, available online and fully compatible with Horizon. The findings of Gumilar and Johnson (1995) show that integrating LMS with open sources is crucial to decrease the limitations of LMS and also reduce the cost.

To sum up, several areas of LAIU have been considered problematic. These areas are categorised into four groups. The first challenges' group are related to end-users in terms of changes of their requirements, the inability to determine the EUERs, lack of skills and time, and the decrease of the EUS. The second group of challenges is related to the LP. LAIU suffers from a lack of strategic planning, marketing, building, collaboration, and other issues related to the availability and accessibility of e-/IRs. The third group concentrates on the challenging issues of the library staff in relation to understanding end-users' ISB, meeting EUERs, and recognising potential end-users, in addition to the lack of the librarians' skills. The final group of challenges is related to ICT in terms of the slowness of the Internet, the lack of ICT facilities, and other issues related to horizon. The next sections present the implementation of the analysis of culture in order to understand the holistic situation of the LAIU.

## 6.3 The Implementation of Analysis

Critically, it is important to analyse the situation socially, culturally, and politically in order to obtain the holistic view of the problem situation (P Checkland & Poulter, 2006). Thus, the next sections provide a summary of different formats of analysis (intervention, social and political).

### 6.3.1 Intervention Analysis

Intervention analysis is conducted to determine the role of the "problem solver" and the "problem owner" (P Checkland, 1981; P Checkland & Poulter, 2006). Such analysis is required to understanding the real situation of the LAIU, and to suggest relevant conceptual model(s). In this study, the researcher plays the role of the "problem solver" relying on her background and experience in the librarianship domain. Furthermore, the research supervisors play an important role in guiding the researcher through the implementation of the SSM tools, and suggesting and providing appropriate references.

Library staff and end-users are the "problem owners". Library staff (the director, librarians, and administrators) play a significant role in providing e-/IRs and e-LISs. Their behaviour and decisions affect the LP and the EUS. Moreover, end-users play a crucial role in assessing the LP, and in determining the types and ways of providing the e-/IRs and e-LISs regarding their requirements. Interestingly, the library staff demonstrate that there are a number of factors influencing the EUERs, such as their academic demand according to their disciplines, status, and the purpose of the information. End-users present that there is the need to improve several services and functions, such as increasing the number of librarians and the library opening hours, enhancing the library spaces and building, increasing the internet and other ICT facilities. All difficulties and challenges facing both LAIU and its end-users are discussed previously in this chapter (Section 6.2).

Critically, the authority of improving the situation of the LAIU is the director of the IRD, in the first place, since he is the responsible for making decisions and controlling the different units of the IRD (LMS, budget, staff, technical support, so on). The library staff are responsible as well for improving the situation of LAIU by delivering appropriate e-IRs and e-LISs, guiding, consulting, and educating end-users. In addition, they are involved in making decisions, alongside the director, for the acquisition

process and services development. Providing these responsibilities accurately increases the level of the EUS. The library staff have the desire to improve their library's situation. They suggest enhancing the LMS (Horizon), adopting VRSs, providing Mobile Library services, establishing a forum, conducting further training and information literacy workshops (Section 5.10). Other probable problem owners are the Syrian government, MoHE, and AIU, who establish the rules and regulations, and fund the library (Section 2.1.3 & appendix B).

Following the analysis, problem owners articulate number of issues and problems. The relationship between problem-solving system and problem-content system (problem owners) is summarized in figure 6.3.

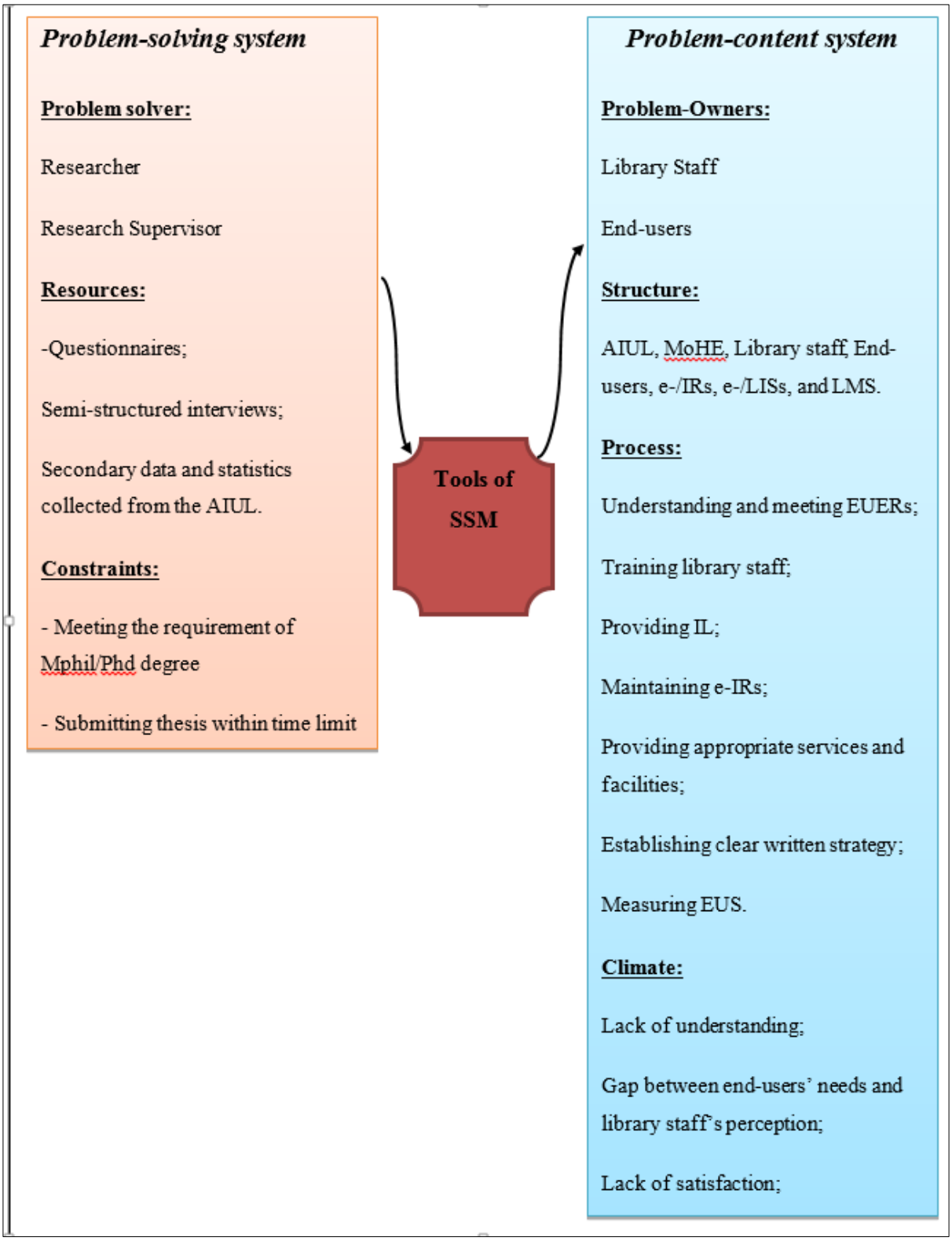


***Figure 6. 2.*** **Problem-Solving System and Problem-Content System**

### 6.3.2 Social Analysis

Social analysis includes the interaction between three elements to generate the meaning of the organisational change. These elements are developed by Checkland and Scholes (1990, p 49), which are:

- ***Roles****: a social position recognized as significant by people in the problem situation;*
- ***Norms****: the expected behaviours in the role;*
- ***Value****: actual performance in a role will be judged to local standards.*

Table 6.1 summarizes the social analysis and the interaction between the elements regarding the problem owners and problem solvers.

**Table 6.1.** ***Summary of Social Analysis.***

| Problem owners and solvers | Roles | Norms | Values |
|---|---|---|---|
| **Government** | Governing SALs and their staff. | Establishing and supporting SALs . | Providing financial fund to develop;<br><br>Maintain SALs. |
| **MoHE** | Controlling, administrating;<br><br>Assessing SALs and their libraries. | Improving HES;<br><br>Monitoring SALs and other academic institutions. | Creating policies for SALs;<br><br>Assessing SALs and their libraries;<br><br>Monitoring the quality of education. |
| **University Deans and Partnerships of the LAIU** | Supervising AIU and its Library. | Conducting the policy of MoHE;<br><br>Funding the AIU and its library;<br><br>Making decisions and proposals to improve the university and its library. | Ensuring the quality of university services and information system;<br><br>Administrating and support academics and students. |
| **The Director of IRD** | Making decision;<br><br>Administrating, monitoring, and evaluating the library processes. | Administrating and monitoring the library process;<br><br>Making decisions for acquisitions, e-IRs subscriptions, and staff recruitment;<br><br>Reporting: writing reports and submitting them to the university deans. | Monitoring the library progress;<br><br>Determining priorities;<br><br>Dealing with the university deans;<br><br>Meeting and discussing the library staff;<br><br>Encouraging the staff to communicate with end-users and obtaining their feedback;<br><br>Guiding the library staff and determining their |

| | | | |
|---|---|---|---|
| | | | duties. |
| **Librarians** | Guiding;<br>Counselling;<br>Training;<br>Communicating;<br>Providing IL programs;<br>Educating;<br>Assisting end-users in their EP. | Understanding and meeting EUERs,<br><br>Responding end-users inquiries;<br><br>Dealing with the library resources and services based on their experiences;<br><br>Dealing with the emerged problems within the library. | Providing adequate e-/IRs and e-/LISs according to their needs;<br><br>Guiding and consulting end-users;<br><br>Developing end-users' skills. |
| **Acquisition Librarians** | Requesting books and other IRs;<br><br>Subscribing e-IRs;<br><br>Indexing;<br><br>Cataloguing;<br><br>Classifying; | Checking e-/IRs;<br><br>Organizing e-/IRs;<br><br>Proceeding and monitoring catalogue, indexes and classification processes. | Requiring coordination and organization in information acquisition |
| **Administrators (IT Staff)** | IT consulting;<br><br>Establishing and improving the library website;<br><br>Monitoring and supporting LMS (Horizon); | Solving IT problems;<br><br>Administrating LMS and preparing reports and statistics;<br><br>Monitoring and updating the library website;<br><br>Linking the library website to social media. | Reporting IT problems and the Internet disconnection;<br><br>Providing access to the LMS;<br><br>Supporting the library staff in solving IT problem;<br><br>Training librarians in relation to IT and subscribed databases. |

| | | | |
|---|---|---|---|
| **The researcher** | Involving in the situation<br><br>Problem solver | Communicating with problem owners;<br><br>Distributing questionnaires to the problem owners (end-users);<br><br>Conducting semi-structured interviews with problem owners (library staff);<br><br>Developing human activities systems that can support in understanding and meeting EUERs. | Explaining the research with the stakeholders;<br><br>Discussing related issues with the stakeholders (problem owners);<br><br>Identifying problematic areas of situation;<br><br>Developing a rich picture based on the perspectives of stakeholders;<br><br>Proposing a system to improve the current situation. |
| **Research supervisor** | Evaluating the researcher | Guiding the researcher through regular meeting. | Evaluating the thesis. |

### 6.3.3 Political Analysis

Conducting political analysis is important to enrich cultural analysis, established in intervention and social analysis, in order to understand the holistic situation of the LAIU. According to Checkland (1986), *"political analysis accepts that any human situation will have a political dimension, and needs to explore it"* (cited by Checkland and Scholes, 1990, p 50). Political analysis concerns expressing the power in the situation through obtaining and using "*the commodities of power*" which can be investigated in official, or knowledgeable power, personality, external reputation, powerful of accessing information, and affiliation of different committees.

In the situation of LAIU, political analysis is conducted involving all the power holders, expressing the nature of power, and investigating how powers is used, as presented in table 6.2.

**Table 6.2.** ***Summary of Political Analysis.***

| Power Held by | Nature of Power | How Power is Used |
|---|---|---|
| **Government** | Controlling Political and financial power. | Monitoring, supporting, and assessing Syrian MoHE. |
| **MoHE** | Controlling Syrian HE | Monitoring, supervising, and assessing Syrian HE progress, including universities and other academic institutions;<br><br>Establishing and observing HE policy. |
| **University Deans and Partnerships of LAIU** | Controlling Political and financial power | Supervising, encouraging and evaluating human resources in the LAIU;<br><br>Findings alternatives and solutions to reduce the expense, meet EUERs and to enhance services; |
| **The Director of IRD** | Encouraging library staff to respond end-users efficiently;<br><br>Managing and evaluating the library progress and the library staff;<br><br>Making decisions. | Meeting the library staff regularly;<br><br>Assessing the LP and obtaining end-users' feedback to measure their satisfaction level;<br><br>Improving the e-/IRs and e-/LISs;<br><br>Reporting and making decisions. |
| **Librarians** | Meeting EUERs;<br><br>Evaluating library progress;<br><br>Satisfying end-users. | Answering end-users' inquiries;<br><br>Understanding EUERs;<br><br>Delivering information services and resources. |
| **Acquisition Librarians** | Involving in the decision making regarding information acquisition;<br><br>Organizing e-IRs. | Providing e-/IRs according to EUERs;<br><br>Sharing decision making with the director;<br><br>Indexing, cataloguing and classifying e-/IRs. |
| **Administrators (IT Staff)** | Providing e-IRs and e-LISs;<br><br>Reporting;<br><br>Meeting IT demands. | Subscribing e-databases and e-libraries;<br><br>Setting up reports and statistics;<br><br>Checking and monitoring the library website;<br><br>Solving the library IT problems. |
| **The researcher** | Involving in the research as a problem solver. | Conducting the research with the problem owners in order to improve the situation. |
| **Research supervisor** | Assessing the application of SSM's tools. | Ensuring that the application of the SSM's tolls is done correctly. |

To sum up, the formats of analysis are conducted to understand the holistic situation of the LAIU and clarify the ambiguity. Based on the analysis, the role of the problem owners and problem solvers is determined. The social interaction between the elements is identified, and the power in situation is expressed. The next section presents the relationships and conflicts between the stakeholders and other elements in terms of clarifying the LAIU situation.

## 6.4 Rich Pictures

Rich picture is used to address the main issues related to the situation of LAIU (section 3.1.4.1). These issues are articulated in chapter 4, the analysis of data interpretation (chapters 4 and 5), and in the analysis of culture (section 6.3). Implementing rich picture technique provides a comprehensive understanding of the holistic view of the problem situation, and assists in selecting a number of relevant models to improve this situation. It presents the relationships and conflicts between different stakeholders and other components under the investigation (Elliott & Stakings, 1998).

In this research, rich picture is generated to demonstrate the problematic situation of the LAIU regarding four different stakeholders, as presented in figure 6.3. It reports the following issues:

- The internal relationships between different stakeholders and elements inside the LAIU;
- The boundaries of the LAIU, and the relationships with external components;
- Problematic points and conflicts of the LAIU;
- Stakeholders' suggestions for providing an appropriate model in improve the situation of the LAIU.

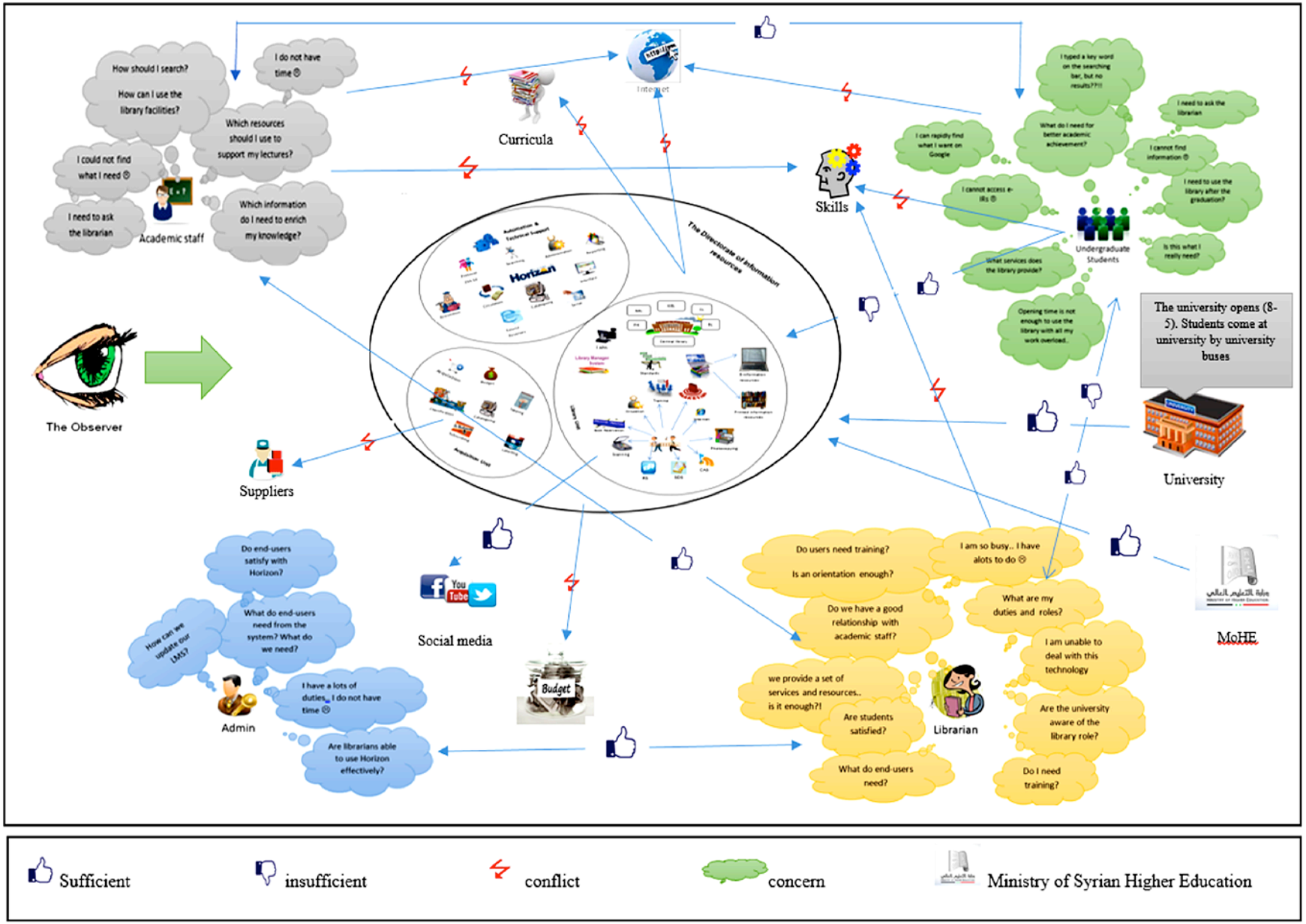




***Figure 6. 2.*** **Rich Picture of the LAIU**

The LAIU's aims are to meet EUERs and satisfy their end-users. To achieve these aims, the library provides a number of services (on-site and online), e-/IRs staff, and equipment. LAIU follows international standards regarding classification, cataloguing and indexing, and adopts Horizon as an LMS (section 5.5 and appendix B). However, LAIU provides a set of library services, several limitations were addressed by identifying the problematic situation (section 6.2), and the SWOT (section 5.10) such as a lack of marketing and training, the lack of time and skills, and the lack of ICT facilities. These limitations are reflected through the decrease of the library attendance and usage, and the decrease of the EUS.

The analysis shows that the LAIU does not have a tangible written police and allocated budget (section 6.2.2.1). The number of librarians is not compatible with the number of the end-users involved in the university (section 6.2.2.6). Although collaboration was articulated as a fundamental service to be provided, collaboration is not provided at the LAIU (section 6.2.2.5). The limitation of the library's opening hours impacts negatively on the LP in terms of hindering the access to IRs (section 4.7 & 5.4).

Based on the analysis of culture (intervention, social, and political analysis), the director of the IRD is the decision-maker, and he is the responsible for recruiting staff, monitoring, managing, and evaluating the library process and progress. Librarians and administrators participate in making decisions, in addition to their roles in offering a number of services such as training, guiding, classifying, cataloguing and monitoring the library's website (section 5.2.2.5 & 6.3.2).

Since the library has been established recently and with the abnormal circumstances facing Syria, it is expected that responding EUERs is decreased and the library is unable to meet its EUERs efficiently. Critically, LAIU faces a number of challenges and barriers, which are addressed in the early of this chapter (Section 6.2). These challenges and barriers can be classified into five categories:

- **Social barriers**:
  - The authority and control of the government, MoHE, and university on the LAIU;
  - The relationships between stakeholders and other elements such as publishers);
- **Technical barriers**:
  - Slowness of the Internet and Horizon system;
  - Lack of IT facilities;
  - Lack of IT skills;
  - Lack of accessibility.
- **Mismanagement barriers:**
  - Lack of strategic planning and clear vision;
  - Lack of training and marketing;
  - Absence of collaboration;
  - Lack of the librarians' number;
  - Work-overload of library staff;
  - Lack of linking EP to the LAIU;
  - Lack of opening hours.
- **Behavioural barriers**:
- Lack of skills;
- End-users' attitude;
- Changing EUERs;
- Lack of EUS;
- Lack of understanding EUERs;
- Lack of recognising potential end-users.
- **Financial barriers**:
- Unallocated budget;
- Increasing the cost of e-/IRs, e-/LISs and IT facilities.

## 6.5 Summary

In this chapter, several tools of SSM have been applied to consider the problematic areas of the LAIU, and understand the holistic view of the problem situation. The main points are summarised as follow:

- **Areas considered problematic of LAIU**: this research has identified a number of problematic areas of the situation. The challenges and barriers facing the LAIU are categorised into four categories (challenges related to end-users, challenges related to LP, challenges related to library staff, and challenges related to ICT).
- **The implementation of analysis:** the analysis of culture is conducted regarding understanding the holistic real situation of the LAIU. Intervention analysis is carried out to determine the role of the problem owner and the problem solver. Social analysis is applied to determine changing interactions between three elements (roles, norms, and value). Furthermore, a political analysis is implemented identifying the power in the situation.
- **The application of Rich Picture:** rich picture has summarised and presented the relationships and conflicts between the stakeholders and other related elements under the investigation. A number of difficulties and barriers are investigated and categorised into five groups based on the conducted analysis (social, technical, financial, mismanagement, and behavioural barriers).

The next chapter presents the conceptual model proposed to improve the situation in the LAIU, based on the stakeholders' perceptive

# Chapter 7

## Modelling

## 7.1 Introduction

Chapter 6 identified the problematic situation, investigating the challenges and barriers facing the LAIU. Interpretation analysis and the analysis of culture were integrated together to build the rich picture in terms of understanding the holistic situation. In this chapter, the consequences of identifying the problematic situation are developed into proposed models aiming to improve the situation of the LAIU, based on the stakeholders' suggestions. Based on this point, the investigation in this chapter is to generate root definitions addressing the transformation process of the relevant activities. Furthermore, conceptual models are built to express the activities and relationships of root definitions. The comparison of conceptual models with the real world is presented to create a discussion addressing how to achieve improvement. Finally, a summary of this chapter is provided.

## 7.2 Creation of Root Definitions

Based on the analysis of culture (section 6.3) and the creation of the rich picture (section 6.4), the challenges and barriers facing LAIU are identified and categorised into five categories (social, technical, behavioural, mismanagement, and financial barriers). These barriers can be classified into two groups:

- **External barriers** (social and financial barriers);
- **Internal barriers** (behavioural, mismanagement, technical barriers).

This research concentrates on improving internal barriers, as the external barriers are out-of-control. They are controlled by external parties such as the MoHE and the University. Developing external barriers requires having adequate authority or governmental power to deal with them. On the other hand, regarding internal barriers, LAIU suffers from a set of challenges and conflicts between the different elements formulating the situation. Hence, the investigation, in this stage, is to formulate root definitions aiming to develop internal barriers of the LAIU (technical, behavioural, and mismanagement barriers). The components of CATWOE mnemonic are adopted to

yield well-formulated and accurate root definitions and insure the transformation process. The improvement is important to increase the response to EUERs and EUS. To achieve that, three root definitions are created based on the analysis of chapter 6. Creating root definitions is crucial to suggest relevant systems to improve related problematic situations.

### 7.2.1 Root Definition for Developing Behavioural Barriers

A number of issues are addressed as behavioural barriers (the change of EUERs, end-users' attitude, the lack of skills, the lack of EUS, the lack of understanding EUERs, and the lack of recognising potential end-users). Based on the analysis, there is an agreement among the library staff that understanding EUERs is a difficult task, and meeting these expectations and requirements is challenging. Critically, it has been demonstrated that meeting EUERs increases the EUS and impacts positively on their attitudes (section 6.2.1.1 & 6.2.1.4), while the lack of their skills has a negative effect on these issues (section 6.2.1.2). Furthermore, it is confirmed that there are a lack of meeting EUERs (section 6.2.3.2) and recognising potential end-users (section 6.2.3.3).

Creating the root definition of developing behavioural barriers is helpful in demonstrating the input-output transformation (Checkland and Scholes, 1990, p. 36). It is formulated as an assumption of developing behavioural barriers, as follows:

> *"A system owned by the library, provided by qualified library staff (academic librarians and administrators), aiming to develop behavioural barriers, by identifying and understanding EUERs and ISB using applicable methods, meeting EUERs efficiently, increasing the awareness of the library staff toward the change of the EUERs, and providing effective training and IL programs for both end-users and the library staff, within constraints of timing, training, attitudes of end-users and staff, and financial constraints".*

CATWOE elements are undertaken to consider the transformation process. It is identified according to the formulated root definition, as illustrated in table 7.1.

**Table 7.1.** ***The CATWOE Elements of Developing Behavioural Barriers.***

| CATWOE | Analysis |
|---|---|
| **C** | End-users, and other potential end-users |
| **A** | Librarians and administrators |
| **T** | Having serious behavioural barriers → overcoming behavioural barriers by understanding ISB and meeting EUERs efficiently that will leads to increase EUS |
| **W** | It is useful and feasible for LAIU to understand end-users' ISB;<br><br>It is useful and feasible to find appropriate methods to identify and understand EUERs and the change occurred in these EUERs |
| **O** | DIR especially LU |
| **E** | Lack of time, training, attitude of end-users and staff, change of culture, financial constraint. |

The analysis shows the LAIU suffers from several behavioural barriers. To transform these barriers (inputs) to valuable output the DIR (O) including the library unit particularly should increase the response to EUERs and EUS by providing its end-users (C) with appropriate e-/IRs linked to their EP, e-/LISs and other functions according to their groups, interest and needs. In addition, it is important to recognise existing and potential end-users, identify and understand their real expectations and requirements from the library, and to apply appropriate approaches to observe and understand end-users' ISB and EUERs. Moreover, it is crucial to develop their searching strategies and IT skills. Certainly, system environment (E) should be taken in account by investigating the influence of the constraints such as timing, training, attitudes of end-users and staff, the change of culture, and financial constraints

### 7.2.2 Root Definition for Developing Mismanagement Barriers

LAIU suffers from a set of mismanagement barriers that influence negatively on the EUERs and EUS. These barriers are due to the lack of a number of services and issues related to the LP. Mismanagement barriers are a result of the lack of strategic planning and clear vision (section 6.2.2.1), the lack of training (section 6.2.3.2) and marketing (section 6.2.2.2). The absence of collaboration (section 6.2.2.5) is another mismanagement barrier. Furthermore, it is posited that the lack of the librarians'

number (section 6.2.2.6), the lack of linking EP to the LAIU (section 6.2.1.1) are vital barriers decreasing the LP. Additionally, the lack of opening hours, and the work-overload of library staff (section 6.2.1.3) are considered important barriers reducing the LP.

The assumption to develop mismanagement barriers is made by generating a certain root definition considering the transformation process to develop mismanagement barriers as follows:

> *"A system owned by the library, provided by qualified library staff (director, academic librarians and administrators) and the appropriate university members, aiming to improve the LP, by establishing efficient strategic planning, marketing the library effectively, establishing collaboration with other SALs, providing e-repository, expanding the library opening time, reinforcing the library role in supporting EP, and providing adequate training workshops for the library staff, within constraints of timing, training, attitudes of end-users and staff, and financial constraints".*

Table 7.2 demonstrates the CATWOE elements identified according to the root definition of developing mismanagement barriers.

**Table 7.2.** ***The CATWOE Elements of Developing Mismanagement Barriers.***

| CATWOE | Analysis |
|---|---|
| **C** | End-users, other potential end-users, and library staff |
| **A** | Director, library staff, and appropriate member of the AIU |
| **T** | Lack of LP because of mismanagement barriers → improvement of the LP |
| **W** | It is necessary to evaluate the LP<br><br>It is useful and feasible to extend the library roles and services |
| **O** | DIR especially LU |
| **E** | Lack of time, training, attitude of end-users and staff, change of culture, human and financial constraint. |

According to the analysis of CATWOE, existing and potential end-users, and library staff (C) are beneficial for the transformation, while the director, library staff, and appropriate members of the university are who are going to process the transformation (A). Transformation (T) is to move from a low level of the LP, because of the impact of a number of mismanagement barriers, to a high level and quality. The Transformation is achieved by expanding the library roles and services, and appreciating the performance. This is done by creating an eligible strategic planning, providing VRSs, training, marketing and collaborative services. In addition, it is important to provide qualified library staff, extend the library's opening time, and activate the link between the EP and the library e-/IRs. This transformation should be made taking into account several constraints (E) such as lack of the time, training, and financial resources.

### 7.2.3 Root Definition for Developing Technical Barriers

Technical barriers are one of the most important difficulties facing LAIU. In this study, the slowness of the Internet (section 6.2.4.1) is the main barrier affecting the quality of services. Furthermore, several issues relating to Horizon 8.0 system (section 6.2.4.3), the lack of the accessibility (section 6.2.2.3), and the lack of ICT facilities (section 6.2.4.2) are articulated as influenced barriers negatively affecting the LP, and thereby reducing the EUERs and EUS. The analysis shows that there is a difficulty in using ICT due to a lack of IT skills (section 6.2.1.2). Hence, suggesting a system to develop the problematic situation in relation to technical barriers is essential, as follows:

> *"A system owned by the library, running by the administrators of AISU, aiming to enhance the ICT capacity by applying appropriate methods to increase the accessibility to information, improving LMS, providing applicable facilities and equipment, developing the library staff's IT skills, within constraints of timing, training, attitudes of end-users and staff, and financial constraints".*

The formulated root definition has been developed using the mnemonic CATWOE as an outline to check that the elements of the system are integrated into the root definition. Table 7.3 depicts the CATWOE elements of developing Technical barriers.

**Table 7.3.** ***The CATWOE Elements of Developing Technical Barriers.***

| CATWOE | Analysis |
|---|---|
| **C** | End-users, and library staff |
| **A** | The director and administrators |
| **T** | having a lack of ICT capability due to technical barriers → improving the ICT capability |
| **W** | It is useful and feasible to adopt appropriate methods to increase the ICT capability and the accessibility to information |
| **O** | AISU |
| **E** | Lack of time and facilities, training, change of culture, financial constraint. |

Following the CATWOE analysis, the transformation (T) is based on developing the technical barriers by enhancing the ICT capability. The director and the administrator (A) of AISU (O) should conduct this enhancement. Increasing the ICT capability will be beneficial for both end-users and library staff (C). It can achieved (W) by increasing the access to information, facilitating the library labs with an adequate number of computers and other equipment proportional with the end-users numbers enrolling at the university, upgrading the existing LMS, and developing the library staff's IT skills. Definitely, the constraints confining the system environment (E) should be taken into account, such as timing, training, attitudes of end-users and staff, the change of culture, and financial constraints.

## 7.3 Construction of Conceptual Models

In this stage, constructing conceptual models of relevant activities is logically demonstrated in accordance with the formulated root definitions. This construction explores the process of input-output transformation. Hence, conceptual models are built to improve the viewpoints of the library system and the barriers constricting it. They illustrate the approach of performing activities. In this study, three activity models are developed based on the three root definitions formulated in the previous section. The first model is to develop the behavioural barriers. The second model is for improving mismanagement barriers, while the third one is to enhance the technical barriers.

Critically, the validity of these conceptual models is driven from obtaining the stakeholders' suggestions in order to improve the situation.

### 7.3.1 Conceptual Model 1: Developing Behavioural Barriers

A set of operational activities is required to build an appropriate conceptual model aiming to achieve well-defined purposes. Indeed, the activity model is built to transfer the current situation of behavioural barriers to a situation of solving these barriers. The model begins with developing the awareness of the library staff toward definite EUERs. Such development is useful in terms of having the ability and the skills to understand EUERs and pursue the occurring changes. The second activity is to appreciate existing and potential end-users in order to provide them with required information and services according to their groups, demands, and interest. Identifying EUERs is the third activity of the model in order to understand and meet these expectations and requirements. The fourth activity is to appreciate end-users' abilities and skills. Such appreciation helps in designing or conducting training courses, and thereby increasing the level of EUS. The fifth activity is to identify their educational demands. The sixth activity is to observe and appreciate end-users' ISB, since it is important to observe their weakness points in using the library and searching processes.

Identifying all determined activities is crucial to develop adequate methods in terms of meeting EUERs (activity 7). This can be done by providing appropriate services and resources (activity 8), which should be linked to their EP, and based on their demands. Finally, it is significant to evaluate the provided methods and check its ability in terms of responding EUERs (activity 9).

Furthermore, it is important to monitor and control the operational activities performing three purposes: monitoring, controlling, and measuring 3E criteria (efficacy, efficiency and effectiveness). Monitoring and controlling activates can be illustrated as a sub-system to monitor and control the operational activities within the improvement of behavioural system. Such improvements should be able to achieve the defined purpose by understanding end-users' ISB and meeting EUERs. Monitoring and control activities is performed by adopting 3E criteria as follows:

**E1-Efficacy:** are appropriate methods in terms of meeting EUERs implemented by the library staff as an output of operational activities of developing behavioural barriers?

**E2- Efficiency**: are the minimum resources of the LAIU, such as human, financial, and technical resources used efficiently to develop appropriate methods?

**E3- Effectiveness**: is the model participated in providing good thoughts and understanding of EUERs? Is the system related to the long-term aim of the library and its staff regarding increasing their awareness toward EUERs, and understanding end-users' ISB and EUERs?

Figure 7.1 demonstrates the conceptual model of developing behavioural barriers

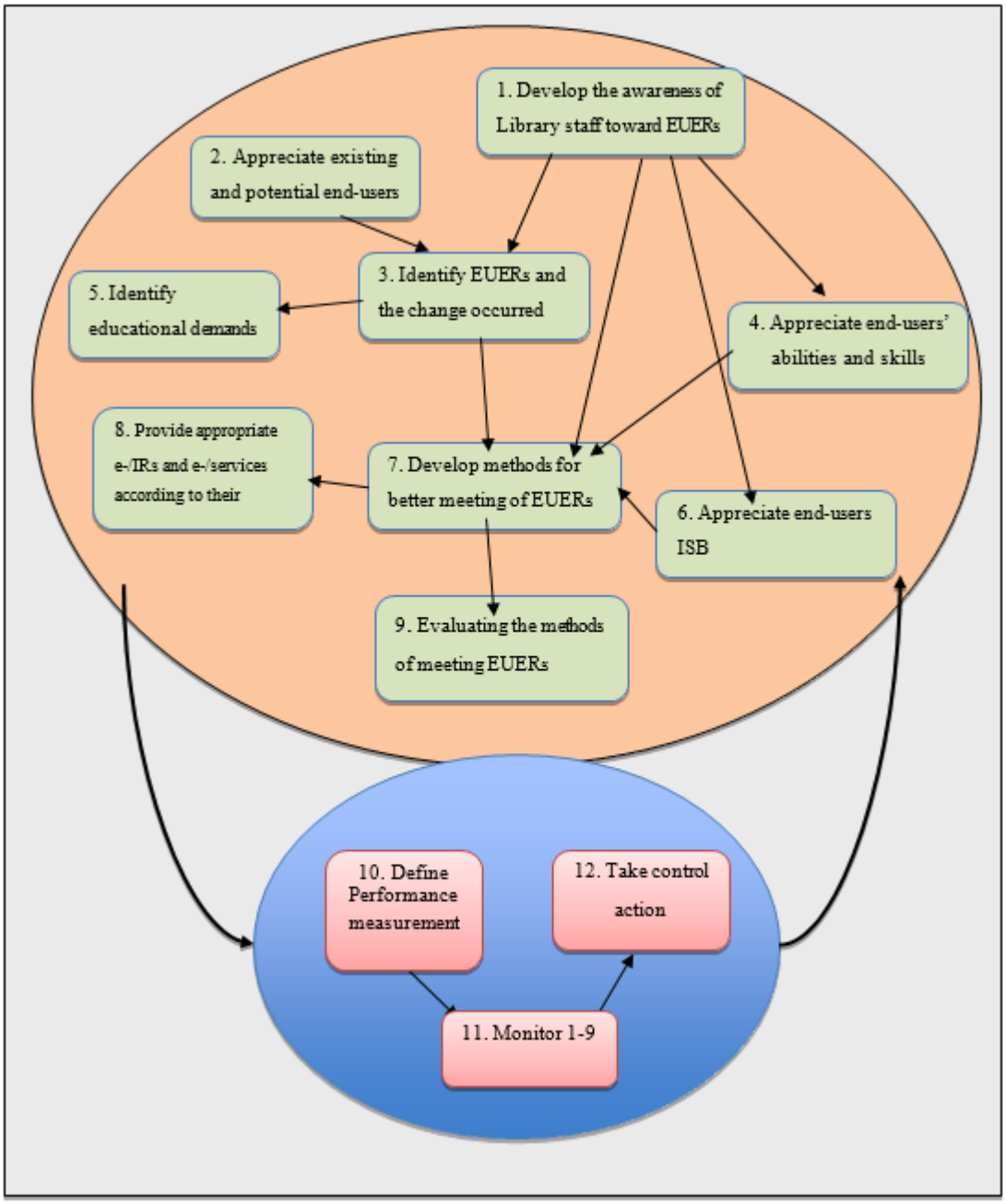


***Figure 7.1*** **Activity Model of Developing Behavioural Barriers**

### 7.3.2 Conceptual Model 2: Developing Mismanagement Barriers

Overcoming mismanagement barriers requires the library to be ready and committed to change. Overcoming mismanagement barriers is necessary to increase the LP. Hence, a number of operational activities are built. The model begins with establishing vital strategic planning and policy that determines the library's objectives and visions. Adopting eligible strategic planning and policy is crucial to appreciate the library's resources regarding human, financial, technical, and information resources. Also, it is significant to drive the efforts, clarify the library's roles and duties, and ensure the quality of the services and the link with the EP.

Furthermore, it is important to improve the methods of delivering services for marking and VRSs, and provide new services such as inter-library loan, and Mobile library service. As the model seeks to meet EUERs, it is required to provide convenient places for studying, meeting, and achieving other social activities. Obviously, establishing collaborative service with other branches of the LAIU and with other ALs is one of essential activities that should be provided. Offering training courses and workshops for the library staff to improve their skills is another suggested activity. As mentioned, activating the link between the library and academic curricula is required to support the EP. Finally, evaluating these activities is required to ensure the quality of provided services.

Monitoring and controlling these operational activities is required in order to develop mismanagement barriers. Such development should be able to improve the LP. Monitoring and control activities is performed by adopting 3E criteria as follows:

**E1-Efficacy**: are the activities appropriate in terms of improving the LP achieved as an output of the transformation of developing mismanagement barriers?

**E2- Efficiency**: are the minimum resources of the LAIU, such as human, financial, and technical resources used efficiently to improve the LP?

**E3- Effectiveness**: is the model participated in increasing the quality of the LP? Is the system related to the long-term aim of the library and its staff regarding providing a high quality services and information resources supporting end-users in their EP?

Figure 7.2 presents the conceptual model of developing mismanagement barriers.

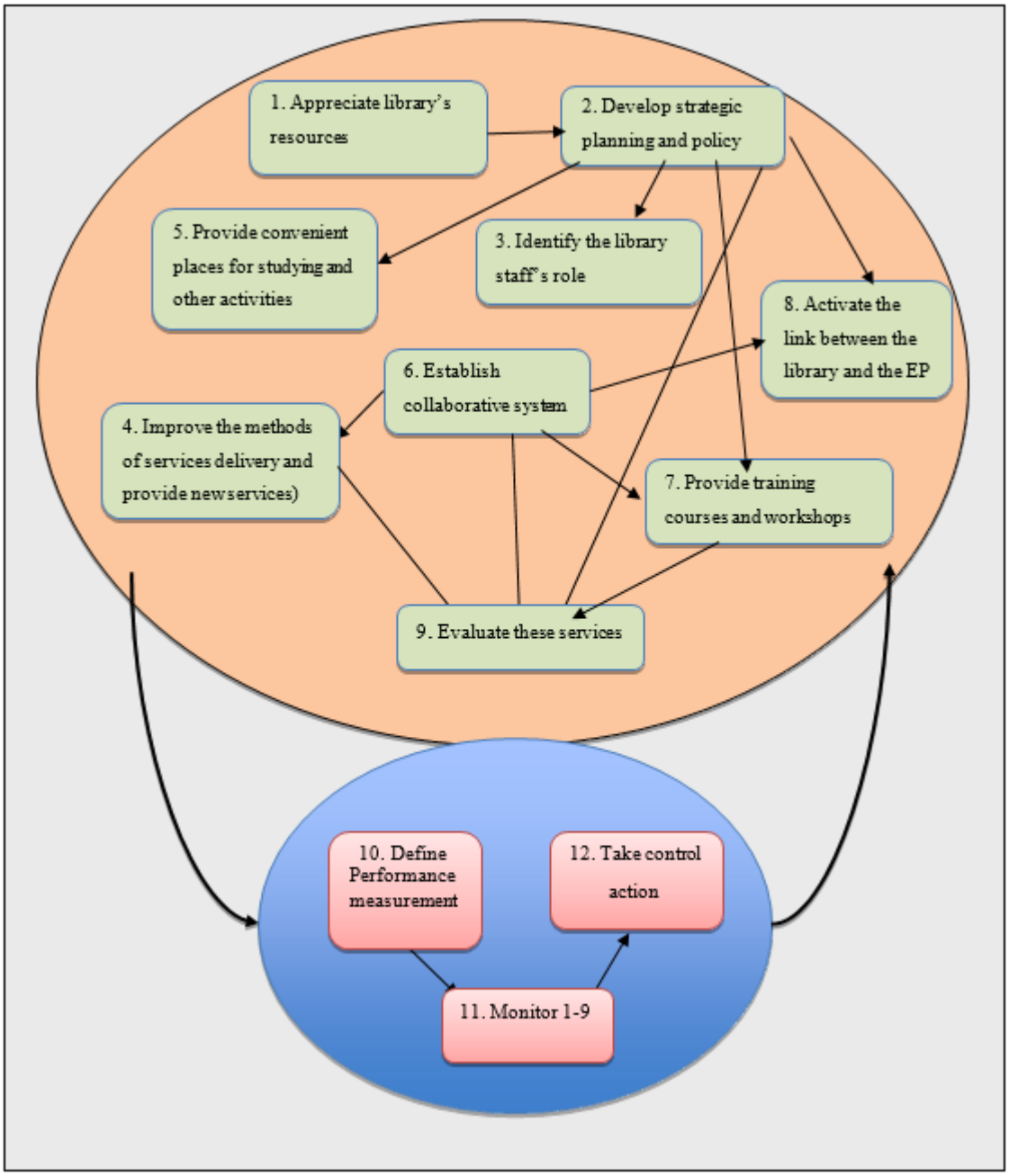


***Figure 7.2.*** **Activity Model of Developing Mismanagement Barriers**

### 7.3.3 Conceptual Model 3: Developing Technical Barriers

The operational activities of developing technical barriers system start with the identification of the available library's ICT resources in tandem with financial resources. The core of this model is to find appropriate methods to improve the LMS by adopting applicable open resource such as UV-find or Koha. Furthermore, it is important to increase the access to information by subscripting appropriate e-IRs, and adopting e-repository. The library should increase its Internet speed in order to improve its performance and satisfy its end-users. Adopting the intranet to use emails, catalogue,

and other library service is useful. Indeed, appreciating to what extent the library staff is able to use these technologies and identifying their skills is essential in improving the ICT capacity. Thus, the library should provide them with adequate training courses and workshops according to their skills' weaknesses. Critically, appreciating end-users' needs in order to enhance the ICT capacity based on those needs is crucial as well. Finally, the library should activate its connection to the social media and seek to add social features in order to increase its performance and attract further end-users.

The operational activities are measured by adopting monitoring and controlling activities, using 3E criteria as follows:

**E1-Efficacy**: are the activities appropriate in terms of enhancing the library's ICT capacity performed as a result of the transformation of developing technical barriers?

**E2- Efficiency**: are the minimum resources of the LAIU, such as human, financial, and technical resources used efficiently to enhance the library's ICT capacity?

**E3- Effectiveness**: does the model contribute to enhance the library's ICT capacity? Is the system related to the long-term aim of the library and its staff regarding increasing the access to information and improving the LMS?

Figure 7.3 shows the conceptual model of developing technical barriers.

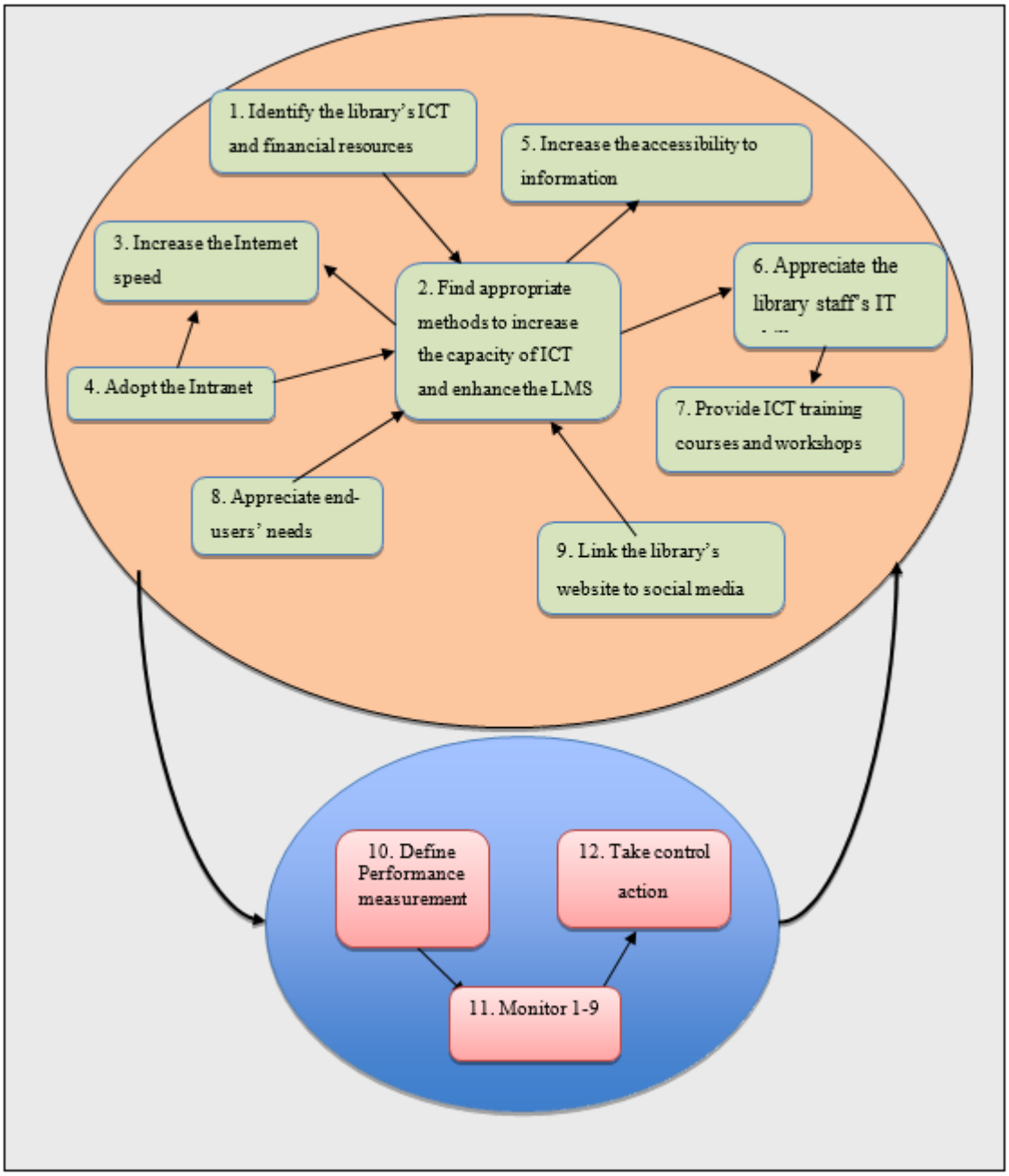


***Figure 7.3.*** **Activity Model of Developing Technical Barriers**

## 7.4 Comparison of Conceptual Models with Real World

In this section, the conceptual models built in the previous stage (section 7.3) are used to establish the discussion of the comparison with the real word situation (chapters 4, 5, and 6). Activity models are used to develop a number of questions helping in determining the concerns of the stakeholders in terms of overcoming the challenges facing LAIU. Deciding the changes in terms of improving the problematic situation is required. Providing a set of recommendations to change existing activity systems is

important to reinforce these changes. A number of questions are raised for each activity based on the investigation. These questions emphasis on:

- Does the activity exist in the real world?
- If yes, how is it perceived? How can it be improved?
- If it does not exist, how should it be achieved?

The comparisons between the three conceptual models and the real words are presented in tables 7.4, 7.5, and 7.6.

**Table 7.4.** ***The Comparison of Conceptual Model 1 (Developing Behavioural Barriers) with Real World.***

| Purposeful Activity in conceptual model | Does it present in Real-world? | Should the activity be achieved? | How should activity be achieved? |
|---|---|---|---|
| **1. Develop the awareness of the library staff toward EUERs** | Partially. Library staff was, to an extent, aware that end-users have different requirements, and they were aware that there is a need to improve a set of services in order to increase the meeting of EUERs. On the other hand, they had a lake of understanding end-users' ISB and the change in their expectations and requirement. AIU distributes one questionnaire annually to evaluate the whole university's services. | Yes | - Obtaining end-users' feedback about the provided resources and services using questionnaire;<br>- Reinforcing formal and informal discussion and communication;<br>- Design and provide training course based on the analysis of the end-users' needs regarding their feedback. |
| **2. Appreciate existing and potential end-users** | Library staff is able to identify existing end-users, however, it is unable to determine potential end-users | Yes | - Library should use statistics to determine its end-users for who attend the library, and who use e-library services;<br>- Library should use the university statistics of enrolled students and involved academics regarding their faculties. That helps in determining potential end-users serving in each branch. |
| **3. Identify EUERs** | Partially. The investigation shows that the main end-users' needs are for academic purposes. There is a need to develop their skills and career position. Furthermore, the study demonstrates that not all end-users were able to determine their needs and not all librarians were able to understand these needs. There is a gap between what end-users need and what the library staff thinks that they need. | Yes | - Implementing activity 1 (Develop the awareness of the library staff toward EUERs);<br>- Distributing regular questionnaires in order to identify the change occurred;<br>- Identifying what information and services end-users use, and why and when they are use them using statistics |
| **4. Appreciate end-users' abilities and skills** | Need improvement. There is a lack of end-users' searching strategies and IT skills, although the library conducts orientation annually at the beginning of each semester. Furthermore, it provides its librarians with a training course for each e-library subscribed. | Yes | - Providing e-induction and tutorials on the library' website using guideline and videos;<br>- Designing and providing training courses and workshops based on end-users' needs;<br>- Providing one-to-one training tutorial, and IL programmes. |
| **5. Identify educational demands** | Needs improvement. The library staff is aware of the importance of the ALs in supporting EP. Taking a step toward activating the library role in supporting EP is required. | Yes | - Providing the staff with hand-outs, and offering training programmes that identify the component of the EP,<br>- Working together with academics on selecting valuable e-/IRs that support EP; |

| | | | |
|---|---|---|---|
| | | | - Using questionnaires and direct communications to collect data about their academic demands. |
| **6. Appreciate end-users' ISB** | Improvement is required. The majority of the library staff was not aware of the change of end-users' ISB. | Yes | - Increasing the ability of the library staff of understanding end-users' ISB by providing an appropriate training course;<br>- Observing end-users behaviour during their process of seeking information;<br>- Asking end-users directly if they are able to find information, and asking them about their feeling and their level of satisfaction; |
| **7. Develop methods for better meeting of EUERs** | Partially. LAIU, to an extent, had the ability to meet its EUERs. | Yes | - Applying activity 1 (Develop the awareness of the library staff toward EUERs);<br>- Adopting activity 3 (Identify EUERs), and activity 4 (Appreciate end-users' abilities and skills);<br>- Establishing discussion between end-users themselves, academics, and library staff;<br>- Providing VRSs to increase the response of end-users' inquiries. |
| **8. Provide appropriate e-/IRs and e-/services according to their demands** | Yes. Each branch of the library provides a set of printed and e-IRs according to the faculties discipline. Additionally, the central library provides a collection of e-/IRs in different disciplines. All e-/IRs are classified using Dewey decimal classification. End-users were satisfied with the e-/IRS, although there are limitations in organising printed resources, and in accessing e-IRs. However, there is a lack of providing marketing and training services, end-users were satisfied with a number of on-site services such as circulation and reference services, and with a set of e-services such as accessing databases and browsing the e-catalogue.<br>Library staff was aware that there is a need to provide further services, although not all of them were able to determine which services should be provided | Yes | - Identifying the cost and the providers of the e-/IRs and services;<br>- Increasing acquisition process based on end-users' demands;<br>- Insuring that all books heel are labelled, and all printed IRs are organised according to Dewey decimal classification with guidance referring to the number of classification and the discipline;<br>- Subscribing e-libraries based on the EUERs;<br>- Promoting marketing strategy, and using different channels and approaches to reinforce marketing such as using web 2.0, and linking the library to social media in order to introduce the library content and services;<br>- Designing and offering training courses based on trainer groups and needs (activity 7 in table 7.5);<br>- Increasing the awareness of the library staff about the EUERs, and what services help in responding to these expectations and requirements. |
| **9. Evaluate the methods of meeting EUERs** | Needs to be improved. The library staff interact informally with end-users and asking them about their feedback | Yes | - Examining to what extent the purposeful activities help in meeting EUERs by reinforcing the interaction and communication with end-users (**formally** by collecting and analysing data of conducting meeting, interviews, and questionnaires; and **informally** by asking end-users directly about their satisfaction and feeling toward the library functions). |

| | |
|---|---|
| | - Investigating to what extent the EUS is increased using statistics and questionnaires. |

**Table 7.5.** ***The Comparison of Conceptual Model 2 (Developing Mismanagement Barriers) with Real World.***

| Purposeful Activity in conceptual model | Does it present in Real-world? | Should the activity be achieved? | How should activity be achieved? |
|---|---|---|---|
| **1. Appreciate the library's resources (human, financial, technical, and information resources)** | Needs improvement. One librarian is involved in each branch of the library. That is not enough to perform the library' processes, and at the same time serve all end-users attending;<br>There is no specific financial system. The library budget is a part of the university financial system;<br>The library provides three internet labs with 40 computers connected to the Internet. This is not sufficient comparing with the number of end-users attending the Internet labs. Additionally, each branch of the library has a limited numbers of computers that is used to search on e-catalogue;<br>The library provides a good collection of e-/IRs, in different disciplines and subjects, and varied formats (books, journals, encyclopaedias, dictionaries, theses, so on). All these e-/IRs are classified and catalogued according to Dewey decimal classification, MARK2, and Anglo-American Cataloguing Rules. | Developing human and financial resources are not available currently;<br><br>Technical and information resources need improvement. | - The decision of increasing human and financial resources is made by the president and deans of the AIU. Increasing these resources is ageist the university policy. Thus, enhancing the skills of existing staff is required. The enhancement should include improving their IT skills, interaction and communication skills, languages skills, and management skills.<br><br>- The improvement of issues related to the ICT are discussed in Table 7.6;<br><br>- As discussed in activity 8 of table 7.4, e-/IRs need to be organised efficiently, and the access to e-IRs should increase. |
| **2. Develop strategic planning and policy** | The library does not have tangible written strategic plan determining its procedures and responsibilities | Yes | - Meeting all involved members and discussing the activities that should include step-by-step;<br>- Establishing a clear strategic plan and policy based on the library existing resources financially, humanly, and technically;<br>- Identifying the library aims, objectives, roles, and duties;<br>- Issuing soft and hard copy of the strategic plan to be a source and a bookmark for the library staff. |
| **3. Identify the library staff's role** | To an extent. The library staff includes the **librarians** who provide direct services (circulation, reference services, guiding, assisting and training) and or non-direct services (acquisition, classification, indexing, and cataloguing), and **administrators** who work as | Yes | - Implementing activity 2 (Develop strategic planning and policy) will identify the roles and responsibilities of each staff member according to his/her functional position. |

| | | | |
|---|---|---|---|
| | technicians solving ICT problems, updating the library website, and training both librarians and end-users; however, there is a confusion in determining and understanding the real role of them because of the absence of a clear written strategic planning. | | |
| **4. Improve the methods of services delivery and provide new services** | Partially. The library provides a set of e-LISs; however, some services are provided in a specific library branch, while they are not provided in other branches. The provision of special services is based on the need of the end-users in specific faculty, such as translation and scanning services.<br>There is a lack of providing marketing and training programmes;<br>The library staff was aware of the need to improve some e-/LISs such as VRSs. They suggested providing further services such as Mobile library service, and forum in order to enhance the LP. | Yes | - Discussing the ability to improve existing services and adopting new services according to the library policy and financial resources;<br>- Providing e-/LISs in each branch according to the EUERs, while the central library should provide all services in order to serve all end-users groups and specializations;<br>- Applying activity 8 in table 1 regarding promoting marketing strategy and offering training courses based on trainer needs;<br>- Establishing forum to increase discussion and interaction between end-users (students and academics)<br>- Studying the capability and the procedures of applying Mobile library services;<br>- Providing VRSs using website-form, chatting, and by email. This enable increasing the responses of the end-users' inquiries. |
| **5. Provide convenient places for studying and other activities** | Poor. There are limitations in relation to the library building and space. The library is divided into six branches. Five branches are attached to the faculties in addition to the central library. The library size is small. It is unable to accommodate the number of attended end-users. | Suggested, when the library is able to find efficient financial resources, and take a decision to improve that. | -The library should restructure its spaces and building based on the EUERs in terms of providing convenient spaces for studying, group meeting and discussions, and reading, in tandem with offering social spaces;<br>- The director and the library staff should investigate the financial resources, time, and other resources to improve the library building;<br>- There is a need to reconsidering and rethinking about the library building with longer opening hours; |
| **6. Establish collaborative system** | Not existing. The library had an experience of collaboration with two German ALs in the past. Thus, it is supposed that the library staff is aware of the collaboration concepts and requirements. | Suggested | - It is worth to collaborate with other SPAL and with other SGAL. The collaboration will help in decreasing the cost and effort and sharing e-/IRs and experiences;<br>- Discussing the activities and procedures of the suggested collaboration system<br>- Identifying the partnerships and the staff who should involve in the collaboration; |

| | | | |
|---|---|---|---|
| | | | - Identifying the cost and training programmes required to improve the library staff's skills;<br>- Adopting e-repository to store and retrieve information, and publish the university's reports, academics and researches' publications, and students' dissertations;<br>- Designing and providing inter-library loan services using determinant form enabling requesting and sharing e-/IRs from all participating libraries. |
| **7. Provide training courses and workshops** | Yes. The library provided its library staff with a set of training workshops and courses. The director is who is the responsible for referring trainees. | Yes | - Assessing the skills of each library staff member, and appreciating the cost;<br>- Identifying the need of training based on the staff requirements;<br>- Designing training programme and determining its format (course, workshop, guidance, induction, or web-based tutorial);<br>- Identifying trainers and trainees, and the programme materials;<br>- Providing training programme. |
| **8. Cooperate the library with the EP** | Need improvement. The library staff is aware of the importance of ALs in supporting EP. They, to an extent, provide a set of e-/IRs that reinforce end-users attainment. However, they encouraged academics to use the library and to motivate their students, the result is not adequate. The encouragement should increase. | Yes | - Understanding end-users requirements in relation to EP by obtaining their feedback via direct communication and questionnaires;<br>- Involve end-users in acquisition process;<br>- Encouraging academics in suggesting e-IRs;<br>- Activating the librarians' role in guiding, assisting, and communicating with end-users<br>- Providing the library with e-/IRs relating and supporting to academic curricula;<br>- Increasing the end-users' awareness of the importance of ALs in supporting the EP by conducting seminars, distributing leaflets and marketing the library;<br>- Providing high-quality services supporting EUERs in EP such as printing, photocopying, scanning. |
| **9. Evaluate these services** | Needs improvement. The library services are evaluated inefficiently using an annual questionnaire evaluating all the university services. | Yes | - Monitoring the services processes;<br>- Examining to what extent end-users are satisfied with these services;<br>- Obtaining end-users' feedback and suggestions of the services improvement using questionnaires and communications. |

**Table 7.6.** ***The Comparison of Conceptual Model 3 (Developing Technical Barriers) with Real World.***

| Purposeful Activity in conceptual model | Does it present in Real-world? | Should the activity be achieved? | How should activity be achieved? |
|---|---|---|---|
| **1. Identify technical and financial resources** | Needs improvement. Technical and financial resources have been discussed in activity 1, table 8.5. | Yes | - Appreciating existing and potential technical and financial resources;<br>- Investigating the number of provided facilities comparing with the number of enrolled end-users;<br>- Discussing and deciding what facilities need to upgrade and what the library should purchase according to the library policy and strategic plan, and according to the EUERs;<br>- Contacting with the decision-makers of the university and the MoHE to discuss the capability of allocating money for purchasing and upgrading facilities. |
| **2. Find appropriate methods to increase the capacity of the ICT and to enhance the LMS** | Needs improvement. As mentioned, the library provides a number of facilities for its end-users including internet, computers, labs, and other facilities; however, there is a need to improve these facilities to fit with the EUERs.<br>The library implemented Horizon 8.0 (LMS) to manage and control its functions; however, a number of weaknesses were reported. They library is unable to upgrade Horizon 8.0 because of financial and political reasons. Thus, the library staff suggested adopting UV-Find (open source) to overcome the existing weaknesses. | Yes | - Increasing the number of computers to an extent that fit with potential use;<br>- Increasing the Internet speed (activity 3 in this table);<br>- Increasing the access to information (activity 5 in this table);<br>- Providing library staff with an appropriate training course (activity 7 in this table);<br>- As the upgrade of Horizon 8.0 is unavailable, adopting open sources can be appropriate to overcome the weaknesses of Horizon 8.0. |
| **3. Increase the Internet speed** | Needs improvement. The Internet is available, but it is slow and sometimes disconnected. | Yes | - Identify the cost of increasing the ICT capacity;<br>- Contacting and meeting with the university, the MoHE, and the Governmental Internet service provider to discuss the increase of the internet speed;<br>- Adopting Wi-Fi technology;<br>- Providing anti-virus programme and scanning all the library computers;<br>- Implementing the Intranet (activity 4 in this table). |
| **4. Adopt the Intranet** | Not existing. | Suggested | - Identifying the cost of implementing the Intranet;<br>- Discussing the procedures and process of adopting the Intranet;<br>- Creating a local internal network to share the information internally by the university members and end-users. |

| | | | |
|---|---|---|---|
| | | | - Using the Intranet in delivering emails and documents internal the library, other library services. |
| **5. Increase the accessibility to information** | Needs improvement. There is a lake of accessing information. | Yes | - Appreciating e-/IRs according to EUERs and providing inter-library loan (activity 8 in table 7.4);<br>- Insuring that all e-/IRs are included in e-catalogue;<br>- Providing collaborative service and e-repository (activity 6 in table 7.5);<br>- Increasing the Internet speed (activity 3 in this table);<br>- Enhancing the LMS (activity 2 in this table) |
| **6. Appreciate the IT skills of the library staff** | Needs improvement. Librarians faced a challenge in relation to the lack of their IT skills. | Yes | - Using questionnaires and meetings to identify the weaknesses of the library staff's skills;<br>- Analysing the results of the questionnaires and meetings;<br>-Assessing IT skills for each library staff members; |
| **7. Provide IT training courses and workshops** | Needs improvement. The library provided a set of training courses for its staff. The library staff was aware of the need to develop their IT skills. | Yes | - Appreciating the cost of the training course;<br>- Identifying the need of IT training based on the staff requirements;<br>- Designing IT training programme;<br>- Identifying trainers and trainees, and the programme materials;<br>- Providing IT training programme. |
| **8. Appreciate ICT end-users needs** | Needs improvement. End-users require using the student area and the LMS interface, the Internet, e-catalogue. They use Microsoft (word, PowerPoint, and Excel) to achieve their academic tasks. | Yes | - Using questionnaires and communications to collect information about the end-users' needs;<br>- Identifying their skills (activity8 in table 7.4); |
| **9. Link the library's website to social media** | Partially. The library website is connected to Facebook by creating a page for the library on the Facebook. There is a plan to link the library website to Twitter. | Yes | - Monitoring the library page on 'Facebook" and using it to introduce and market the library content and services;<br>- Creating an account on "Twitter" and monitoring this account;<br>- Using "YouTube" to create videos, online tutorial, induction, and advertisements about the library;<br>- Adopting "Blogs" to share the information and thoughts and increase the interaction between end-users and the library staff. |

## 7.5 Summary

This chapter has provided proposed models, based on the stakeholders' suggestions. They aim to improve the problematic situation of LAIU. These models have been built using the tools of SSM (root definitions, conceptual models, and the comparison of conceptual models with real world). The main points have discussed in this chapter are summarised as follows:

- **The development of root definitions:** three root definitions have been formulated. The formulation was based on the analysis of chapter 6. The concentration was to address the transformation of developing internal barriers (behavioural, mismanagement, technical barriers), using the components of CATWOE. Generating well-formulated root definitions was important to construct a number of relevant systems to enhance related problematic situation;
- **The construction of conceptual models:** three conceptual models have been built in accordance with the generated root definitions. It was used to discover the activities and relationships of the transformation process. The construction of these models is based on the stakeholders' suggestions of improving the situation. Assessing the transformation processes is achieved by adopting 3Es criteria;
- **The Comparison of Conceptual Models with Real World:** the discussion of the comparison has been established using the constructed conceptual models. The discussion took place to develop a number of questions helping in determining the concerns of the stakeholders in terms of overcoming the challenges facing LAIU. The comparison has represented the activities existing in the real world, and the recommended activities that should be achieve to improve the situation;

The findings of chapter 5, 6 and 7 will be discussed in relation to the literature review in the next chapter, aiming to improve the performance of the LAIU.

# Chapter 8

## The Improvement of The LAIU's Performance

## 8.1 Introduction

Chapter 7 provided a comprehensive picture of how to improve the situation of the LAIU. The improvement is based on implementing a number of the SSM's tools, in relation to generating root definitions, constructing conceptual models, and discussing the comparison of conceptual models with real world. This chapter discusses the main findings articulated in this study. A strategic plan is developed including a set of recommendations to implement the changes and improve the situation. S-diamond model is developed to discover the requirements of the LP improvement. Finally, a summary of this chapter is provided.

## 8.2 Main findings

The tools of the SSM were implemented to answer the research questions "what are the main challenges and barriers facing LAIU and affecting the response of EUERs?" and "how can the situation be improved to increase the response to EUERs?". Answering these questions required investigating the main barriers and challenges facing the LAIU (section 6.2), the certainty of the EUERs (section 8.3), and the strategy and requirements of the improvement (section 8.4 & 8.5).

The investigation confirms that the main EUERs are an academy (section 8.3.1). It shows that there is a need to develop end-users' skills (section 8.3.2), and increase their satisfaction level (section 9.5). Interestingly, identifying the situation of LAIU, based on the application of the SSM's tools (section 6.2), reveals a number of challenges and barriers that face PALs. These challenges and barriers are categorised in to two main criteria, which are:

- **External barriers** (social and financial barriers);
- **Internal barriers** (behavioural, mismanagement, technical barriers).

The investigation in chapter 8 emphasised on internal barriers. It is confirmed that internal barriers have a negative impact on both end-users and on the library itself (chapter 6 and 7). Implementing the tools of SSM, in terms of improving the problematic situation, leads to propose a conceptual model suggested to achieve the

change. In turn, that drives to generate a strategic plan aiming to occur the required change in order to achieve the improvement. The implementation of the generated strategic plan is recommended to be on three phases.

## 8.3 EUERs of the LAIU

This section articulated objective 1 of this study, which is to understand what exactly end-users require and expect from their library. Based on the results, three aspects shaped EUERs, as presented in figure 8.1.

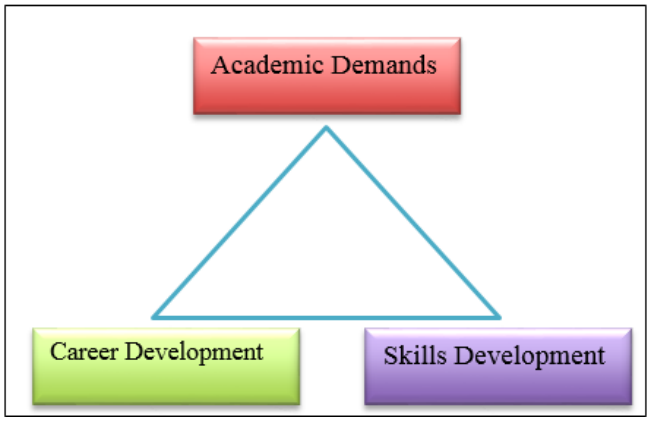


***Figure 8.1*. The Aspects of the EUERs.**

The main EUERs of the LAIU construct a triangle encompassing academic demands, skills development, and career development. These aspects influence each other. Achieving better academic attainment requires developing end-users' skills, which is necessary to meet the market requirements.

### 8.3.1 Academic demands

As cited in the literature, the main goal of the ALs is to meet their EUERs in their EP (Alfrih, 2010; Campbell, 2006; Debowski, 2003; Lindauer, 1998; Oladokun, 2002; Simons, Young, & Gibson, 2000; Torras & Sĭre, 2009). This perspective is compatible with the main objective of the LAIU. Based on the current findings, the key EUERs is an academy. In other words, end-users use PALs to meet their academic demands in the first place, in addition to use the library for social and entertainment purpose. These findings are in line with those of Alfrih (2010), who confirms that end-users access to the e-IRs for learning and teaching purpose, and sometimes for leisure purpose.

The literature has addressed that end-users have changed because of a number of factors (section 2.2.3). Actually, the findings of the current study show that the changes of the EUERs means increasing these expectation and requirements in order to respond to the new emerged demands and to the new PALs' environment in general. End-users required obtaining information and assistance that supports their academic achievement. Preparing assignments and exams are the main reasons to use the PALs (Sidera-Sideri, 2013). Furthermore, Crump et al. (2012) confirms that end-users need to use their ALs for a number of academic purposes such as attending workshops, using the e-/IRs, and printing their assignments and other information materials. What end-users require from their PALs to respond these expectations and requirements are discussed in the next chapter (section 9.3).

The results present that the main required e-/LISs are circulation, RSs, Internet service, photography, scanning and printing services and CAS. The results are in agree with those obtained by Al-Samir (2009), Mirza and Mahmood (2012), and Alfrih (2010). Indeed, providing personal and customised services to end-users tailored to their requirements and interests are significant in responding to their demands by providing customised services such as VRSs, Consultation, and SIDS. It helps in eliminating the gap between the e-/LISs provided and the information required (Brophy, 2007; Crump et al., 2012; Dollah, 2008). Thus, personalised e-/LISs relying on EUERs meet these probable expectations and requirements, thereby, enhancing their level of satisfaction.

End-users expect their PALs to provide a set of e-/IRs, e-/LISs and other functions that respond to their academic requirements (Section 4.4). The findings of this study corroborate the ideas that end-users expect and require having rapid and easy access to a wide range of e-/IRs, and these requirements have increased in the e-library environment. Furthermore, providing high quality e-/LISs is important to meet academic requirements (Alassaf, 2011; A. M. Casey, 2004; Feeney, 2004; Kassim & Zakaria, 2006; Restoum & Wade, 2013a, 2014; Sidera-Sideri, 2013). The new perception of PALs; considering them a place for seeing friends, discussing, searching, using facilities and communicating; have expanded the perception of PALs (Brophy, 2007; Demas, 2005), and the role of the academic librarians (David & Polona, 2006; Kani-Zabihi, Ghinea, & Sherry, 2006; Kaur, 2010; Simmonds & Andaleeb, 2001).

The findings of Restoum and Wade (2014), which is a part of this research published in the 6th Qualitative and Quantitative Methods in Libraries International Conference, show that end-users 'requirements of the LAIU are high in terms of providing supportive IRs, experts, high quality services and personal services. Additionally, borrowing printed books, accessing journals, obtaining general and specific information are required to support their EP.

### 8.3.2 Skills development

Another important aspect, in terms of EUERs, is developing end-users' skills. The requirements to obtain sophisticated skills has increased responding to the change that occurred in the PALs' environment and process, and in the EUERs themselves (Arms, 2000; Kani-Zabihi et al., 2006; Torras & Sťre, 2009) Waldman (2003) and Ren (2000). The findings of the end-users are in agreement with those of Al-Samir (2009) and Ahmed (2010) who show that skills development is not highly required. This can be a reason for a lack of their awareness of the meaning and importance of skills development; however, the findings of the library staff assert the need to develop end-users' IT and searching skills and strategies to help them obtaining their requirements in an appropriate way. In contract, library staffs determined that the limitations of the end-users' skills are the cause of their inability to identify their needs. This is confirmed in previous Syrian studies (Ahmed, 2010; Al-Samir, 2009; Alassaf, 2011). These limitations can be due to providing inefficient IL programmes or orientations, or/and a lack of training workshops. Hence, it is suggested to generate appropriate and high-levels of IL and training programs tailored according to the tangible EUERs.

Indeed, developing end-users' skills is required via providing appropriate training programmes (section 8.4.1.2.5). Such programmes are important to enhance the end-users' skills and strategies by acknowledging them on the library, its contents and services. Thus, they become familiar with the PALs' atmosphere. Additionally, offering IL programs and customised training workshops based on the EUERs is crucial to increase their literate level, and develop their IT skills in order to deal with technical problems facing them during their library usage. According to the findings, training is provided; however, it was not provided efficiently. There is a need to redesign these programs and providing them based on the EUERs. These findings are considered with those of Gannon-Leary, Banwell, and Childs (2001), Sidera-Sideri (2013), and

Debowski (2000) who indicated that providing end-users with searching and IT skills are essentially required for technology-driven services and resources. Thus, developing end-users' skills is required to increase the use of PALs and the academic achievement. The more information skills end-users have, the more they are familiar with their PALs; and the greater their ability to cope with the barriers and difficulties facing them, and improve their academic attainment.

### 8.3.3 Career development

Facilitating undergraduates by developing their skills, knowledge, and experience is crucial to confront market needs. The findings illustrate that there is a need to support alumni alongside current students to improve their skills. Findings confirm those of Ahmed (2010) and Al-Samir (2009) who indicate that linking students' demands to career requirements is one of the main objectives of establishing the SPUs. This may explain the trend of undergraduates toward the increase of enrolling numbers in SPU (Kabbani & Salloum, 2010). Furthermore, these results are consistent with the findings of Al-Fattal (2010) who affirms that the students' decision to enrol in SPUs reflects their expectations and requirements in terms of developing their career. Developing a career means providing students with all information required responding to the job market, offering sufficient training programs that enrich their skills and experience, and involving the in the activities that improve their future career.

### 8.3.4 The Difference of EUERs

The difference between end-users' groups in relation to EUERs is confirmed in this study. This confirmation answers the research question: "Do end-users have different expectations and requirements according to their groups?". Unsurprisingly, the findings demonstrate that undergraduates are more demanding than academics. That is expected as completing academic tasks is the main reason of using the library. These results are crossed with those of previous studies that present the difference between end-users' groups and demand (Blair 2003, Makri and Warwick 2010), although there is an agreement between end-users in obtaining rapid access to information. Undergraduates were more demanding to borrow printed books, browse e-books, and obtain general information. Although these findings are in line with those of Jordan (1998) in terms of using information in supporting learning purposes, Jordan (1998) indicates that students require specific information in a short time.

On the other hand, academics were more demanding to access e-journals and obtain specific information. This is supported by the findings of Alassaf (2011) which show that the main EURs of academics were accessing full-text of e-IRs in foreign languages, and browsing the publication produced by their universities. Furthermore, undergraduates were more demanding than academics regarding providing social, learning and personal space, while academics were more requiring regarding the quality and recency of the e-/IRs (Restoum and Wade, 2014).

However, this study confirms the need to develop end-users' skills (section 8.3.2), there is an agreement between undergraduate and academics in rating "finding and using information" as "good". These results present that e-/IRs are, to a fair extent, provided and organised in the way that respond to EUERs. Providing adequate e-/IRs, managing, and facilitating these e-/IRs are required for better availability and accessibility (Casey 2004, Feeney 2004, Sidera-Sideri 2013).

The findings show that there is no difference regarding gender, age and the level of study for undergraduates in terms of finding and using information, while a highly significant difference is articulated in terms of finding and using information between faculty groups for the undergraduates. On the other hand, for academics, the findings depict that age is an important factor influencing academics in relation to finding information, while teaching experience has a significant difference with academics in terms of using information. These are supported by Al-Samir (2009) and Alassaf (2011), who confirm the difference between the undergraduates' studying level. They affirm that the more students were advanced in their studies, the more they preferred searching and using ALs. It is assumed that end-users' ability of finding and using information might dramatically increase according to age and the experience.

However, the findings demonstrate that academics were more interested than undergraduates in considering 'accuracy, accessibility, understandability, and the year of publication' as important factors to select e-/IRs, the findings present that the aforementioned factors had no significant difference for the academics. In contrast, these factors had a difference with the undergraduates in relation to gender, age, level of study, and faculties groups as illustrated in table 8.1.

**Table 8.1.** ***The Difference with Undergraduates' Requirements of IRs regarding Personal Variables***

| Personal Variables | Factors |
|---|---|
| **Gender** | Accessibility<br>Cost |
| **Age** | Accuracy<br>Accessibility<br>Understandability<br>The year of publication |
| **Level of study** | Accuracy<br>Accessibility<br>Cost<br>The year of publication |
| **Faculty** | Accessibility<br>Understandability |

According to Banwell et al. (2004) and Whitmire (2002), there is a differentiation between EUERs regarding their faculties. Their findings showed that students have a positive perspective on e-LISs and e-IRs in terms of accessibility, comfortability and efficiency. In the same context, Alassaf (2011) confirms these findings. Thus, the variation of end-users' disciplines is another crucial variable in investigating end-users' ISB in ALs.

## 8.4 Improvement of LAIU Situation

The comparison of conceptual models with real world (section 7.4) highlights a number of problematic issues. The results demonstrate that the most presented activities in the real world need improvement, and a number of them are constrained by financial, human, and technical resources. Carrying out the comparison, relying on the formulated root definitions and the conceptual models, was crucial to generate a number of recommendations that help effectively in improving the holistic situation of the LAIU. These recommendations encompass a number of aspects in three different areas of concern, which are related to behavioural, technical and mismanagement areas.

Improving the real situation requires implementing a change that should be systematically desirable "system is perceived to be revenant" and culturally feasible "system is perceived to be meaningful to stakeholders" (Checkland and Scholes, 1990,

p. 36). The change should comprise the accepted activities of the comparison stage. It can be in the structure, procedures, strategies, attitudes and cultural change (AlHarrasi, 2015). Obviously, this stage transforms the situation to what changes are feasible and desirable to be achieved in order to improve the situation.

The application of the tools of SSM, in chapter 6 and 7, shows that there is a need to improve a set of area in order to increase the quality of the LP. According to the comparison in section 8.4, there are needs to understand the EUERs, and provide appropriate e-/IRs and e-/LISs that should be compatible with EUERs. Furthermore, there are needs to establish sophisticated strategic planning that determines the role, the responsibilities, and the procedures of each element of the library. In addition, there is a need to enhance the library ICT capacity.

Critically, discussing the change with the main actors to agree with the change is unavailable because of the current crisis facing Syria, in the first place, and also the limitation of resources. Thus, the researcher proposed a set of changes as recommendations of improvement, based on her knowledge and experience, and based on the library staff's suggestions for improvement. In this context, the proposed change can be used a strategic plan or framework to achieve improvement. The improvement can be achieved by adopting the recommended system as follows:

> *"A system owned by the library, provided by qualified library staff (director, academic librarians and administrators), the appropriate university members, and potential partnerships, aiming to improve the LP and increasing EUS, by establishing strategic planning, increasing the understand and response to EUERs, reinforcing the library role in supporting EP, increasing ICT capacity, and developing the staff's skills, within constraints of timing, training, attitudes of end-users and staff, and financial constraints".*

As adopting the suggested changes is required to increase the LP, identifying the actors who should implement the change, and other stakeholders is crucial to determine the transformation and responsibilities of each actor. Thus, CATWOE elements of increase the LP are illustrated as presented in table 8.2.

**Table 8.2.** ***The CATWOE Elements of Increasing the LP of LAIU.***

| CATWOE | Analysis |
|---|---|
| **C** | End-users, and library staff |
| **A** | The director, librarians, administrators, trainers, collaboration partners, the deans of the university, publishers, and government. |
| **T** | Decrease of the LP due to a lack of provided services and the accessibility to information → Increase the LP. |
| **W** | It is useful and feasible to understand EUERs and their ISB;<br><br>It is useful and feasible to provide appropriate e-/IRs and e-/LISs according to EUERs;<br><br>It is useful and feasible to adopt appropriate methods to increase the ICT capability and the accessibility to information;<br><br>It is useful and feasible to evaluate the LP. |
| **O** | DIR including the three unites (LU, AISU. And AU). |
| **E** | Lack of time and facilities, training, change of culture, financial and human constraint. |

The CATWOE analysis aims to transform the LAIU from a low level of the LP, due to the impact of a number of limitations, to a high-quality performance by understanding EUERs and their ISB, providing appropriate e-/IRs and e-/LISs according to EUERs, adopting appropriate methods to increase the ICT capability and the accessibility to information, and evaluating the LP, taking into account the lack of the time, training, and financial and human resources. The change should be achieved by all involved actors (The director, librarians, administrators, trainers, collaboration partners, the deans of the university, publishers, and government). This change aims to serve and benefit existing and potential end-users, and library staff.

The overview of change is constructed into a conceptual model in order to identify the activities and relationships illustrated in the root definitions. The conceptual model covers nine operational activities seeking to improve the quality of the LP. It starts with developing the awareness of the library staff. It is important to find appropriate methods to enhance the provision of the e-/IRs and e-/LISs. Furthermore, it is recognised that

developing suitable strategic planning is the cornerstone to improving the LP. The collaboration between the SALs is crucial as well to enhance the performance. Moreover, the improvement requires providing suitable training courses and workshops based on the EUERs, increasing the ICT capacity, updating the LMS, and linking the library to EP. Finally, the evaluation of these operational activities is required to insure quality and to take action for further improvement if it is required. The operational activities are measured by adopting monitoring and controlling activities, using 3E criteria as follows:

**E1-Efficacy**: are the activities appropriate to achieve the improvement of the LP quality as a result of adopting the change?

**E2- Efficiency**: are the minimum resources of the LAIU, such as human, financial, and technical resources used efficiently to improve the LP?

**E3- Effectiveness**: Does the model contribute to increase the quality of the LP and increase the EUS by meeting their expectations and requirements? Is the system related to the long-term aim of the library and its staff regarding providing a high quality services and information resources supporting end-users in their EP?

Figure 8.2 demonstrations the conceptual model of improving the quality of the LP.

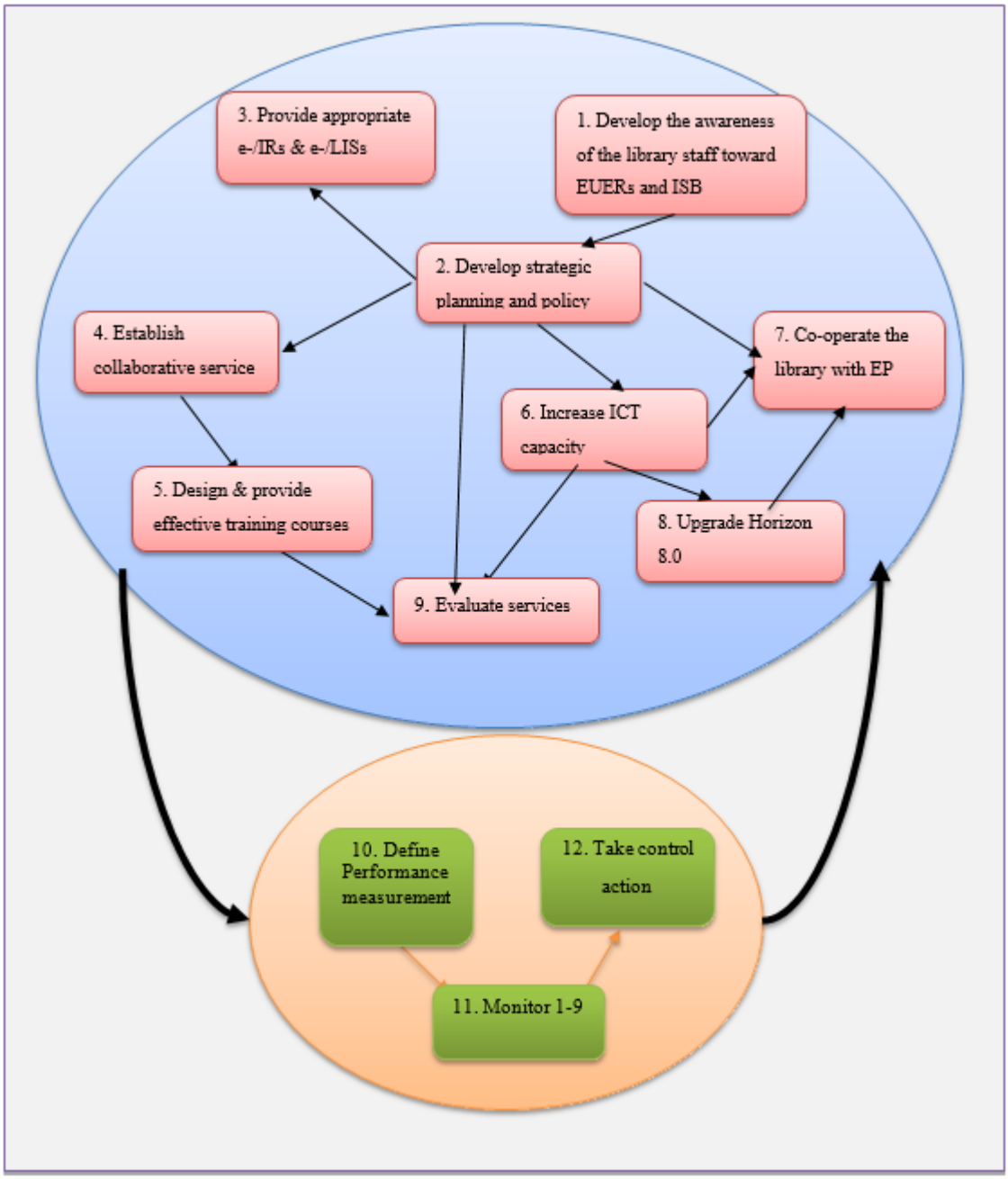


***Figure 8.2.*** **Conceptual Model of the Quality Improvement of the LP**

### 8.4.1 Phases of Required Change

As the improvement covers different areas of concern and the change includes a number of purposeful activities, the implementation of change is recommended to be achieved in three phases (preparation and planning, implementation, and evaluation), as presented in figure 8.3.

| Phase 1: Preparation & Planning | Phase 2: Implementation | Phase 3: Evaluation |
|---|---|---|
| Appreciate library resources;<br>Identify library staff's skills;<br>Identify EUERs;<br>Determine end-users' abilities and skills;<br>Observe and monitor end-users' ISB;<br>Establishing for a strategic planning;<br>Determine the priorities;<br>Discuss the improvement with the responsible of the university. | Establish strategic planning;<br>Provide appropriate e-/IRs & e-/LISs based on the analysis of phase 1;<br>Increase ICT capacity;<br>Provide Collaborative service;<br>Design & provide appropriate training and IL programmes;<br>Activate the library role in supporting EP;<br>Upgrade Horizon system. | Control & monitor the progress;<br>Prepare regular reports measuring the library operations;<br>Measuring EUS using questionnaires , statistics, and communication methods. |

***Figure 8.3.*** **The Phases of Change Implementation**

#### 8.4.1.1 *Phase 1: Preparation and planning phase:*

Initially, it is important to identify the library aims and objectives before beginning in implementing the change. Thus, preparing and planning for the change is essential in order to avoid a waste of effort, time, and resources. Hence, the library should identify its resources (human, finance, technologies, and information) in order to determine its capacity and set up its goals based on its potential capabilities. Then, it should determine the skills of the library staffs by identifying the strengths and weaknesses, and to what extent they are capable to cope with different end-users and situations, using questionnaires and discussion. Furthermore, determining library staffs' skills is fundamental to provide them appropriate training programmes.

In this phase, identifying and understanding EUERs is crucial in order to provide resources and services that respond to their demands and lead to increase their satisfaction. The identification can be realised by increasing the awareness of the library

staff toward EUERs, obtaining end-users' feedback using the questionnaires, communication, and statistics. Furthermore, the library should appreciate its end-users' abilities and skills in order to provide them with suitable training programmes according to their weaknesses areas such as searching strategies, IT weakness, or other skills' limitations. As end-users' ISB starts with the awareness of information and connected directly to EUERs, investigating these ISB should be seriously taken into account, by observing end-users through their information usage, and discussing and communicating with them.

One of the most important aspects of change is to plan for a strategic planning that determines the library operations, duties, and roles. Initially, the library should select the strategic planning committee. This committee should be responsible for setting up its goals, objectives, and roles, discussing the headlines of the library strategy, and identifying the processes and priorities. Strategic plan should be flexible to adapt the change of the library environment and be developed over the time. It should be an indicator to monitor and control the library process and resources. Strategic planning is discussed in the implementation phase.

#### 8.4.1.2 *Phase 2: Implementation*

After planning and preparing the library and its staff for change, the library should be ready to accept the change and take a step forward for its implementation. The implementation can be done on stages regarding the library resources and priorities. The change should include a number of areas, which are detailed in the forthcoming sections.

##### 8.4.1.2.1 Establishing Strategic Planning

The cornerstone in the implementation phase is establishing a tangible written strategic plan that identifies the library processes, roles, and duties. The strategic planning committee and the priorities should be determined in the first phase. This phase should be confined to providing a written copy of this strategy. Library staff should use this strategic plan to control and monitor the library procedures, services, and processes. The strategic plan should be a guide to insure the quality of services provided. Establishing the strategic planning should contain:

- Meeting all involved members and discussing the activities that should include step-by-step;
- Establishing a clear strategic plan and policy should be based on the library existing and potential resources (financially, humanly, and technically);
- Identifying the library aims, objectives, roles, and duties;
- Issuing soft and hard copy of the strategic plan to be a source and a bookmark for the library.

Furthermore, a strategic plan is important to be flexible in order to adopt changes that might occur in the library processes and environment.

8.4.1.2.2 Providing Appropriate e-/IRs and e-/LISs

The comparison (section 7.4) shows that there is a serious need to improve the existing services, and to provide further services. Additionally, it demonstrates that the provision of the e-IRs and e-/LISs should be in accordance with the EUERs. Hence, he library should adapt a set appropriate e-/IRs and e-/LISs in order to increase its ability of responding to EUERs. A number of activities are suggested in table 7.4 and 7.5 as follows:

- Identifying the cost and the providers of the e-/IRs and e-/LISs;
- Increasing acquisition process based on end-users' demands;
- Insuring that all books are labelled, and all printed IRs are organised according to Dewey decimal classification with guidance referring to the number of classification and the discipline;
- Subscribing e-libraries based on the EUERs and disciplines;
- Increasing the accessibility and availability of the e-/IRs;
- Promoting marketing strategy, and using different channels and approaches to reinforce marketing such as using web 2.0, and linking the library to social media in order to introduce the library content and services;
- Discussing the ability to improve existing services and adopting new services, with the decision-makers of the university, according to the university policy and financial resources;

- Providing e-/LISs in each branch according to the EUERs, while the central library should provide all services in order to serve all end-users groups and specializations;
- Establishing Mobile library application. The application should be designed to provide end-users with an efficient access to information with main functions such as browsing e-catalogue, checking the library opening hours, and contacting staff;
- Providing VRSs using website-form, chatting, and by email. This enables increasing the responses of the end-users' inquiries.

8.4.1.2.3 Increase ICT Capacity

The analysis demonstrates that the library suffers from a number of challenges related to ICT (section 6.4), and there is a need to increase the library ICT capacity (section 7.4). However, the library suffers from a limitation in its financial resources, improving ICT is required to improve the LP and insure the quality of services. The implementation of this activity can be divided into to two stags. The first stage is for implementing a short-term plan. This stage includes the most required activities, and immediate recommendations that need short time to run, whereas the second stage is for long-term plan. In this stage, all suggested sub-activities that require longer time to be well-designed and run should be included in.

**Short-term plan** should include a number of recommendations, as follows:

- Increasing the number of computers to an extent that fit with potential use;
- Increasing the Internet speed by discussing with the university, the MoHE, and the Governmental Internet service provider to increase the Internet speed; providing anti-virus programme and scanning all the library computers; and activating the provision of the Wi-Fi, as a cheap and easy technology to set up. It enables end-users to connect their own laptops and smart phones to the Internet;
- Increasing the access to information by making all e-/IRs available on e-catalogue, increasing the Internet speed, and improving the library ICT interfaces.
- Empowering the link between the library and social media by monitoring the library page on 'Facebook" and using it to introduce and market the library content and services; creating an account on "Twitter" and monitoring this account; using "YouTube" to create videos, online tutorial, induction, and advertisements about

the library; and adopting "Blogs" to share the information and thoughts and increase the interaction between end-users and the library staff.

While, the **Long-term plan** should contain the following activities:

9. Providing e-repository and inter-library loan, which discussed previously in the section of providing collaboration service.

- Upgrading the LMS. This is discussed later in this section.
- Implementing the Intranet. Intranet is cheap and easy to use. Adopting the intranet will decrease the pressure of using the Internet, thereby, will increase the efficiency of the Internet and increase the speed in delivering information. Adopting the Intranet will increase the communication and the accessibility to information. Intranet provides a number of the main library management functions such as acquisition, ordering (Bhojaraju, 2003).

Furthermore, the majority of the library staff suggested establishing a forum to increase discussion and interaction between end-users (students and academics)

8.4.1.2.4 Providing Collaborative Service

A number of the library staffs' members suggested providing a collaborative service to improve the LP. This suggestion is taken into consideration by the researcher as an important service to increase the response to EUERs. Establishing collaborative services increases EUS by providing a wide range of e-/IRs, decreasing the cost, and saving the time and efforts to find information. The adoption of the collaborative services should include:

- Discussing the activities and procedures of the suggested collaborative system
- Identifying the partnerships and the staff who should involve in the collaboration;
- Identifying the cost and training programmes required to improve the library staffs' skills;
- Adopting e-repository to store and retrieve information, and publish the university's reports, academics and researches' publications, and students' dissertations;
- Designing and providing inter-library loan services using determinant form enabling requesting and sharing e-/IRs from all participating librarie

8.4.1.2.5 Designing and Providing Appropriate Training Programmes

The analysis shows that there is a need to develop both end-users and library staff's skills. Hence, designing and providing appropriate training programmes is highly required. The constriction of time and work overloading should be taken into consideration in the designing stage. Phase 1 should achieve the assessment of different stakeholders' skills, the appreciation of the cost, and the identification of the training needs based on the stakeholders' requirements. Indeed, training should be clearly articulated in the library strategic plan. The design of training should include end-users and the library staffs regarding developing IT skills and languages, information searching strategies, using the library services, and providing IL. Providing training programmes should be based on the stakeholders' groups (student, academics, employees, librarians, or administrators), and be offered in different formats (courses, workshops, web-based tutorial, induction, orientation, and guidance). A number of activities are suggested in table 8.5 and 8.6 as follow:

- Identifying trainers and trainees;
- Designing training programme and determining its format;
- Scheduling time;
- Conducting training programme, and providing the programme materials;
- Evaluating training programmes at the end of the programmes (evaluate the trainer, materials, location, content, and the presentation).

8.4.1.2.6 Co-operating the Library with EP

The analysis presents that the library staffs were aware of the importance of the library's role in supporting EP. As a result, they encouraged academics and undergraduates to use the library. On the other hand, the analysis shows that this encouragement was not sufficient to reinforce EP. Certainly, the lack of co-operation between the library and EP can affect the understanding of EUERs, and increase the end-users' dissatisfaction. Based on this point, boosting the library role in supporting the EP should be achieved by implementing the following recommendations:

- Involve end-users in acquisition process;
- Encouraging academics in suggesting e-IRs;
- Providing the library with e-/IRs relating and supporting to academic curricula;

- Increasing the end-users' awareness of the importance of ALs in supporting the EP by conducting seminars, distributing leaflets and marketing the library;
- Activating the librarians' role in guiding, assisting, and communicating with end-users
- Providing high-quality services supporting EUERs in EP such as printing, photocopying, scanning, training, marketing, CAs, and SDIS;
- Establishing a forum to increase the discussion between undergraduates, academics, and librarians about educational-based issues;
- Providing VRSs will help in supporting EP by responding end-users' inquires directly.

8.4.1.2.7 Upgrading Horizon 8.0

Library staff addressed that Horizon 8.0 has been adopted in the library since 2007. A number of limitations related to some functions were reported such as the lack of reporting and spelling check (section 6.2.4.3). The library staff were aware of the need to enhance Horizon system. They suggested adopting UV-Find open sources to achieve that; however, Koha is strongly recommended (section 9.3.6).

Based on the analysis, currently, there are a number of unaccepted activities for change such increasing the number of the librarians, allocating and increasing the library budget, and providing an appropriate building with convenient places for study along with social places. The acceptance is due to the lack of the library financial resources, and in regard to the university's policy. However, taking action for the change is not acceptable currently, it should be taken into account for further improvement. Deepen the discussion with the university and other affected power in the situation, and persuade them with the importance of the ALs' role in supporting the EP are significant to achieve the change.

#### 8.4.1.3 *Phase 3: Evaluation*

Evaluating the implementation of change is necessary to insure the quality of the provided services. The evaluation should comprise of all services and resources, performance, and the librarians' skills and interactions. Strategic planning committee should be the responsible for monitoring and evaluating the library progress and performance. As the evaluation is a difficult task, it should be achieved according to

determined criteria and standards. Hence, the evaluation should include the following recommendations:

- Establishing the criteria and standard of evaluation;
- Improving the library staff's ability and skills in term of evaluation;
- Monitoring the services processes;
- Conducting regular meeting and providing regular reports measuring the library operations;
- Obtaining end-users' feedback and suggestions of the services improvement using questionnaires and communications;
- Measuring to what extent end-users are satisfied with these services using statistics and questionnaires.

## 8.5 Requirements of LP Improvement

As confirmed in this study, improving the LP corresponds with increasing EUERs (Asubonteng, McCleaty, & Swan, 1996; Dotchin & Oakland, 1994; Lewis & Mitchell, 1990; Restoum & Wade, 2014; Wisniewiski & Donnelly, 1996; Zahari, Yusoff, & Ismail, 2008), and EUS (Hung, Huang, & Chen, 2003; Parasuraman, Zeithaml, & Berry, 1988; Restoum & Wade, 2013a, 2013; Seth & Deshmukh, 2005; Sureshchander, Rajendran, & Anatharaman, 2002; Wisniewiski & Donnelly, 1996), and understanding end-users' ISB. Based on the findings and analysis conducted in this study, S-diamond model is generated presenting the main aspects are required to improve the problematic situation in PALs. These required are strategic planning, skills, support, and satisfaction, as presented in figure 8.4.

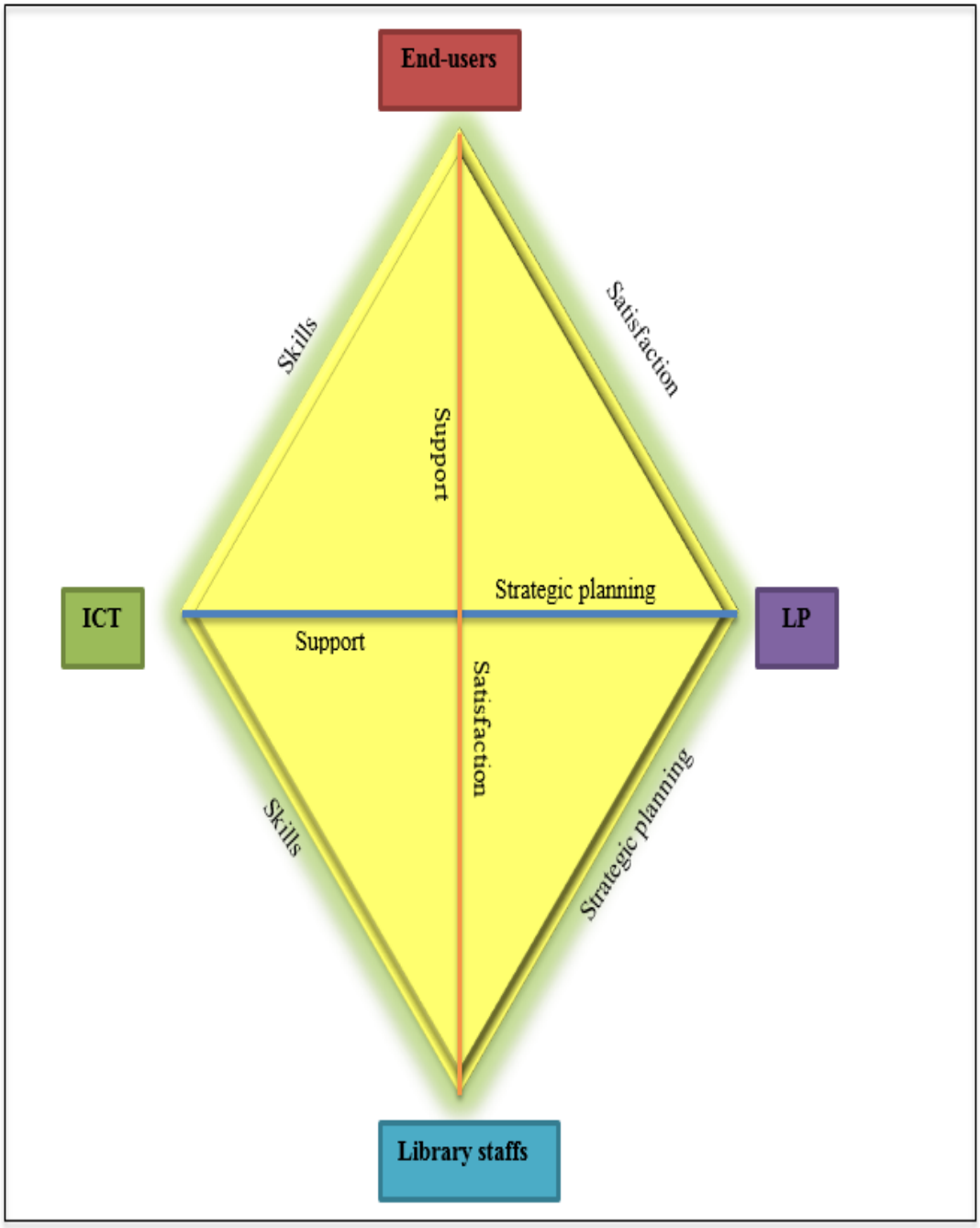


***Figure 8.4*** **. S-Diamond Model**

### 8.5.1 Strategic planning

Establishing a strategic plan is discussed in section 8.4.1.2.1. This study considers strategic planning a very important aspect to improve the LP by identifying the library processes and roles, and controlling the library procedures and services. The importance of establishing a strategic plan in ALs is addressed in the literature (Adeyoyin, 2005; Huotari & Iivonen, 2005; Piorun,

2010). Piorun (2010) considers strategic planning a development tool of the ALs' vision, and a guide to achieve the development. Hence, PALs should adopt strategic planning to insure the quality of services provided and the progress of the performance. Deciding the strategic planning committee is the first step in establishing strategic planning. Strategic planning committee should be responsible for making decisions to achieve the development, meeting all involved members, and discussing the activities that should include step-by-step. Furthermore, it is important to identify the library aims, objectives, and roles.

The library staffs' roles and duties should be identified clearly also. Determining the role and responsibility of each group of the library staff (librarians, acquisition staff, and administrators) is useful in improving the LP by responding effectively to the EUERs. Furthermore, increasing the library ICT capacity should be articulated obviously in the strategic plan. Furthermore, the provision of e-/IRs and e-/LISs should be determining according to a determinant strategy. These issues are discussed in the implementation phase of the recommended strategy (section 8.4.1.2).

Indeed, providing a tangible written strategic plan is crucial to control and monitor the LP. This is in a line with the findings of McLoughlin and Wilson (2006), which illustrate the importance of providing documented plan in terms of ensuring the services quality, unifying the procedures of implementations, and increasing the awareness of the EUERs. Hence, PALs should adopt a written strategic plan based on the library existing and potential resources (financially, humanly, and technically), and according to their goals and objectives. It should be flexible to adopt changes in the library processes and environment

### 8.5.2 Skills

The investigation shows that end-users suffer from difficulties in relation to their use of the library and dealing with its ICT. These difficulties are because of the lack of their IT skills and searching strategies (section 6.2.1.2). The lack of end-users' skills is confirmed by previous Syrian studies (Alassaf, 2011; Ahmed, 2010; and Al-Samir, 2009). On the other hand, IT skills are a

challenging issue for the library staffs (section 6.2.3.4). Sidera-Sideri (2013) illustrates that IT skills are essential for both end-users and academic librarians in terms of accessing information and using e-services. Furthermore, Jordan et al. (2002), and Pantry (2000) investigate a set of skills including IT skills that should be acquired for enhancing academic librarians' performance. Hence, PALs should identify end-users and library staffs' abilities and skills, cost, and training needs in order to develop these abilities and skills based on their needs. This identification is recommended to be achieved in the first phase of the recommended strategy (section 8.4.1.1).

Designing and providing appropriate training programs is essential to bridge the lack of such skills (section 8.4.1.2.5), taking into account the limitations of the financial and human resources, and the work overlap of both groups. The lack of training is addressed in a number of studies (Alfrih, 2010; Alassaf, 2011; Ahmed, 2010; and Al-Samir, 2009; Gannon-Leary, Banwell, and Childs, 2001). Hence, providing a suitable training programme is required to improve the LP by developing the skills, providing IL, and increasing the ability to find and use information. Training should be addressed in the library strategic plan as a very important activity to be achieved. Providing training programmes should be relied on the stakeholders' needs and according their groups. According to Brophy (2007), recognising end-users' needs, skills and reaction are fundamental for the libraries' future.

Certainly, identifying the trainers and trainees is crucial to provide adequate training programmes to apt stakeholders. Presenting training in different formats is helpful in terms of increasing the availability of these programmes. Furthermore, offering training programmes in a suitable time regarding to the stockholders' academic timetable can increase the attendance. It is suggested that providing hand-outs and related materials can arise the benefit of the training. Interestingly, evaluating training programmes at the end of the programmes to assess the trainer, materials, location, content, and the presentation will be significant for further improvement of the training programmes.

### 8.5.3 Support

PALs play an important role in supporting end-users in their EP (section 9.3). Such support increases the LP by meeting their academic demands. To achieve that, firstly, PALs should support themselves by providing efficient e-/LISs and sufficient e-/IRs. The importance of providing supportive e-/IRs and e-/LISs is reviewed in literature (Bergman & Holden, 2010; A. M. Casey, 2004; Cullen, 2001; Feeney, 2004; Jayasundara, 2008; Restoum & Wade, 2013a, 2013b; Sidera-Sideri, 2013; Tremblay & Wang, 2008; Webb et al., 2007; Alassaf, 2011; Ahmed, 2010; and Al-Samir, 2009; Barsun, 2002; Hall, 1998). Secondly, facilitating adequate appropriate equipment and ICT is fundamental for improvement. Hence, PALs should articulate the challenges and barriers related to ICT if they desire to improve their LP. The increase of ICT capacity has been discussed in section 9.4.1.2.3. Several studies illustrate the impact of increasing the ICT in ALs on increasing the LP (Baker & Evans, 2013; and Crump et al., 2012; Alassaf, 2011; Ahmed, 2010; and Al-Samir, 2009). Furthermore, evaluating the PALs' process and services is crucial to insure the quality of the LP (Crawford, Pickering, & McLelland, 1998; Satoh et al., 2005; Gumilar and Johnson, 1995). The evaluation is determined to be the third phase of suggested strategy of improvement (section 8.4.1.3).

Furthermore, library staffs, as a human resource, play essential role in supporting end-users in their EP. As the main end-users' demand is an academy, guiding end-users to related e-/IRs, assisting them in finding information, developing their skills, and communicating with them are required to achieve that (Baker & Evans, 2013; Cynthia A Raquepau & Richards, 2002; Owusu-Ansah, 2005; H. A. Thompson, 2002; Korobili and Tilikidou, 2005). To achieve that, library staff should develop their skills and knowledge in order to respond to EUERs. In addition, they should increase their awareness of the changing EUERs, and their ISB. Understanding EUERs and ISB lead to increase the support of end-users by saving time and effort, and providing better response to them. That will reflect on their level of satisfaction.

### 8.5.4 Satisfaction

Satisfaction is an important indicator reflecting the level of the LP. This study confirms the relationship between EUS and LP, which is articulated in previous studies (Hung et al., 2003; Parasuraman et al., 1988; Restoum & Wade, 2013a, 2013; Seth & Deshmukh, 2005; Sureshchander et al., 2002; Wisniewiski & Donnelly, 1996). It is proved that the more PALs increase their LP, the more end-users will be satisfied. EUS is discussed, in details, earlier in this chapter (section 9.5). Providing a set of e-/IRs, e-/LISs, ICT facilities, and other functions, based on EUERs, are crucial to increase the satisfaction level. Furthermore, the library staff plays significant role in increasing the satisfaction by responding to the end-users' demands (section 8.5.3). Indeed, the co-operation between the PALs and the EP is an essential aspect in achieving the satisfaction (section 9.3.9).

Furthermore, financial requirements should be taken into account as an important aspect that influences PALs. The lack of financial resources affects negatively on the LP improvement. The analysis and comparison in chapter 8 shows that there is limitation in relation to providing financial resources. These results are in line with those of Arabic ALs (Ahmed, 2010; Al-Samir, 2009; Alassaf, 2011; AlHarrais, 2012; and Alfrih, 2010) that illustrate a lack of budget and other financial resources in Saudi, Omani, and Syrian ALs. Hence, the collaboration between PALs and other governmental ALs in Syria is crucial to enhance the LP by reducing the cost, sharing e-/IRs and controlling the duplication of resources, providing Inter-library Loan, unifying the procedures and catalogue (Ahmed, 2010; Al-Ganem, 2006; Gorman & Cullen, 2000; Oxnam, 2010; Scigliano, 2002; Sheshadri et al., 2011); however, several barriers can affect the provision of the collaboration system such as the lack of communication and experience in offering this service, financial and technological barriers, and the inability to respond to EUERs (AlHarrasi, 2012; Darch, Rapp, & Underwood, 1999; Kucuk & Hartley, 1995; Langley, Gray, & Vaughan, 2006; Wilding, 2002). Indeed, providing collaborative service has been discussed in section 8.4.1.2.4.

Briefly, taking action to improve the LP should cover three dimensions: attitude, process, and structure (P Checkland, 1999). Firstly, changing the library staffs' attitudes is the first step toward the change. Increasing the library staffs' awareness of EUERs and their ISB, increasing the communication, changing their beliefs and feelings toward the library and its end-users, and the feeling toward themselves are important to achieve the improvement. In other words, increasing the PALs for change is the cornerstone of the improvement. Secondly, changing the process includes establishing a tangible strategic plan, providing appropriate and sufficient e-/IRs, e-/LISs, ICT, and training programmers. Furthermore, skills development and co-operation between the library and EP are fundamental for the change. Finally, changes in structure should embrace a set of organizational elements. PALs should re-think and re-structure their spaces based on the EUERs. They should re-think about the staffs and determine their roles and duties. Activating the discussion and interaction, and facilitating appropriate budget and ICT are helpful in term of improving the LP.

## 8.6 Summary

This chapter has provided a rational discussion of the main findings articulated in this study. A strategic plan has been generated, including a set of recommendations, formulating the changes required to achieve improvement. S-diamond model has been developed to discover the requirement for the LP improvement in PALs. The main points discussed in this chapter are summarised as follow:

- **The improvement of the LAIU situation:** this section provides a set of recommendations required to achieve the desirable and feasible changes. These recommendations have been generated, using the tools of SSM (formulating a root definition, adopting the components of CATWOE, and building a conceptual model), aiming to improve the LP of the LAIU. Recommendations have been formulated to become a strategic plan achieved on three phases (preparing and planning, implementation, and evaluation).
- **EUERs in PALs**: the main EUERs are an academy to support their academic achievements. The development of the end-users' skills is required to respond to their academic demand, as well as to respond to the market requirements.
- **Requirements of LP improvement**: four aspects are required to improve the LP. These aspects construct S-diamond model (strategic planning, Skills, support, and satisfaction). Taking action to achieve the desirable change of the improvement requires determining the library financial, human, and technical resources. Also, it requires covering three dimensions: attitude, process, and structure.

The relationships between the main themes investigated in this study are discussed in the next chapter.

# Chapter 9

## Relationships Between Themes

## 9.1 Introduction

The previous chapter discussed the main findings of the study. It presented the suggested strategic plan for improvement. It demonstrated the S-diamond model, which articulated the requirements of the LP improvement in PALs. This chapter discovers the main themes of this study (EUERs, EUS, end-users' ISB, and LP), and the relationships between them. Discovering these relationships is required to achieve a set of objectives: to find out what is required from the library to supports end-users in the EP (section 9.3), to identify how end-users interact with their library and what are their ISB (section 9.4), and to investigate the EUS with the existing LP (section 9.5). Finally, this chapter is concluded with a brief summary summarising the main points of the chapter.

## 9.2 The Relationships Between Themes

The literature has addressed the relationship between the EUERs and the EUS (Applegate, 1993; Dalrymple & Zweizig, 1992; Shi, 2003; Shi, Holahan, & Jurkat, 2004; Yu, 2006), although Yu (2006) believes that this relationship is questionable. Additionally, the literature has investigated the relationships between the LP and the EUERs (Asubonteng et al., 1996; Dotchin & Oakland, 1994; Lewis & Mitchell, 1990; Restoum & Wade, 2014; Wisniewiski & Donnelly, 1996; Zahari et al., 2008), and between the LP and the EUS (Hung et al., 2003; Parasuraman et al., 1988; Restoum & Wade, 2013a, 2013; Seth & Deshmukh, 2005; Sureshchander et al., 2002; Wisniewiski & Donnelly, 1996). A number of publications have articulated the relationship between the EUS and the end-users' ISB (Applegate, 1993; Balatsoukas & Demian, 2010; Cullen, 2001), in spite Fang (2001) did not find a relationship between them.

This study confirms the relationships between these themes (EUERs, EUS, and LP). It contributes that end-users' ISB is another element affecting and affected by other themes. The association between these themes are demonstrated in figure 9.1. Themes are explored thematically. They are emerged from the data collected and analysed. Each theme includes a number of aspects that formulate the core components of the themes.

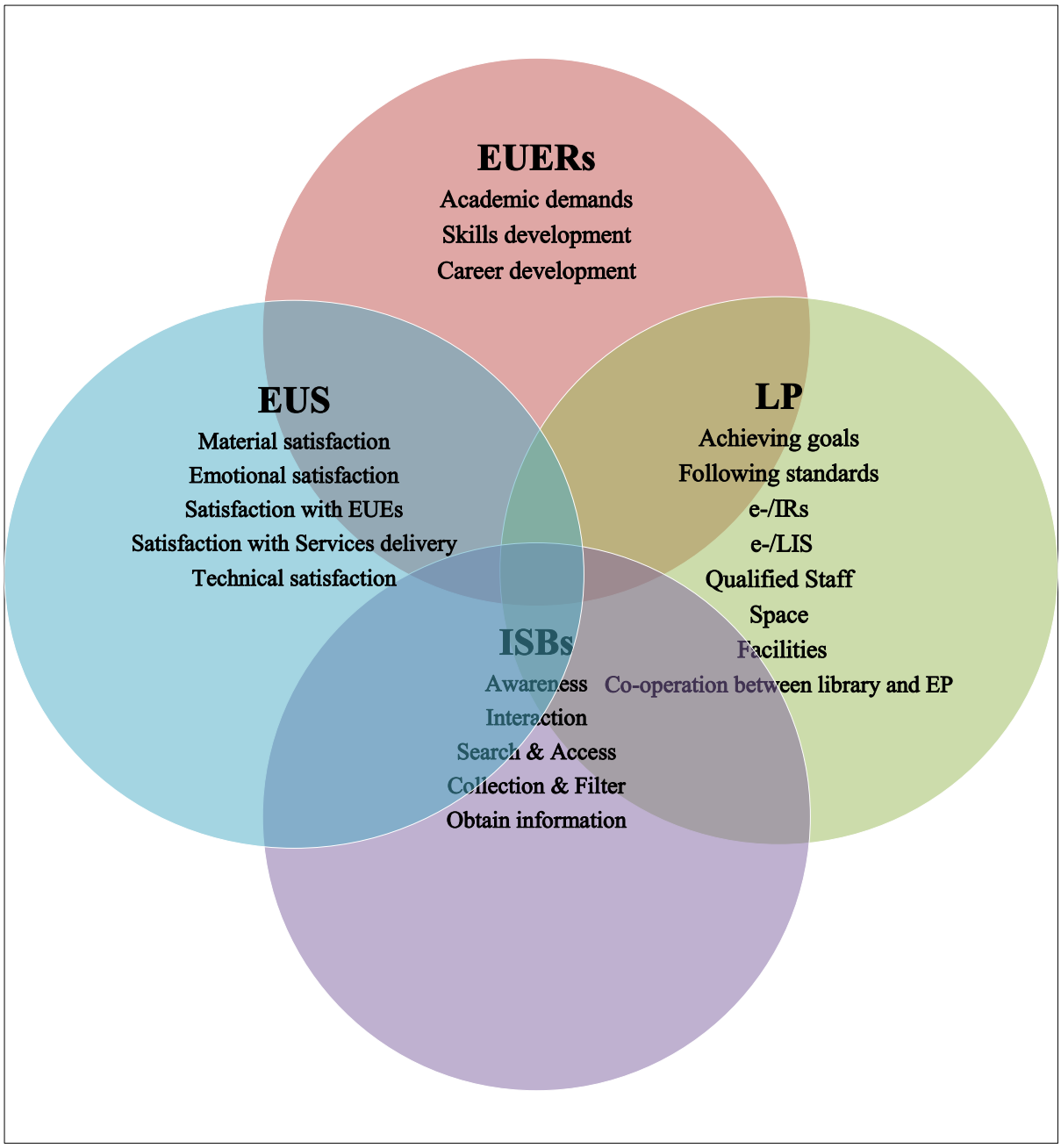


***Figure 9.1*. The Correlation between the Main research Themes.**

Figure 10.1 presents the main themes identified based on the research investigation and theoretical framework. It is approved that there is a strong relationship between the EUERs, EUS, end-users' ISB, and LP in the PALs' field. The library with these themes can be described as a system that contains input, processes and outputs, as presented in figure 9.2.

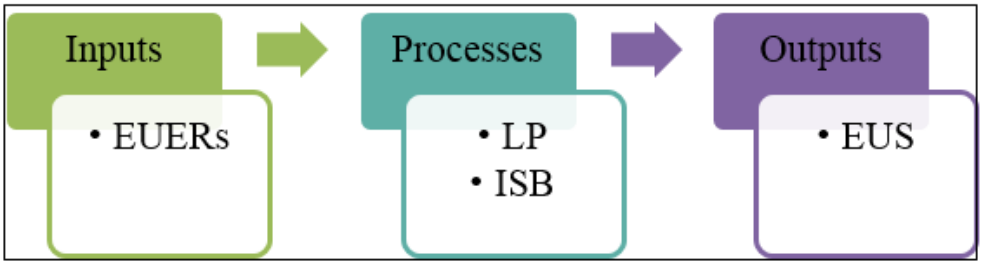


***Figure 9.2.*** **The View of Themes as a System.**

The inputs are the EUERs from their library that are needed to achieve academic attainment. The processes are what the library provides, and how end-users behave during their journey of obtaining information. Finally, the outputs are the level of the EUS obtained. Thus, the more EUERs are met, the more EUS will increase.

## 9.3 LP in Supporting EP

This section discusses LP investigating its importance in supporting EP, in a light of the correlation with other themes. This section demonstrates the role of PALs in supporting EP, and to show the relationships with other themes. The aspects of LP formulate the core of the PALs' operations as depicted in figure 9.3.


***Figure 9.3.*** **The Aspects of the LP.**

Based on results, there are a number of aspects affecting the LP. Enhancing the provision of these aspects can increase the level of the EUS and well-meet the EUERs. The next sections discover these aspects taking into consideration the relationships with other themes.

### 9.3.1 Achieving the Library Goals

As the main goal of the LAIU is to meet the EUERs and support them in their EP; hence, assessing the LP can reflect to what extent PALs are able to meet their EUERs (Asubonteng et al., 1996; Dotchin & Oakland, 1994; Satoh, Nagata, Kytomaki, & Gerrard, 2005; Wisniewiski & Donnelly, 1996; Zahari et al., 2008). Based on the findings, there is a need to improve the issues related to allocating and increasing the library budget, and invest a sufficient amount of money in enriching e-/IRs in regard to academic demand. These findings are in line with previous Syrian studies (Ahmed, 2010; Al-Samir, 2009; Alassaf, 2011) that present that the limitation of the budget affected negatively the LP because of its inability to offer all e-/IRs, e-/LIS, and other technical and operational functions and facilities required to meet the EUERs. Critically, these findings reflect the limitation of adopting tangible written strategy controlling the library procedures and performance (section 6.2.2.1), and the need to establish clear and structured strategic plan (section 8.4.1.2.1). This limitation was addressed in previous Syrian studies (Ahmed, 2010; Al-Samir, 2009; Alassaf, 2011). The lack of constructing a determinant strategy can negatively affect the acquisition of the e-/IRs. Unclear visions and goal can waste the library finance, effort, and time; therefore, decrease the LP and the EUS level.

Attracting new end-users is another goal of PALs. The findings show that providing a different format, and free or low-cost services are vital elements to increase the library interaction and attract new end-users. Furthermore, obtaining precise and regular feedback can be a crucial indicator to achieve this goal. Based on the investigation, recognising potential end-users is a challenge (6.2.3.3). The comparison of the previous chapter shows that the feedback obtained from the end-users regarding their LP is inefficient. Hence, the feedback should reflect to what extent end-users are satisfied with their library, and to what extent the library is able to respond to their requirements and expectations It should be conducted regularly using statistics, questionnaires, communication and discussion, additionally, observing end-users' ISB during their

interaction with the library is important indicator (Table 7.4). These results are in agreement with those of Adeniran (2011) and Madhusudhan (2010), who suggest that gaining indirect feedback from end-user increases the level of their satisfaction with finding and using information. It has been demonstrated that asking end-users for their feedback by using scale questions from 'strongly disagree' to 'strongly agree' is crucial improve the LP. (Applegate, 1993; Butler & Kortman, 1988; Restoum & Wade, 2013a, 2013; Yu, 2006). In contrast, a number of studies consider that adopting such method and obtaining such statistics might not be sufficient to determine the information reliably (Duy & Vaughan, 2003; Liu & Cox, 2002).

### 9.3.2 Following Library Standards

Following library standards is important to improve and sustain the quality of e-/IRs and e-/LISs. The research findings show that LAIU followed a number of international standards (section 5.5.2). The results were compatible with other Syrian previous studies (Ahmed, 2010; Al-Samir, 2009; Alassaf, 2011) that showed that SPALs follow a set of international standards. According to Brophy (2007), the main criteria for achieving international standards are enhancing LP, end-user perception, and e-/LISs. Hence, standards should reflect library goals and objectives, and increase the value of PALs. PALs should set up local standards, in relation to its internal environment, the number of end-users, the way of dealing with publishers, based on the library policy and strategy.

### 9.3.3 E-/IRs

This study shows that the there is a lack in relation to the availability and accessibility to the e-/IRs (section 6.2.2.3). Thus, providing a wide range of the e-/IRs are important elements to meet EUERs. These results are supported by other researches (Alassaf, 2011; A. M. Casey, 2004; Feeney, 2004; Sidera-Sideri, 2013). The current findings revealed that there is a correlation between providing appropriate e-/IRs and the improvement of the LP. Additionally, they demonstrate that there is a co-operation between LAIU and the EP in terms of supporting end-users for better academic achievement. These results were in contrast with the results of Alassaf (2011), Ahmed (2010) and Al-Samir (2009) that reveal the lack of providing e-/IRs that support end-users' academic demands.

The findings of Restoum and Wade (2013, 2013a) show that the main aspects affecting end-users' decision in selecting e-/IRs. **Accuracy** is the most important aspect influenced their selection of IRs, while **Cost** is the least important effective aspect. Interestingly, there is a difference in determining the effect of **Publication Year** between end-users' groups. **Publication Year** is very important element for the academics. That may due to their needs to obtain up-to-date information that support their teaching purposes. These finding are in agreement with those of Simmonds and Andaleeb (2001) who affirm that frequent access to different formats of e-/IRs responding to their academic purposes can be an indicator in assessing the accuracy of these e-/IRs. Thus, offering satisfactory provision and access to e-/IRs that respond to the end-users academic demands can positively affect the LP.

### 9.3.4 E-/LISs

Providing a set of the e-/LISs is required to enhance the LP. The findings of end-users demonstrate that LAIU provides a number of a high-quality services such as face-to-face services, e-/LISs, and guiding, although they indicated that the provision of marketing and training services were limited (sections 6.2.2.2, 6.2.3.2 & 6.2.3.4). These findings are supported by those of Al-Samir (2009), Ahmed (2010), and Alassaf (2011). Hence, adopting an effective marketing strategy, and finding appropriate channels and methods to market the library efficiently is required, especially with an end-users attitude of not pursuing the library news and event. A set of recommendations is suggested to achieve the change in terms of improving the provision of e-/LISs (section 8.4.1.2.2), providing appropriate training programmes (section 8.4.1.2.5), and establishing collaboration service (section 8.4.1.2.4).

As LAIU is divided into six branches, the provision of the e-/LISs is railed on the EUERs. Thus, the services provided in each branch are varied according to the end-users' demand. This is a positive point that increases the meetings of the EUERs. Interestingly, the findings of the library staff are, to an extent, in a line with those of end-users. They show that end-users were satisfied with online services, such as accessing databases and browsing e-catalogue, more than on-site services, although circulation and reference services were the most on-site services reflected their satisfaction.

Indeed, findings confirm the relationship between the quality of the e-/LISs and the EUS, whereby the increase of the e-/LISs' quality leads to increasing the level of EUS. These findings are in contrast to those of Dalrymple and Zweizig (1992) who ignore the relationship between the provision of the e-LISs and the EUS. On the other hand, these findings are in line with those of previous studies (Ankey, 1991; Hossain & Islam, 2012; Kassim, 2009; Kaur, 2010; Kinnucan, 1992; Restoum & Wade, 2013a, 2013; Wang & Shieh, 2006) that confirm this relationship.

### 9.3.5 Qualified Staffs

Increasing the LP relies on providing a qualified and expert staffs who responsible for approaching and facilitating e-/LIS and other functions. Staffs experience and their ability to deal with and responding to the EUERs can reflect EUS. In this study, the findings of the end-users show that the majority of end-users were, to an extent, satisfied with the library staff, although there are a lack of the librarians' numbers involving in (section 6.2.2.6), and of their skills (section 6.2.3.4). That can reflect the awareness of the important role of the qualified staffs in enhancing the EP. These findings are not supported by those of Alfrih (2010), Basager (2001), and Almed (2010) who reveal the limitation in offering qualified librarians in Arab university libraries.

The relationship between providing qualified staffs and satisfying end-users is confirmed. It is deducted that the more library staffs are able to meet EUERs, the more they are satisfied. Certainly, the findings of end-users are supported by the library staffs who confirm their role in increasing the EUS. Library staff confirm the expansion of their role and duties in term of guiding, communicating, training, providing IL programs, educating and assisting end-users in their EP. These results are in line with those results of previous studies (Bawden & Vilar, 2006; Doskatsch, 2003; Kani-Zabihi et al., 2006; Kaur, 2010; Restoum & Wade, 2014; Simmonds & Andaleeb, 2001) that assures the change of the librarians' roles, responsibilities in relation to training, counselling, supervising, communicating, guiding, and developing end-users' skills.

However, the findings of the current study does not support the findings of Al-Samir (2009) in terms of the lack of guiding end-users to the required e-/IRs, identifying the role of the librarians in relation to 'guiding' is crucial to determine the librarians' responsibly and the end-users' rights. Moreover, the librarians of acquisition department are responsible for dealing with suppliers and publishers, and subscribing

e-libraries and databases according to specific standards determined by the library and University.

The findings show that technical administrators recently become an important part of the library staffs. This results are supported by the International Relations Office of AIU (2009) that concentrated on the administrator' role in subscribing e-IRs, and training the end-users and the librarians, dealing with all technical problems, developing the library website and linking it to the SCNs, preparing reports and statistics. According to Covey (2004) and Jordan (1998), the co-operation between librarians and IT staffs is necessary to develop the ALs. Hence, integrating the librarians with such administrators is essential to meet the operational and technical requirements of the end-users. It is suggested that administrators should follow training workshops in librarianship for more capability to understand the EUERs and the ALs' functions.

### 9.3.6 LMS

Adopting an appropriate LMS is fundamental to increase the LP by unifying, managing, controlling and monitoring the PALs' procedures and processes efficiently. This notion is supported by the current findings of the library staff. The aim of implementing the LMS is to deal with the library's functions such as acquisition, circulation, cataloguing, accessing, and searching (Gerhard, 2008; Gumilar & Johnson, 1995; Wilson, 2012). The findings show that the adoption of Horizon 8.0 reflects the awareness of the LAIU toward the technical, economical, and social trend in the Syrian Market. These are supported by Ahmed (2010) and Al-Samir (2009) who indicate the LAIU is the only SPAL that adopted an international LMS to control and manage its functions, while other SPAL relied on local LMSs to achieve that.

Critically, a number of limitations, in relation to Horizon 8.0, were reported (section 6.2.4.3). The analysis in chapter 8 shows that there is a need to upgrade Horizon (section 8.4.1.2.7). The decision was made to adopt an open source (UV-Find) to bridge the limitation of Horizon 8.0. These results confirm those of Gumilar and Johnson (1995) who indicate that integrating LMS with open sources is essential to increase the *efficiency, effectiveness and competitiveness* of the ALs. Thus, such integration is vital in terms of decreasing the LMS limitations and reducing the cost.

However, UV-Find was suggested, the researcher finds that Koha is a better alternative solution. Koha is an open source integrated library management system. It is a free software solution, with a SQL (My SQL) database using MARC records for cataloguing. It provides the main function of the LMS such as circulation, acquisition, serial, and book reservation. It is, unlike Horizon 8.0, compatible with protocol Z39.50. It has an easy interface. Arabic version of Koha is available. It covers the weaknesses of Horizon 8.0 such as spell-check, "do you mean" feature, keyword search, recommended materials, and reporting (Kumer & Raghunadha, 2013; Omeluzor, Adara, Ezinwayi, Bamidele, & Umahi, 2012)

Briefly, providing clear and simple, infrastructures and dynamic and flexible access to the e-/IRs is very important especially of the end-users who have a lack of their IT skills. Additionally, it is necessary to offer training workshops to literate librarians how to use the LMS efficiently and benefit from its functions.

### 9.3.7 Building and Space

Providing an appropriate environment hosting e-/LISs and e-/IR, and offering standard conditions in relation to the library building and architecture are essential to promote the LP and increase its EUS. In this study, end-users illustrate the inefficiency of the LAIU as a place and structure. Two librarians support this perspective. The findings of Al-Samir (2009) demonstrate that the majority of the SPALs ignored the importance of "ALs as a place". His findings, unexpectedly, show that the majority of the end-users were satisfied with the SPALs as a space, although the spaces are inappropriate regarding the number of the end-users enrolled in.

This study demonstrates the need to offer a quiet and convenient place for studying, searching, in addition to provide social and group spaces for performing social activities. The current findings support those of Brophy (2007), Alassaf (2011) and Crump et al. (2012) who point out the EUERs in terms of providing social space for meeting, chatting and studying in groups. Moreover, these results are confirmed by Jordan (1998) who indicates that providing a social and convenient place with flexible time hours is essential to improve the end-users EL.

Furthermore, the results of this study show that the LAIU is divided into six branches. This division seems to be problematic. The separation of the LAIU is an issue with two

sides; on the first hand, dividing the LAIU into five branches attached to its faculty in addition to the central library is useful in terms of locating the branches close to the end-users regarding their disciplines. On the other hand, this separation has a negative effect in terms of allocating the branches in different locations and small spaces, and shelving printed IRs in different places.

Thus, it is suggested that the place and structure of the PUL should be taken into consideration as an important aspect in increasing the level of the LP and the EUS (table 8.5/activity 5). Thus, re-structuring SPALs' building and other spaces, based on the SPALs' strategies and standards, and relying on the EUERs can be a positive factor in satisfying end-users and operating the library functions in an efficient way. Furthermore, adding value by adopting social features can be essential in attracting new end-users and responding to their new requirements.

### 9.3.8 Facilities and Equipment

Providing adequate facilities and equipment becomes necessary with the adoption of the ICT within ALs. It is not surprising that the current findings show that the requirements of undergraduates in terms of offering technological facilities, and social and learning spaces, were double the academics' requirements. This might reflect a new sight toward the PUL to be a social place, and facilitated centre for obtaining required information. This results are in line with Crump et al. (2012) who indicates that adopting technology has increased the EUERs in ALs concerning immediate access and user-centred services. The findings of the library staffs demonstrate that each branch of the LAIU has a number of computers (between 2 to 5) connected to the Internet. The main purpose of them is to search on e-catalogue.

Furthermore, LAIU facilitated three laboratories, with 40 computers and accessible Internet, attached to LAIU. They are available for all end-users and are free of charge. Laboratories are available for end-users to search on e-catalogue, browse e-libraries, write assignments, check email, search the Internet, access to e-IRs, and check academic records and achievements (AIU Library, 2011a). On the other hand, these findings seem to be consistent with other research (Baker & Evans, 2013) which found that providing appropriate facilities is crucial in reinforcing the shift toward digital library.

Critically, the number of facilities provided is insufficient comparing with the number of undergraduates enrolled within the AIU (section 6.2.4.2). In addition, the slowness of the Internet is addressed as the main challenge facing LAIU (section 6.2.4.1). These results are in line with previous Syrian studies (Ahmed, 2010; Al-Samir, 2009; Alassaf, 2011) that investigate that the majority of the SPALs had limitations of providing the facilities and equipment enabling to meet the EUERs adequately and support their EP. Furthermore, the findings are supported by those of Jadhav (2011), Alfrih (2010), AlHarrasi (2012), who addressed technical limitations as robust barriers facing ALs. Thus, there is a need to increase the number of laboratories and facilities to increase the response of the EUERs and EUS.

Furthermore, creating a particular website, and linking it to the SCNs are other important aspects in increasing the LP. The findings of the library staff point out the importance of linking the library's website with Facebook in attracting new users, adding social value to the library, reducing the cost, and increasing the interaction between the library and its end-users (section 5.7). Moreover, they assume that linking the LAIU with Facebook increases the level of the EUS by introducing and marketing all the library content and events, and obtaining their feedbacks by commenting on the published posts; that, in turn, can increase the level of the EUS. These results are in accordance with previous studies indicating that using social networking tools and other Library 2.0's applications is due to the increase of the need to socialise, collaborate and share knowledge (Brophy, 2007; Gannon Leary, Bent, & Webb, 2008; Kim & Abbas, 2010; Nesta & Mi, 2010). Thus, providing appropriate facilities and equipment that support end-users in the EP, can meet their academic requirements, and therefore, increase their level of their satisfaction. This provision should rely on re- activating the library's role in supporting the EP.

### 9.3.9 Co-operation between library and EP

Co-operating PALs with EP is a very important aspect in improving the LP. The interaction and integration between academics and library staffs is required to achieve this improvement (Simons et al, 2000). Hence, library staffs should activate academics' role and increase their awareness toward the importance of PALs in supporting the EP. Involving academics in the acquisition process and making decisions in relation to providing e-/IRs related to learning and teaching is the cornerstone in this field.

According to the findings, academics were aware to the importance of the library in supporting EP. The majority of them use the library e-/IRs in reinforcing their lectures, and encouraging students to access and use these e-/IRs. Academics advise students to borrow printed books in the first place. They encourage them to use the library's e-catalogue, to use the library Internet, and to access to the library e-/IRs and databases. These findings are supported by the library staffs who asserts on the library role in supporting EP, and on the academics role in achieving this co-operation (section 5.8). Based on these findings, the notion of "ALs as a learning-centre" is confirmed by linking PALs and their objectives with academic institutions, and enhancing EP by supporting end-users with required information, and providing suitable environment for better attainment (Alfrih, 2010; Campbell, 2006; Debowski, 2003; Lindauer, 1998; Oladokun, 2002; Simons et al., 2000; Torras & Stře, 2009). Furthermore, providing acquisition services are an important factor to reinforce academic curricula, and meeting academic requirements. These findings are supported by Barsun (2002), Hall (1998), and Sidera-Sideri (2013) who found that providing supportive e-/IRs and e-/LISs are a crucial part of the EP.

The findings show that there is a lack in end-users' skills and in providing adequate IL programme. Developing such skills and offering an appropriate IL is fundamental in terms of supporting end-users in their EP. The literature address the relationship between "ALs as a learning-centre" and providing IL. It is confirmed that IL is an essential aspect of the academic curriculum and recent educational system (Baker & Evans, 2013; Cynthia A Raquepau & Richards, 2002; Owusu-Ansah, 2005; Thompson, 2002). Hence, the effective co-operation and integration between ALs and the EP is important in order to support the end-users in their educational experiences and achievement.

Briefly, the relationship between increasing the LP and other themes are confirmed in this study. Although the PALs might suffer from several limitations (Section 6.2), they should seek to achieve their goals by providing a number of good e-/LISs, e-/IRs, and other functions and aspects that are discussed above. These functions and services should enable satisfying end-users and meet their expectations and requirements. Hence, there is a linear relationship between improving the LP and meeting and

satisfying end-users. The more the LAIU provides the above-mentioned principles, the more the EUS increases and EUERs meet.

## 9.4 End-Users' ISB

ISB has been taken into consideration, in this research, as an important theme affect other themes. This section is an attempt to answer: "how end-users interact with their LAIU?". The findings in relation to ISB are summarised in five stages formulating a model; starting with the awareness of the need to information, and ending with using this information. It takes into account the difference between different end-users' ISB, and the impact of end-users' thoughts and feelings on formulating their ISB. The model of the end-users' ISB is presented in figure 9.4.

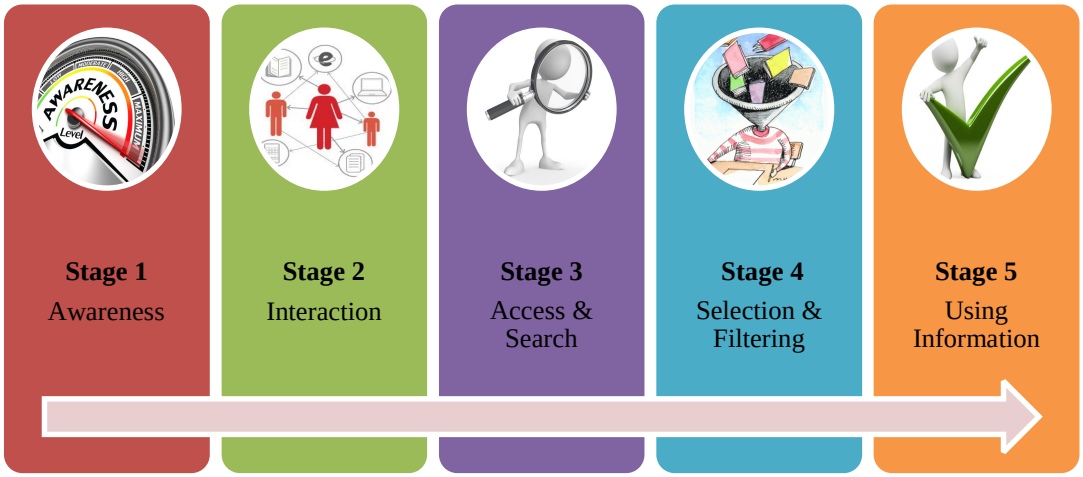


***Figure 9.4*** **The Model of the end-users' ISB**

The model of end-users' ISB is developed from the research findings and previous studies. This model reflects the end-users' ISB in relation to the use of PALs. Next sections explore these stages regarding to their relation to and impact on other themes.

### 9.4.1 Awareness

The awareness of the need for information comprises the first step of the end-users' ISB model. It is generated from the sensation of the need to obtain certain information about a special subject or topic. Awareness is in parallel with the *Initiation* in the mode of Kuhlthau (1991), and *Starting* in the model of Ellies (1987), as this stage formulates the primary need for the information. This view is supported by Krikelas (1983) and Brophy (2007), who confirm that ISB starts when end-users feel that their existing knowledge is insufficient to cope with special issues or problems.

Not all end-users are able to determine their requirements (section6.2.1), in spite the main EUERs are academic in relation to responding to EP (Section 8.3.1). Hence, implementing Phase 1 of the suggested strategy is useful to identify and understand EUERs, their ISB and skills (section 8.4.1.1). These suggestions are supported by previous studies that recognise the importance of understanding end-users' ISB, and meeting their requirements and attitudes by offering high quality services and motivating them to use their ALs (Mills & Bannister, 2001; Spink, Ozmutlu, & Ozmutlu, 2002). Hence, the awareness of the end-users' ISB in relation to interacting with PALs is the first step to understand the end-users' ISB; therefore, understand their expectations and requirements.

### 9.4.2 Interaction

When end-users feel the need for obtaining information, they seek different ways to achieve that task. Some of them interact directly with their ALs, while others prefer using other sources to obtain information. For the first group of end-users, two aspects identify such interaction, which are - the frequencies of the attendance, and the time spent in the library. According to the results, attending LAIU was high with more that 75%; however, there were differences regarding to the end-users' group. It is confirmed that undergraduates were more regular to visit the library and spent longer time in the LAIU compared with the academics. These findings are confirmed by Al-Samir (2009) who determines that undergraduates in SPUs were more likely to attend ALs, access their e-/IRs, and to stay for longer periods, compared to the other groups of users such as academics or employees.

Furthermore, end-users' interaction increases during exams and assignments period. That reflects the indication that the main EUERs are for academic attainment (Sidera-Sideri, 2013). Appendix B demonstrates that the more attendance periods were in October, December, March, and May; which are the time for assignments and exams preparations. It shows that the frequency of attending central library was the highest. This is expected as this library contains a varied range of the e-/IRs in different subjects covering different disciplines. The Library of Pharmacy reported the second highest percentages. That can reflect the end-users' need to use the terminological medical dictionaries, encyclopaedias and/or other specific e-/IRs.

Furthermore, no significant difference is addressed between male and females towards attending the LAIU for both undergraduates and academics. These findings are in disagreement with those of Alassaf (2011) who investigates that female students were likely to attend their SALs physically more than male students, while the attendance was higher for the male academics rather than female academics. The finding of Stone and Collins (2013) conflicts with Alassaf's findings (2011). They state that male students from The University of Huddersfield attend the library physically more than females. Interestingly, it is confirmed that there is a significant difference regarding the academics' attendance in relation to the age and teaching experience (Restoum and Wade, 2013). These findings are in line with those from Alassaf (2011), who pointed out that attending SALs physically included academics who were over 30 and under less than 50.

In contrast, for those who use alternative sources to obtain information, the results show that academics were used to obtaining information from alternative sources more than undergraduates, even though the Internet was considered the primary source to obtain information for both groups with more than 75% for each of them. That might be because it is available for all end-users within the LAIU, and is cheap and available to be used in their homes and/or Internet Cafés. Furthermore, relying on academic curricula was another alternative source to gain the required information. These findings corroborate the ideas of Alassaf (2011), who discovered that using the Internet in gaining information is the main reason behind the law attendance or non-attendance in ALs alongside with using textbooks.

Moreover, purchasing own books and journals is another reason for decreasing interaction. Thus, the low or the non-use of the PALs' sources, and relied on other alternative sources may be because of the limitation of the marketing or any other characteristics of the LP (section 6.2.2 & 6.2.4), and /or decrease of level of the EUS (section 6.2.1.4). Hence, providing appropriate and supportive e-/IRs can increase the level of the end-users interaction and their satisfaction with their library that can positively change the end-users' ISB toward their PALs. Furthermore, observing end-users' ISB through their interaction with their library can be useful to understand their attitudes and behaviour, which leads to understand their EUERs.

### 9.4.3 Access & Search

In this stage, end-users start seriously pursuing information. This stage corresponded with *Chaining* and *Browsing* in the model of Ellies (1987), and Exploration in the model of Kuhlthau (1991), in terms of following a chain of references, and searching for relevant information with uncertain thoughts. Furthermore, this stage parallels with the second stage of Brophy's model (2007) that reveals end-users' attitudes in browsing the library catalogue, either printed or e-catalogue to identify which data is relevant to the inquiries. Indeed, either end-users attend the library or use other sources to obtain information, they access and search for information following three approaches. In the first approach, end-users attend the library physically and start looking at the printed-catalogue. They use the classification number of each information item to find appropriate resource. They search on the library open-shelves through the library printed collections. Then, end-users borrow information item either internally or externally (Automation Section, 2011), in spite this way is problematic and time-consuming with the lack of the end-users' searching strategies.

In the second approach, end-users access and search information virtually using e-catalogue or other searching engines. Straight-away, end-users browse databases and information hosted online. This approach responds to end-users needs in obtaining an easy and rapid access to the e-IRs; however, it can be challenging in case of lacking in their IT skills. That is confirmed by Ahmed (2010) and Al-Samir (2009), who affirm that although undergraduates were familiar with using ICT, they faced several difficulties. Hence, offering appropriate programmes is crucial to improve their IT skills (section 8.4.1.2.5).

The third approach is based on the integration between both approaches. In other words, it is relying on accessing and searching for information using traditional and virtual approaches. The current findings demonstrate that end-users prefer seeking information using the third approach. In their pursuit, they aim to obtain sufficient, accessible, up-to-date, and supportive information that responds to their requirements.

Interestingly, end-users' ISB differs according to their categories regarding the purposes and methods used, and the nature of information required. In this study, it is confirmed that however, both end-users groups prefer using both traditional and online services at the same time (section 4.6), undergraduates tend to use the Internet, and

access e-IRs to obtain rapid and varied information supporting their EP, although academic curricula are essential alternative information sources to obtain information. Undergraduates find e-services are more convenient, accessible, and available. It provides up-to-date information, and saves times and efforts. On the other hand, academics preferred using printed IRs to gain specific and specialised information. The factors behind this perspective are because of academics' ability to explain their needs highly, and the convenient interaction with librarians.

Sidera-Sideri (2013) supports these findings. She presents that academics preferred printed IRs more than e-IRs, and they tended to be independent in requiring precise information more than students. Furthermore, Weiler (2005) confirms that students relied on using the Internet in the first place in term of obtaining information. The findings of Alassaf (2011) are not totally in agreement with the current findings. She demonstrates that although academics still considered printed IRs an important source to obtain information, they tended to browse e-IRs Moreover, she confirms that students were more relied on hand-outs and textbooks to pass exams and prepare assignments.

### 9.4.4 Selection and Filtering

The selection of information is performed using different approaches, as mentioned previously. Deciding what is the most relevant information is a difficult task with the huge diffusion of information. It is more challenging with the inability of end-users to identify their needs. In this stage, end-users start selecting, evaluating and filtering relevant information according to their thoughts and experience. This stage corresponded with the *Differentiating* in the Ellis's Model (1987), and with the *Formulation,* and *Collection* in Kuhlthau (1991), where information seekers keep reading and filtering information until they become more familiar with the topic and able to select the most related information.

Based on the findings, end-users tend to request information in three cases. Firstly, when the collection of printed IRs is unable to respond to the EUERs. In this case, they fill up either a printed or on-line form, and submit it to the acquisition department to deal with it according to the library strategy of acquisition. Secondly, if the required information item are exists among the library collection, but it is unavailable currently; end-users can reserve it. Thirdly, when end-users inquire for e-IRs not existing in the library database. The procedures are the same of the first case. In case of requesting e-

IRs that not existing, it will be useful to provide a library inter loan service. The provision of such a service is achieved by establishing the collaboration with other ALs (section 8.4.1.2.4). These activities are supported by Brophy (2007) who confirm that authorised end-users can request information items using either a printed or e-request form. Thus, delivering items can be via email in digital ALs, or by using the circulation service in traditional ALs.

### 9.4.5 Using Information

This stage starts when end-users find required information by themselves, or receive requested information items. End-users will be ready to analyse and use this information according to their purposes of inquiries. This stage is equivalent with the *use* of Brophy (2007) who assures that information will be ready to be used, when end-users receive information items. He adds that the processes of IBs are completed when end-users return borrowed items to ALs, or release the link of e-IRs accessed. Moreover, this stage is paralleled with *Presentation* of in Kuhlthau (1991) who affirms that using information and presenting the results reflects EUS with the results.

According to the findings of the end-users (section 4.4.5), the main attitude of end-users is to borrow printed book and textbooks. Correspondingly, Academics tended to obtain information via accessing e-journal and database more than undergraduates, while undergraduates were more browsed for e-books. These findings are not completely compatible with the findings obtained from the library staffs in the same study (section 5.3). Library staffs indicated that undergraduates use e-IRs to obtain required information rapidly, while academics tended to use printed resources to gain specific and specialized information. These findings are in line with those of Alassaf (2011) who reveals the students' attitude toward obtaining information using hand-outs and textbooks. The gap between both findings reflects the lack of the library staff's awareness toward the end-users' ISB. It is suggested that library staffs should observe and understand the end-users' ISB in order to respond to the EUERs (section 8.4.1.1). Their observation should be supported by authorised and monitored statistics.

The general trend of the end-users is to read the abstract of the e-IRs in the first place, then access the PDF and HTML full-text articles (appendix B). Interestingly, the findings confirm that there is a significant difference between undergraduates and academics with respect to borrowing printed books, and a very highly significant

difference is noted for accessing to e-journals and database. Furthermore, there is a significant difference between academics regarding finding and using information (section 8.3.4).

End-users start seeking information when they feel the need to obtain information, and end when they are satisfied with obtained information. That agrees with the model of Kuhlthau (1991) who considers the influence of thoughts and feeling on the ISB. The emerged model of the end-users' ISB presents the awareness of the need to obtain information responding their academic demands. End-users interact with their academic library aiming to search and access e-/IRs. When they find relevant information, they filter it and select the most related information. Finally, they use this information in learning or teaching, according to the end-users group. The use of information illustrates their feeling and satisfaction with information.

## 9.5 End-users Satisfaction

Investigating EUS is essential to discover to what extent PALs are able to meet their EUERs. This assumption is has been demonstrated. The findings assure that EUS is an important factor impacting on end-users' ISB, and reflecting EUERs and LP. In this study, the aspects of the EUS are identified based on the current findings and literature. Figure 9.5 presents the aspects of the EUS.

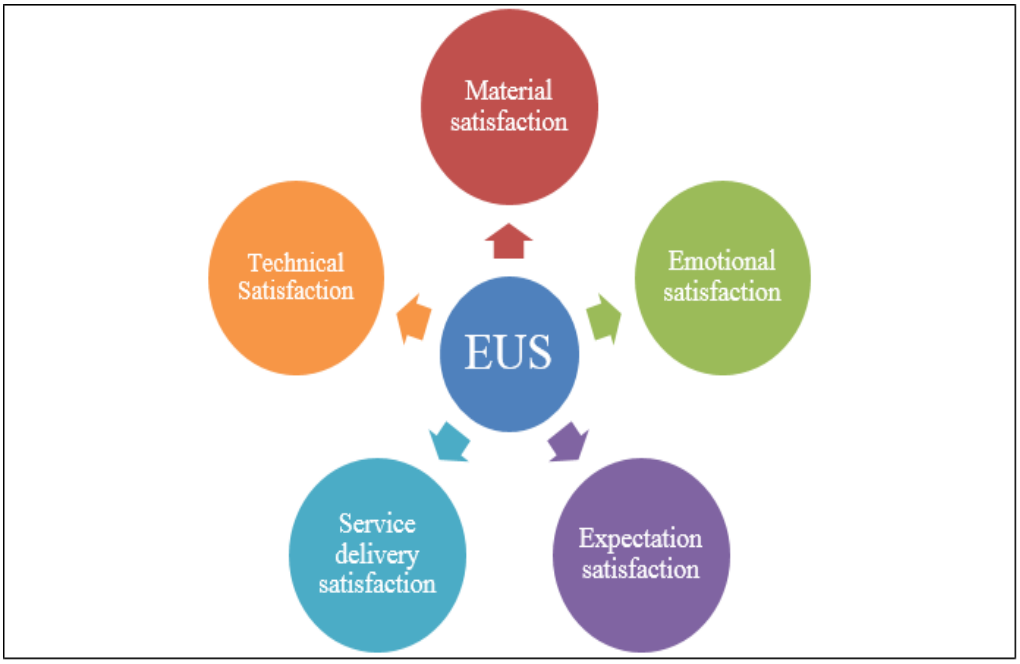


***Figure 9.5.*** **The Aspects of the EUS**

### 9.5.1 Material Satisfaction

The relationship between providing sufficient e-/IRs, and increasing the level of the EUS is evidenced (Anna Maria, 2008; Bergman & Holden, 2010; A. M. Casey, 2004; Cullen, 2001; Feeney, 2004; Jayasundara, 2008; Kassim & Zakaria, 2006; Restoum & Wade, 2013a, 2013; Sidera-Sideri, 2013; Sloan, 1998; Tremblay & Wang, 2008). The current findings demonstrate that providing required the information materials are reflected on EUERs. these are supported by Applegate (1993) who reveals the relationship between students' demands and received materials, and Tagliacozzo (1977) who illustrates the relationship between students' satisfaction and obtaining information using e-IRs.

However, a considerable number of end-users were satisfied with the provision and the organisation of the e-/IRs, using the SSM tools to identify the problematic situation depicts that there is a lack in relation to the accessibility and availability of e-/IRs (section 6.2.2.3). Academics were more satisfied than undergraduates in terms of finding and using information (section 8.3.4). These findings are somewhat in line with Ahmed (2010) and Alassaf (2011), who find that more than the half of end-users were satisfied with the e-/IRs provided. They are in line with those of Al-Samir (2009) who discover that there was a lack of the IRs' organisation in SPALs. This lack negatively affected the EUS due to the difficulties of finding the IRs on the library shelves.

Certainly, the library staffs confirmed the importance of the material satisfaction. They affirm that the one main aspect of satisfying end-users is providing considerable amount of e-/IRs. A view of the researcher, providing a considerable amount of the e-/IRs is not efficient to satisfy end-users. E-/IRs should be accurate, up-to-dated, and supportive to the EP. Additionally, they should be available and accessible easily (section 8.4.1.2.2).

### 9.5.2 Emotional Satisfaction

Observing personal feelings and attitudes of the end-users is an important indicator in measuring EUS. It is suggested to take into account the preparation and planning phase of the recommended strategic plan (section 8.4.1.1). Communicating directly or indirectly with end-users can reflect to what extent they are satisfied with their PALs. These are confirmed by the current findings. Librarians seek to obtain end-users

feedback about the library and its services by asking them direct questions about their perspectives or sending them emails (Applegate, 1993; Butler & Kortman, 1988; Restoum & Wade, 2013a, 2013; Yu, 2006).

Emotional satisfaction is a reflection of the end-users' ISB. End-users feelings and thoughts of the PALs usage influence on their ISB and satisfaction level. These are supported by Applegate (1993), and Yu (2006) who assert that emotional satisfaction is an agreement of the information obtained and accepted feeling toward the LP received; however, Applegate (1993), deems that investigating the end-users' feelings and emotions is a complex and multi-dimensional task. Hence, reinforcing the interaction between the end-users and the librarians and observing their attitudes can be significant in enhancing their emotional satisfaction level. Furthermore, the constant assessment of the end-users' emotions by communicating directly with end-users and distributing questionnaires can be useful in measuring the level of the end-users' emotional satisfaction.

### 9.5.3 Satisfaction with End-users' Expectation

Achieving end-users' expectation (EUEs) is relied on understanding these expectations in the first place. The current findings show that there is a lack in terms of understanding and meeting EUERs (section 6.2.3.2). Hence, PALs should pay more attention to understand EUEs about the PALs, and pursue to meet those expectations. Indeed, end-users interact with their PALs with previous expectations, based on their knowledge and experience. Nitecki and Hernon (2000), and Oliver (1993, 1997) considered that EUS is built on their prior expectations. Hence, increasing EUS is relied on understanding those expectations, and identifying the gap between EUEs and what library staffs think about EUEs.

However, Shi (2000) indicates that the satisfaction of the EURs is more important than the satisfaction of the EUEs, and investigating EUEs helps in identifying EURs. The current findings show that end-users have new expectations because of the change of the EP and the adoption of ICT within PALs. Their expectations have increased in relation to providing offering social and learning spaces, technological facilities, flexible LMS, and further services. Furthermore, these expectations comprise expanding the role of librarians, in addition to involving technicians in the library

(section 9.3.5). The current findings is crossed with those of Demas (2005), who point out that the integration between traditional and modernised activities is expected.

Literature articulates a number of researchers who developed a set of models identifying the service quality gaps in relation to EUEs (Frost & Kumar, 2000; Luk & Layton, 2002; Parasuraman, Zeithaml, & Berry, 1985; Shahin & Samea .M, 2010). Based on the literature, EUEs toward the library as a space are in conflict. The findings of Martha and Persson (2006) discover that the expectations of the ALs' space for Swedish students were more than other categories. In contrast, the findings of Rehman (2012) demonstrate that there was no difference between Pakistani end-users' categories with a highest expectations of the ALs' space. Surprisingly, the findings of this study come in agreement with those of Martha and Persson (2006). The findings show that undergraduates have higher expectations of the library space rather than academics. They did not reflect the cultural and social impact on the EUEs; where Syria is a developing country. Hence, bridging the gap between performing LP, and the EUEs can be important to increase the level of the EUS.

### 9.5.4 Satisfaction with Services Delivery

The satisfaction with the services delivery consists of two parts. First part is a methodical part. It is related to the services and the way of delivering these services, while second part is associated with library staffs who are responsible for delivering these services. Providing adequate e-/LISs and a qualified staff able to understand the EUERs, assist, and deliver the right services in the right time are very important aspects in increasing the level of the EUS. Wang and Shieh (2006), and Kassim (2009) find out the influence of EUS on the LP in terms of services delivery, the availability of e-/IRs, and the library structures. Measuring the EUS with the services delivery is relied on positive feeling and attitudes, and explicitness of the value of services provided and library staffs offered (Stamatoplos and Mackoy, 1998).

Based on the relationship between EUERs and EUS, increasing the level of EUS reflects the increase of the response to these expectations and requirements. The findings show that undergraduates were satisfied with provided services rather than the academics, even though there is a need to improve the quality of some e-/LISs for better performance (section 8.4.1.2.2). Interestingly, the findings of the end-users demonstrate that academics were satisfied with expert staffs more than undergraduates who have

further requirements. The findings are in line with those of Kassim (2009), Mirza and Mahmood (2012), and Restoum and Wade (2013a, 2013b) that presented a significant difference with the EUS regarding their groups, faculties, gender, age, and their level of education.

### 9.5.5 Technical Satisfaction

Satisfying end-users technically becomes an essential aspect in ALs with the adoption of the ICT. Increasing EUS becomes requiring increasing the library ICT capacity (section 8.4.1.2.3). LAIU provides its end-users, especially undergraduates, with three labs. Labs are facilitated to be used in navigating databases and e-libraries, writing assignments, checking email, searching the Internet, retrieving information, and checking academic records and achievements (AIU Library, 2011a). According to the findings, the attendance of the labs is related to the end-users' academic demands. Furthermore, several challenges related to technical issues are addressed (section 7.2.4).

However, a number of limitations are addressed in relation to technical issues, the findings show that end-users were, to an extent, satisfied with technology and facilities provided. Undergraduates were satisfied with technology provided more than academics. Critically, there is a need to provide appropriate training workshops and IL programs to develop their skills in terms of dealing with technology (section 6.2.1.2). These findings are in line with those of Ahmed (2010) and Al-Samir (2009) who confirm that the undergraduates of SPALs were more familiar with using ICT than the academics, and there is a need to provide appropriate programmes to improve their technical skills.

Furthermore, creating a library website and a page on the Facebook, and linking them to the university website increase EUS by providing efficient access to the e-IRs, offering a set of e-LISs, attracting new users, and updating end-users with all new of e-/IRs and events. These findings are in agreement with those of Webb, Gannon Leary, and Bent (2007) who reveal the importance of providing efficient access to their e-IRs and e-LISs in meeting EUERs and increasing EUS. According to the findings of the library staffs, and based on the data in appendix B, linking the library to the Facebook increased the use of the LAIU, and attracted new end-users. Moreover, it is significant in supporting EP by activating the discussion and communication, and the interaction between the end-users and the library staff. Hence, adding social features to ALs is

fundamental to respond to EUERs and increase the EUS, especially with considering SCNs as marketing and VRSs, and with the change of the end-users' ISB in relation to adopting ICT.

## 9.6 Summary

This chapter has discussed the relationships between the main themes of the current study. The main points discussed in this chapter are summarised as follow:

- **Strong relationships**: The findings confirm that there are strong relationships between the themes: EUERs, LP, end-users' ISB, and the EUS. These themes affect and influence on each other. The relationships are investigated in all aspects of the determinant themes.
- **LP in supporting EP**: assessing LP reflects to what extent the library is able to meet the EUERs and thereby, satisfying them. LP in supporting EP is discussed in terms of achieving the library goals and objectives, following the library standards, providing e-/IRs and e-/LISs, providing qualified staffs, offering appropriate LMS, facilitating the library spaces, providing ICT, and co-orating with EP.
- **End-users' ISB**: a model of five stages is developed based on the findings and the literature. The model starts with the awareness of the need for information, and ending with the use of obtained information. There are differences between end-users' groups in terms of ISB.
- **EUS**: a number of aspects construct the overall of the EUS. The discussion includes discovering different aspects of satisfaction, which are material satisfaction, emotional satisfaction, the satisfaction with end-users' expectation, the satisfaction with service delivery, and technical satisfaction.

The next chapter provides answers to the research questions, meets the research objectives, presents the limitations and the contributions to knowledge, and provides recommendations for further studies

# Chapter 10

## Conclusion

### 10.1 Introduction

The improvement of the LAIU and the relationships between the main themes of the current study were discussed in chapter 8 and 9. This chapter is devoted to detail the conclusion of this research, with regards to the research aims and objectives, and in the light of the presented theoretical framework. The findings of this research are demonstrated and evaluated to answer the research questions established in chapter 1.

This research has been conducted to understand the EUERs in their SPALs, and contribute to improving the performance of the LAIU based on the determined EUERs. In order to achieve these aims, the mixed methods approach was embraced in a single case study (LAIU). Two questionnaires were distributed to the end-users (undergraduates & academics). The aim of these questionnaires was to understand the end-users' perspectives, expectations, and their requirements of their library. Furthermore, 11 interviews were conducted with 8 librarians and 3 administrators to identify the situation of the LAIU, and understand their perspectives about the EUERs and end-users' ISB. They were carried out to address the strengths, weakness, threats facing the library, and their suggestions to improve the LP.

The findings helped in understanding EUERs, finding out what is required to support the EP, identifying end-users' ISB during their interaction with the library, discovering the differences of EUERs regarding the end-users' groups, and investigating EUS. Moreover, they assisted in identifying the problematic areas of the situation using the tools of the SSM. A number of challenges and barriers have been discovered. A strategic plan has been developed based on building the proposed conceptual model. Additionally, the findings and the analysis of the SSM assisted in generating the S-diamond model, which addresses the requirements of the improvement.

## 10.2 Answers of the Research Questions

This section provides answers to the research questions established in the initiation of this study. It presents the conclusion in detail below.

**Q1: What are the exact EUERs from the LAIU?**

Identifying EUERs has achieved the first objective of this study. Based on the methods used to collect and analyse data (see chapter 3), and based on the implementation of the SSM's tools (see chapter 6), it has been concluded that EUERs are an academy in the first place, in addition to other social and entertainment requirements (sections 8.3.1 & 9.3). It is thus confirmed what literature has addressed in part 1 of chapter 3. This study found that the change of the EUERs implies the increase of the expectations and requirements as a result of the adoption of ICT in SPALs, and the changes of the education system. This change has occurred in order to respond to the new demands that emerged in the new SPALs' environment. End-users expect and require having a rapid and easy access to a wide range of e-/IRs that support their academic achievement (section 9.3.3). They require providing high quality e-/LISs (section 9.3.4), which are in circulation, RSs, Internet service, photography, scanning and printing services and CAS. Furthermore, they expect their library to be personal and customised, tailored to their requirements and interests such as VRSs, consultation, and SIDS.

Developing end-users' searching strategies and IT skills (section 8.3.2), and enhancing their career experience and capabilities (section 8.3.3) is required in order to meet education and market demands. With the new sight to the PALs, providing places for academic and social demands (section 9.3.7), facilitated with appropriate ICT (section 9.3.8 6 & 9.3. 7), are expected. Providing qualified staffs consist of the librarians and technicians are required to deliver information and services efficiently (section 9.3.5).

**Q2. How LAIU can improve its performance to increase the response to EUERs?**

Objectives 7 and 8 have been accomplished by answering this question. Based on the analysis, using the tools of the SSM in chapter 6 and 7, the LP can be

improved by adopting a strategic plan developed in this study (section 8.4.), including a set of recommendations. This improvement has covered different areas of concern. It has been recommended to be achieved in three phases. The first phase is the preparation and planning. In this phase, the library should identify its aims and objectives before starting to implement the change. It should appreciate its resources (human, finance, technologies, and information). Then, it should determine the skills of the library staff. Furthermore, the library should identify and understand the EUERs and the end-users' ISB. It should appreciate its end-users' abilities and skills in order to provide them with suitable training programmes. Additionally, the library should select the strategic planning committee who should be responsible for setting up its goals, objectives, and roles, discussing the headlines of the library strategy, and identifying the processes and priorities (section 8.4.1.1).

The second phase is the implantation. In this phase, the library should be ready to accept the change. The implementation can be done on stages regarding the library resources and priorities. The change should include a number of areas, which are: establishing strategic planning, providing appropriate e-/IRS and e-/LISs, increasing ICT capacity, providing collaborative service, designing and providing appropriate training programmes, co-operating the library with EP, and upgrading horizon 8.0 (section 8.4.1.2). In the third phase, the evaluation, the library should evaluate its performance according to determined criteria and standards in order to ensure the quality (section 8.4.1.3). This has been addressed in the literature (section 2.1.5) by obtaining the feedback of the end-users, using sufficient statistics methods, and measuring their satisfaction level.

The requirements of improving the LP has been addressed and presented in the S-diamond model. The main aspects have been required to improve the problematic situation in PALs. These requirements are strategic planning, skills, support, and satisfaction (section 8.5).

In order to answer the main research questions, it was necessary to discover a number of sub-questions, which are:

**QA: What does precisely LAIU offer to meet its EUERs?**

The answer of this question is related to the QF, and achieved objective 5 and 6. The provision of the information and services reflects the level of the EUS. Based on the primary and secondary data collected (see chapter 6 & Appendix B and K), The library provides a considerable number of e-/IRs provided in different languages, types (printed and electronic), subjects, and sources (books, journals, and databases, so on), yet despite this, end-users found difficulties in relation to the accessibility and availability of information. A number of services have been provided. Circulation, RSs, printing, photocopying, CAS, SDIS, and online services are the main provided services adequately; however, there are a number of other services that had limitations such as training and marketing. Furthermore, scanning and translation services are provided in specific faculties regardless others according to the end-users' demands.

**QB: How do end-users interact with their library and offered services?**

Objective 3 has been revealed in this question. End-users interaction reflected their behaviour during the journey of seeking information. End-users' ISB has been developed into five stages model (section 9.4), based on literature (part 5 of chapter 2). The model started with the awareness of the need to information, and ended with using this information. The model is crossed with the models of Kuhlthau (1991) and Ellies (1987) in several stages, as presented in table 10.1. Interaction is the new stage that does not expressed in previous models.

**Table 10.1.** ***The Current Model of End-users' ISB Comparing with the Models of Kuhlthau (1991) and Ellies (1987).***

| Current model | Kuhlthau (1991) | Ellies (1987) |
|---|---|---|
| **Awareness** | Initiation | *Starting* |
| **Interaction** | | |
| **Access & Search** | Exploration | Chaining of browsing |
| **Selection & Filtering** | Formulation & collection | Differentiation |
| **Using Information** | Presentation | |

End-users start seeking information when they feel the need to obtain information, and end when they are satisfied with obtained information. That agrees with the model of Kuhlthau (1991), who considers the influence of thoughts and feeling on the ISB. The emerged model of the end-users' ISB

presents the awareness of the need to obtain information responding their academic demands. End-users interact with their academic library aiming to search and access e-/IRs. When they find relevant information, they filter it and select the most related information. Finally, they use this information in learning or teaching, according to the end-users group. The use of information illustrates their feeling and satisfaction with information.

Interestingly, the investigation has confirmed that there are differences between end-users' ISB regarding their groups (undergraduates & academics), the purposes and methods used, the nature of the information required, and period of time. Undergraduates interact more with the library than academics.

**QC: Are there any differences of EUERs among end-users' groups?**

This study has confirmed the difference between end-users' groups regarding EUERs, and achieved objective 4 of the study. In general, undergraduates are more demanding than academics. Undergraduates are more demanding in terms of requiring social, learning and personal space. Additionally, they are more demanded in relation to borrowing printed books, browsing e-books, and obtaining general information. On the other hand, academics are more demanding to access e-journals and obtaining specific information. They are more interested in the quality and recency of the e-/IRs.

A highly significant difference has been articulated in terms of finding and using information between faculty groups for the undergraduates, while there are no difference for other variables (gender, age and the level of study). On the other hand, a significant difference regarding age has been considered for the academics in relation to finding information, while teaching experience has a significant difference for academics in terms of using information. However, selecting e-/IRs is important issue of the academics, no significant difference has been presented regarding 'accuracy, accessibility, understandability, and the year of publication'. In contrast, these factors had a difference with undergraduates in relation to gender, age, level of study, and faculties groups.

**QD: What are the main challenges and barriers facing LAIU and affecting the response of EUERs?**

Chapter 7 has articulated the main challenges and barriers facing SPALs. The use of the tools of the SSM was helpful to realise objective 6 and consider the problematic areas of the situation (section 6.2). The challenges and barriers has been classified into four categories, which are:

- Challenges related to End-users (EU);
- Challenges related to LP;
- Challenges related to library staff (LS);
- Challenges related to information communication technology (ICT).

Based on the analysis of culture (section 6.3) and the implementation of the rich picture (section 6.4), the challenges and barriers have been identified in five categories:

- **Social barriers**: The authority and control of the external environments, and the relationships between stakeholders and other elements such as publishers.
- **Technical barriers**: The slowness of the Internet and Horizon system, the lack of IT facilities, the lack of IT skills, and the lack of accessibility.
- **Mismanagement barriers: the l**ack of strategic planning and clear vision, the lack of training and marketing, the absence of collaboration, the lack of the librarians' number, work-overload of library staff, the lack of linking EP to the LAIU, and the lack of opening hours.
- **Behavioural barriers**: the lack of skills, end-users' attitude, changing EUERs, the lack of EUS, the lack of understanding EUERs, and the lack of recognising potential end-users.
- **Financial barriers**: Unallocated budget, and increasing the cost of e-/IRs, e-/LISs and IT facilities.

These barriers have a negative impact on the LP. They decrease the quality of the provided services. In turn, they decrease the level of the EUS as a result of not meeting EUERs adequately, which is reflected on the behaviour of the end-users during their process of seeking information.

**QE: Are the library staffs and academics aware of the importance of the library role in supporting EP?**

Answering this question has achieved the second objective of this study. However, library staff were aware of the role of the academics in supporting the EP, there is a need to stimulate them to reinforce their efforts to achieve that, by involving academic in the acquisition process, increase the interaction with them, and linking the library e-/IRs to the academic curricula. Furthermore, there is a need to promote the academics awareness and motivation to encourage their students to use the library, by reinforcing their lectures, suggesting a number of tittles to read, and encouraging students to use e-catalogue and other services, and access e-/IRs (section 9.3.9).

**QF: Are the end-users satisfied with the current LP?**

In this study, it is confirmed that EUS reveals to what extent the library is able to respond to EUERs, reflects end-users' ISB and the LP. It is proofed that obtaining an overall satisfaction contains a number of aspects that impact on the satisfaction (section 9.5). The aspects are Material Satisfaction, Emotional Satisfaction, Satisfaction with End-users' Expectation, Satisfaction with Services Delivery, and Technical Satisfaction.

## 10.3 Evaluation of the Study

Evaluation is important to assess the outcomes of the current study. Assessing the validity and reliability is essential to enhance the research value by investigating different stakeholders' perspectives for inclusive understanding, using different methods of research and different tools of the SSM. Initially, the literature of the research methods was reviewed and assessed to learn about them and their implementations, especially in the library field (chapter 3). To reinforce the research validity and reliability of the quantitative findings, the processes of collecting and analysing data were designed, piloted, modified, and distributed to the sample of the study, in the light of the research objectives. Furthermore, the processes of the qualitative findings included designing, piloting, modifying, sampling, recording, analysing thematically, and interpreting the collected data.

Understanding different stakeholders' perspectives of the LAIU was important to bridge the gap between what end-users require and what the library provides.

The situation of the LAIU was complex and ambiguous. Thus, implementing the tools of the SSM was essential and appropriate. Using the tools of the SSM regardless its representation was useful to obtain the advantages of each tool. Finding out the problematic area of the situation by identifying the challenges and barriers, analysing the culture, and building a rich picture of the current situation (chapter 6) provided a comprehensive understanding of the holistic situation. Furthermore, the validity has increased by creating root definitions transforming the situation, building conceptual models suggesting the improvement, and comparing the real world with the conceptual models articulating the improvement (chapter 7).

Using all these methods and tools for data collection and analysis has led to develop an appropriate strategy for the development, and identification of the requirements for the improvement. Furthermore, the investigation has discovered a new sight of the relationships between the themes under the investigation. Findings have presented in relation to the research questions. Answering the research questions evaluates and reflects the outcomes.

Although it is assumed that each situation is unique, the outcomes of this research can be generalized to encompass SPALs because all SPALs have been founded at the same time, controlled by the same authority, and subjected to the same legislations and culture. They have approximately adopted the same ICT, thus, they might face the same challenges and barriers. Hence, the need to the improvement, might require the same elements.

## 10.4 Contribution to Knowledge

The contribution to knowledge in this study comprises both methodological and theoretical dimensions. The selection of a range of the research methods and the logical design of the research assists in avoiding the limitations of each single method, and helps in understanding the innovative problematic situation of the SPALs deeply. This research is the first study implementing SSM in the Syrian libraries field. It adopted mixed methods approach, investigating a single case study (LAIU), using the tools of the SSM (chapter 3). However, a number of studies have used SSM to develop its problematic situation, this study

contributes to implement the SSM in a different way. It embraces the inspiration of the SSM by using different tools of the SSM regardless its representations aimed to obtain a distinct understanding of the holistic situation and maximize the advantages.

The second contribution is to use SWOT analysis along with other methods. The adoption of the SWOT analysis emerged in the interview stage. It was useful to obtain the library staffs perspective regarding the strengths and weaknesses facing the library, and their perspectives about the opportunities and suggestions to improve the problematic situation, and the main threats confront the improvement. The analysis was beneficial in establishing the strategy suggested after the implementation of the SSM (chapter 8).

Regarding the theoretical dimension, this study is contributed to be the first study identifying EUERs in SPALs aiming to improve the performance of them. It addresses that the EUERs are academy in the first place supporting the EP. Developing end-users' skills and their career requirements is essential. This study confirms the change that occurred in the EUERs according to the change of the ALs and education environments. It articulates that the change is an extant of the EUERs, the library and librarians' roles. Hence, this study can be a cornerstone of the emphasis on the EUERs in the future research in the library domain. Furthermore, this study reflects a theoretical significance by providing unique findings discovering the relationships between the themes under the investigation (EUERs, LP, end-users' ISB, and EUS).

The second contribution is by developing a model of the end-users' ISB in the SPALs. The model encompasses of five stages. It is crossed with models of Kuhlthau (1991) and Ellies (1987) in several stages; however, the current model contributes to address "the interaction" as an important stage should be taken onto consideration. Moreover, this study contributes by confirming the majority of the findings of previous Syrian Studies (Ahmed, 2010; Al-Samir, 2009; Alassaf, 2011). The findings of this study are confirmed the reality of the problematic situation facing the ALs in Syria, and affirmed the need to the improvement.

Another important contribution is by establishing an appropriate and vital strategy to improve the LP (chapter 8). This strategy contains a set of recommendation driven from the implementation of the SSM's tools (chapter 6 & 7). The strategy can provide an effective solution to enhance the LP. It recommended to be implemented in three stages taking into consideration the priority of the library. Furthermore, this study contributes to develop S-diamond model identifying the requirements of the improvement, which can be a spotlight for other SPALs. Finally, evaluating the research findings helps in comprehending the validity and reliability of the findings (section 10.3).

## 10.5 Limitations of the Study

One of the limitations is in selecting one case study to be investigated. LAIU was selected as the only SPALs provide international LMS. It was seeking to provide "ask a librarian" service. Thus, the decision was made to investigate a successful example of the SPALs. Critically, the investigation identified a number of challenges and barriers that face this library. Thus, this investigation was important to discover such challenges and barriers.

The major limitation of the current study is related to the methodological dimension. Distributing the questionnaire of the undergraduates was problematic and time-consuming. The president of the AIU imposed the researcher to distribute the questionnaire using web-form. With no response, the questionnaire was redistributed, two months later, using a Microsoft-Word-form attached to undergraduates' university emails, as recommended by the director of the IRD. A very low response was recorded. Thus, the researcher gained a permission from the department of the private Universities at the MoHE to distribute a printed format of the questionnaire by herself (section 3.2.8.1). Despite this, the distribution of the questionnaire was face-to-face, there was a limitation in the participants' response due to their attitudes and reactions.

The implementation of the SSM's tools required spending long time in order to understand each stage of the implantation. It yielded a huge amount of information that became difficult to control it and link it with each other.

Furthermore, the inability to apply the change and take action due to the Syrian crisis facing Syria during the research period prevents the researchers testing if the change is feasible and desirable by the decision-makers of the AIU.

## 10.6 Future Work

This research aimed to identify the EUERs of the LAIU, and improving its performance based on those EUERs. The investigation has produced a clear understand of the EUERs. It has produced an appropriate strategy, which is recommended to implement the improvement of the LP, based on the EUERs. Also, it has generated an S-diamond model that determines the requirements of improvement. Nevertheless, further investigation is required in a number of dimensions. Firstly, more investigation is required regarding the EUERs. The findings has presented that EUERs are changing over the time due to a number of factors. Hence, more investigation is necessary to identify the change of the EUERs over the time.

Secondly, however, this research has explored the end-users' ISB that addresses their attitude and understand their behaviour during their journey of seeking information, studying library staffs' attitudes during their interaction with the end-users can produce a guide to understand and identify their attitudes, thereby, enhancing the LP. Thirdly, the focus of this study was in investigating internal barriers facing the LAIU. Further research will be appropriate to investigate the external barriers affecting the LP. Fourthly, this research suggested an effective strategy established based on the EUERs. Further work should embrace the implementation of the recommended change in order to achieve the feasible and desirable change, and take action for the tangible improvement

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# Appendix A: Historical perspective of Academic Libraries

Academic libraries (ALs) have been considered the heart of the Higher Education Institutions (HEIs). They were founded in the middle ages. ALs have been attached to academic institutions to serve students, academics and other potential users regarding their educational purposes (Feather & Sturges, 2003). Consequently, the awareness of the ALs' importance has been dramatically increased. According to Clapp (1964), the growth of ALs has been affected by two features. Firstly, sharing information materials was the core of ALs; which were scholarly centres for researchers to attend from different places. Secondly, ALs were seen as centres of "*local self-sufficiency*", aiming to provide researchers with IRs required; however, ALs struggled for being a local *self-sufficiency*. Hence, the suggestion was made to adopt the idea that is "specific libraries should be in charge of particular subjects" (cited by Brophy, 2007: p. 28).

The adoption of ICT in ALs field has been gradually generated in the last quarter of the nineteenth century. For instance, the first printed index card was created by the American Libraries Association in 1895, while printed catalogue cards were made available by the Library of Congress in 1901. Moreover, a microphotography has been considered the most important development in libraries between 1920 and 1950 (Boden, 1993). Indeed, the developments of ICT in ALs field have increased in order to respond to the massive diffusion of information, and to meet changing EUERs (section 3.1) (Boden, 1993; Brubacher & Rudy, 1976; Holly, 1976). On the other hand, these developments and the change accrued in ALs have influenced all ALs' characteristics. Thus, the role of library staffs has changed to become more involved in the EP (section 3.1.2.4). In addition, the need to associate ALs with the EP has increased in order to improve educational achievement (section 3.1.2.5) (Jordan, 1998). Hence, the sense of the ALs and the approaches of the LP assessment have also changed as a result of the emerging new era of the ALs' environment (section 2.3.2).

Interestingly, the link between ALs and HEIs has been found in the end of the eighteenth century. As a result, the structure of ALs, the means of delivering LISs, and the access of information have changed, as well as the number of IRs offered has rapidly increased (Brophy, 2007; Smith, 2002). Increasing publications' numbers, in the first quarter of the twentieth century, has produced several problems; in spite of ALs have improved and created innovative ways to store, deliver and retrieve library items (Booth, 2009; Garoufallou, 2004). For instance, when microphotography was initiated, it was an essential innovation in the libraries' field. With the rapid explosion of information, it became unable to solve ALs' problems (Boden, 1993). Thus, ALs have endeavoured to utilise appropriate ICT which enable them to cope with the development occurred in the ALs environment.

With the emergence of modern and experimental sciences, ALs have witnessed a set of improvements which have influenced their activities since the 1960s. These improvements have comprised several areas:

- Firstly, ALs have prioritised meeting researchers' requirements by obtaining the latest findings from recent studies, and adopting new techniques to access and retrieve information (Brophy, 2007). Thus, the nature of ALs has changed according to the new trend of requirements (section 3.1). This trend has been to access information electronically by embracing special publication methods, and other facilities for better performance. Facilitating access to free and open IRs started in 2002. A considerable number of journals, books, archives, and other materials have become freely available

online. Subsequently, providing compatible systems to access and manage this information has become essential (section 3.1.2.6) (Brophy, 2007).

- Secondly, ALs have strived to find ways to organise and manage the information expansion. Hence, e-catalogue has been innovated to assist in searching for and retrieving library materials. Also, e-catalogue has assisted academic librarians in managing and sustaining these materials in a controlled way (Brophy, 2007). Obviously, Open Public Access Catalogue (OPAC) has been considered an important factor in shifting ALs to the electronic format. It is widely used by a large number of libraries in Western Europe and North America. For instance, a study conducted in the USA in 1990, reveals that 35% of the ALs had databases loaded on their OPAC, along with undertaking other computer technologies such as CD-ROM and databases (Garoufallou, 2004). Thus, the adoption of ICT in ALs has given rise to instructional ideas and initiatives that have improved methods of LISs delivery (Goodwin, 2007).

Another issue that arose at the end of the twentieth century is the increase in student numbers enrolled in HEIs (Brophy, 2007; Jordan, 1998). According to Brophy (2007), the number of students enrolled in British universities increased dramatically from 120,000 students in 1963 to 1.6 million in 1997. Thus, a new form of universities has been founded to accomplish this growth, and new technologies have been adopted to respond to increasing needs. Thereby, the role of ALs and academic librarians has expanded to comprise further characters. These roles are discussed in Chapter 3.

In the digital age, the main focus of ALs has been to provide digital LISs such as VRSs, e-archive, and e-repository. In addition, further attention has been drawn to ALs as a learning centre. The need for developing users' skills, by offering information literacy programs, has been considered. As a result, the shift to electronic format has been influenced by a number of challenges (section 3.2.3) facing them. ICT has directly affected the ways in which ALs offer services. This influence has prompted them to adopt new methods to respond to changes occurring in ALs' environment. It has also changed the structure of ALs as they strive to meet new EUERs (Campbell, 2006; Smith, 2002). These issues are discussed in Chapter 3.

Campbell (2006) claims that in the era of information revolution and digitalization, the majority of ALs have concentrated on improving the facilitation and methods of delivery more than increasing information collections; there are a number of studies that have investigated the importance of providing sufficient and valuable e-/IRs which are responded to the EUERs (section 3.1.2.3), and related to their academic curricula (A. M. Casey, 2004; Feeney, 2004; Jordan, 1998; Sloan, 1998; Tremblay & Wang, 2008). While Brophy (2000) argues that the aim of utilizing new digital services is to facilitate access to an enormous number of IRs via the internet, and to provide end-users with an opportunity to access a range of full-texts. Thus, emphasis on building up IRs in both printed and electronic formats can be significant for increasing LP and meeting the EUEUs. In addition, it can be crucial to adopt the facilities and equipment, which simplify the access and retrieval of IRs, and to find other channels for delivering LISs for better achievement.

Later, in the early twenty-first century, a number of studies investigate the development of ICT has led to new expectations and requirements from end-users (section 3.1.4.6) with assorted skills (Barton, 2006; Ma, Clegg, & O'Brien, 2006; Sapa, 2005). They agree that the recent improvements in ICT have a fundamental impact on the means of

creating, distributing, gathering, accessing and using information and libraries. Hence, the adoption of Web 2.0 and library 2.0 (section 3.1.4.6) can reflect this improvement with the emphasis on end-users. According to M. Casey and Savastinuk (2006), "*the heart of Web 2.0 is user-centred change*" (P. 40). Library 2.0 is a model of LISs that encourages constant and purposeful change, inviting users' participation in the creation of both the physical and virtual services they want, supported by consistently evaluation. It also attempts to reach new users and better serve current ones through improving customer-driven offered (M. Casey & Savastinuk, 2006).

Briefly, a historical snapshot of the improvement and change in ALs field, in relation to adopting ICT, has been outlined. This adoption led to extend the role of ALs and their librarians, to change the expectations and requirements of ALs' users, and to embrace new channels and methods of accessing, using, delivering and retrieving IRs, LISs and other characteristics.

# Appendix B: Case Study: The Library of Arab International University

**Overview of Arab International University**

The Arab International University (AIU) was established in 2005. It has been ranked to be the third SPU which provides good services and features in 2011 (4 International Colleges and Universities, 2011), while its level has increased to become the second in 2014 (4 International Colleges and Universities, 2014). AIU was funded by a number of academics, businessmen, and trade unions. The establishment was under Legislative Decree No. 193 dated 05/06/2005. It is located on the motorway linking Damascus and Daraa, on an area of land 711,000 $m^2$ (Arab International University, 2011). AIU aims to generate critical thinkers, produce Lifelong learning, associate education with research and work, and enhance economic collaboration and interaction between different cultures. In addition, it targets to support and sustain the reliability, provide students with all skills required for facing the challenges of markets, and increase their opportunities in higher education (International Relations Office of AIU, 2009).

AIU consists of six faculties: Pharmacy, Engineering and Informatics, Business Administration, Architecture, Civil Engineering, and Fine Arts. There is a plan to establish further faculties (Human Medicine and Health Sciences, Humanities, Media, Tourism and International Relations.). The American system of a "Credit hours" programme is adopted. English is the basic instructing language in the AIU (Al-Samir, 2009; International Relations Office of AIU, 2009).

The next sections highlight the LAIU and its units to provide a clear picture of its function, and resources.

**The Library of Arab International University**

The Library of Arab International University (LAIU) works under the umbrella of the Information Resource Department (IRD), which includes three units: Library, Acquisition, and Automation and Technical Support unit. IRD has its own budget, which is allocated in compliance with its annual plan regarding faculties' needs, students enrolling numbers, staff recruitment and training, and further development plans. It should be noted that the indicators (such as the frequency of attendance, the frequency of circulation, and the list of most borrowed titles) provide detailed benchmarks for the use of the library, and a guide for developing its strategy (Alassaf, 2011).

**Library Unit (LU)**

LU was established in 2005 at the same time as the foundation of the university. Since the establishment, LU has been considered an important part of the university. It seeks to encourage and support its users in terms of providing a high quality of services and collection, and adopting high academic standards in academic classes and research. Figure Appendix B. 1 provides a map of the main structure, functions and resources of the LU.

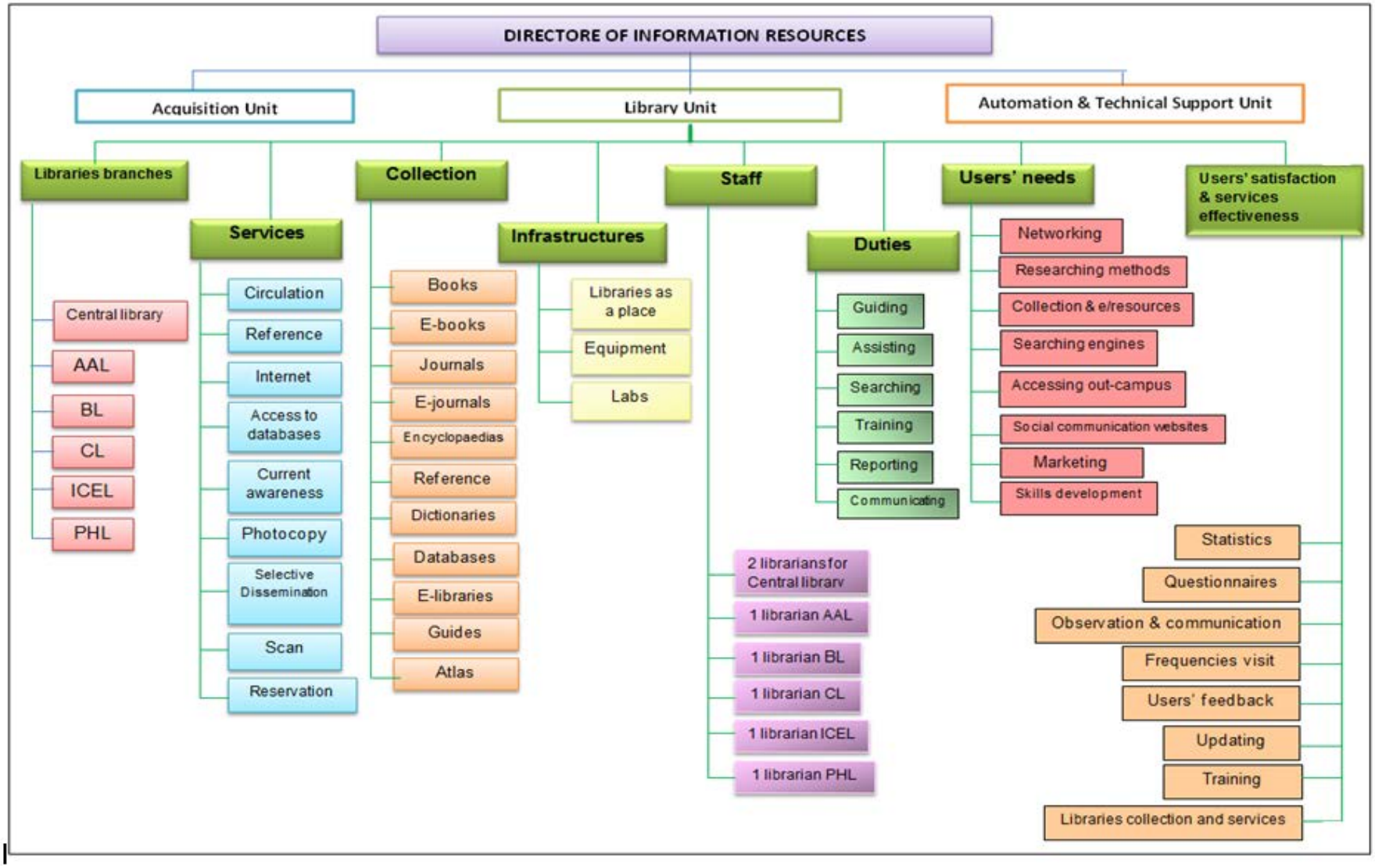



***Figure Appendix B. 1.*** **The structures of LU (created by the researcher, 2013)**

In this research, LU is identified as the places where end-users interact with and use the e-/LISs, e-/IRs and other characteristics. In addition, it provides its end-users with a convenient environment and appropriate equipment (AIU, 2011; International Relations Office of AIU, 2009). LU encompasses a central library (2000m2) and five branches; each branch is located separately in a different faculty. Library branches serve their users in each faculty, covering their needs. The branches are shown in Table appendix B.1.

**Table Appendix B. 1.**

***The Branches of LAIU***

| The Branches of AIUL | Size/ $m^2$ |
|---|---|
| Computer & Communication Engineering | 120 |
| Business Administration | 120 |
| Pharmacy | 320 |
| Civil Engineering | 120 |
| Architecture and Fine Arts | 250 |

LU is fully automated and up-to-standard regarding MARC, Dewey Decimal Classification (DDC), and Anglo-American Cataloguing Rules (AACR2). Open shelves and Library Open Public Access Catalog (OPAC) are being adopted in order to serve patrons. It is hosted by the Library Management System, HORIZON 8.0 (International Relations Office of AIU, 2009). Furthermore, end-users can check their records (items out, loan history, fines, requests and their status and messages) by using "My Account" from the library system interface. Figure appendix B. 2 demonstrates the library interface.

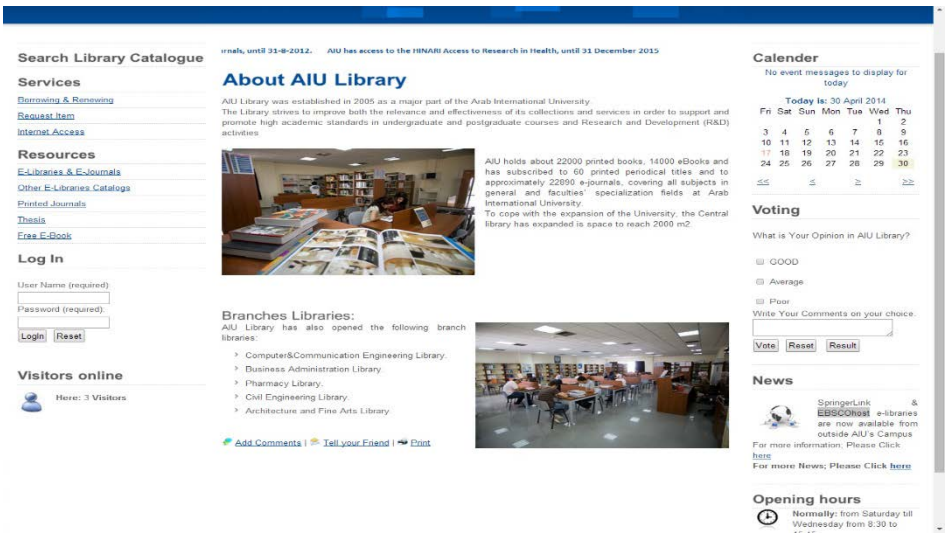



**Figure Appendix B. 2. The LAIU's interface (from the LAIU website, 2014)**

LU is accessible from the university homepage. It has recently rebuilt it, and it is available in English. It provides access to:

- 'About AIU library'- it provides an overview of the library, its branches, calendar, voting and opening time;
- Access to the online catalogue, Internet, and e-IRs;
- Description of the library's rules;
- Access to useful websites;

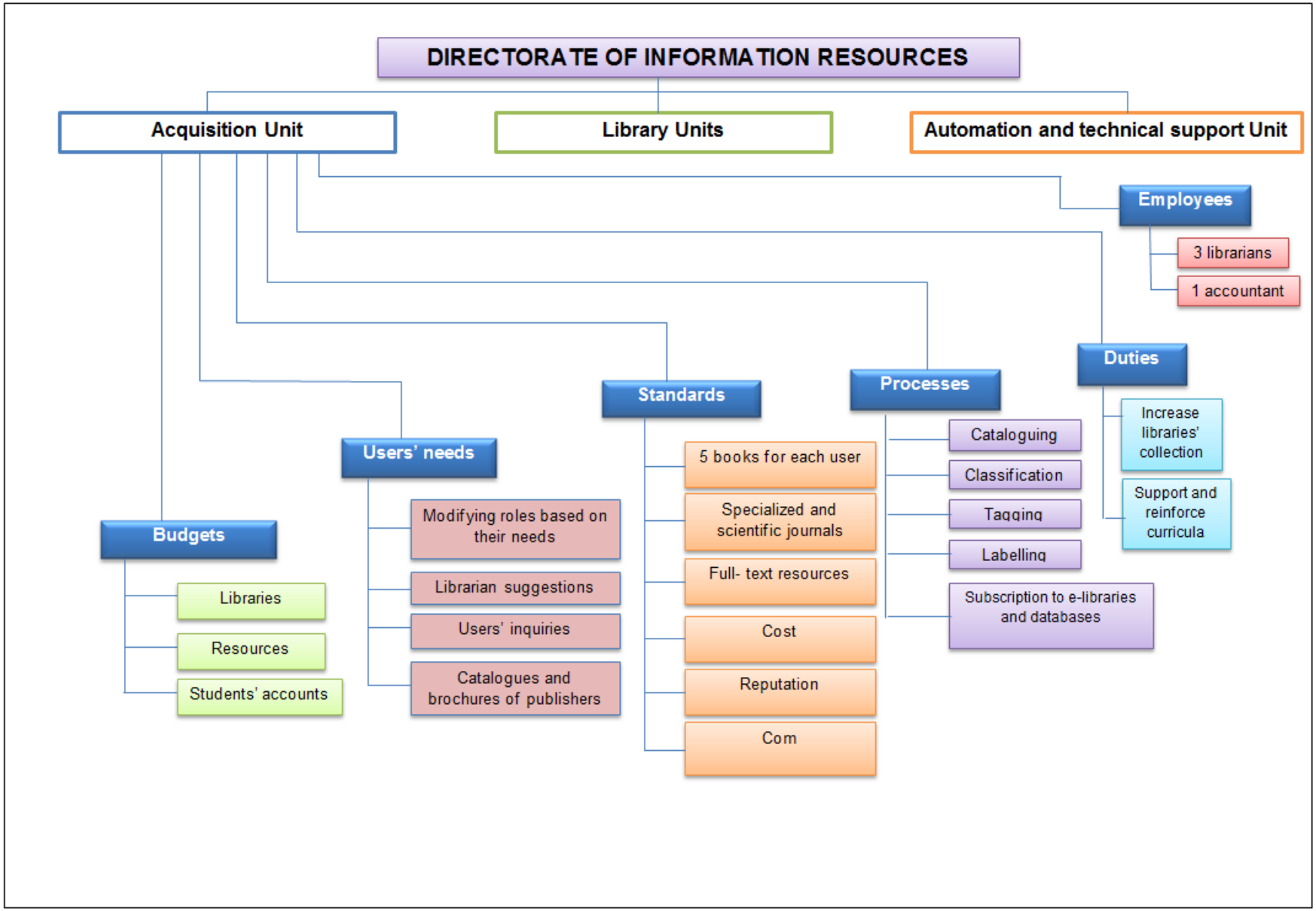
- A description of the library staff (their names, status and contact information);
- A view of the library gallery;
- Contact us;
- The News of the Library.

**Acquisition Unit (AU)**

AU was established in 2005, as a part of the IRD. This unit is responsible for building and providing e-/IRs in varied disciplines and interests, and in different formats such as e-/books, e-/journals, e-/dictionaries and other information items. It works with other departments and academic members in the university to provide the most appropriate e-/IRs, which meet EUERs and support academic needs. A number of procedures and processes are undertaken in order to provide sufficient e-/IRs, and make them available and accessible to end-users.

The main processes of AU are classifying, tapping, labelling, and cataloguing. MARK records have been adopted for cataloguing and indexing by giving each e-/IRs a numerical code. Thus, searches can be conducted using any of the fragments of information included in the cataloguing record (International Relations Office of AIU, 2009). Moreover, the AU's budget is a part of the library budget. It is an important element in promoting the library collections and enriching its contents. The main source of the acquisition is purchasing. For instance, approximately 5,500 printed books and journals, and 51subscribed paper were brought in 2008 (Alassaf, 2011).

End-users are involved in the acquisition process by completing either a printed or online form, which is available in the library or on its website. Librarians recommend resources as well, based on their expectations of the users' needs. Furthermore, publishers' catalogues and leaflets are significant methods to acquire information resources (AIU Library, 2011a). Figure appendix B.3 demonstrates the structure of the AU.


DIRECTORATE OF INFORMATION RESOURCES
Acquisition Unit
Library Units
Automation and technical support Unit
Employees
3 librarians
1 accountant
Duties
Increase libraries' collection
Support and reinforce curricula
Processes
Cataloguing
Classification
Tagging
Labelling
Subscription to e-libraries and databases
Standards
5 books for each user
Specialized and scientific journals
Full- text resources
Cost
Reputation
Com
Users' needs
Modifying roles based on their needs
Librarian suggestions
Users' inquiries
Catalogues and brochures of publishers
Budgets
Libraries
Resources
Students' accounts

**Automation & Technical Support Unit (ATSU)**

The essential roles of ATSU are to meet EURs by providing a flexible and easy system to use and search, providing efficient search results and controlling users' blackboard. Figure appendix B.5 illustrates the structure of the ATSU. ATSU is responsible for controlling Horizon 8.0. Three different interfaces are created for different users (end-users, librarians and administrators). Horizon 8.0 operates under the protocol Z39. Windows 7 is the Horizon's environment. The main modules of Horizon 8.0 that have been purchased are: Acquisition, Circulation, Administration, Searching, Cataloguing, Serials and Course Reserves. Each module has its administration feature included (ALassaf, 2011). Figure appendix B.4 depicts an example of the Horizon 8.0 interface.

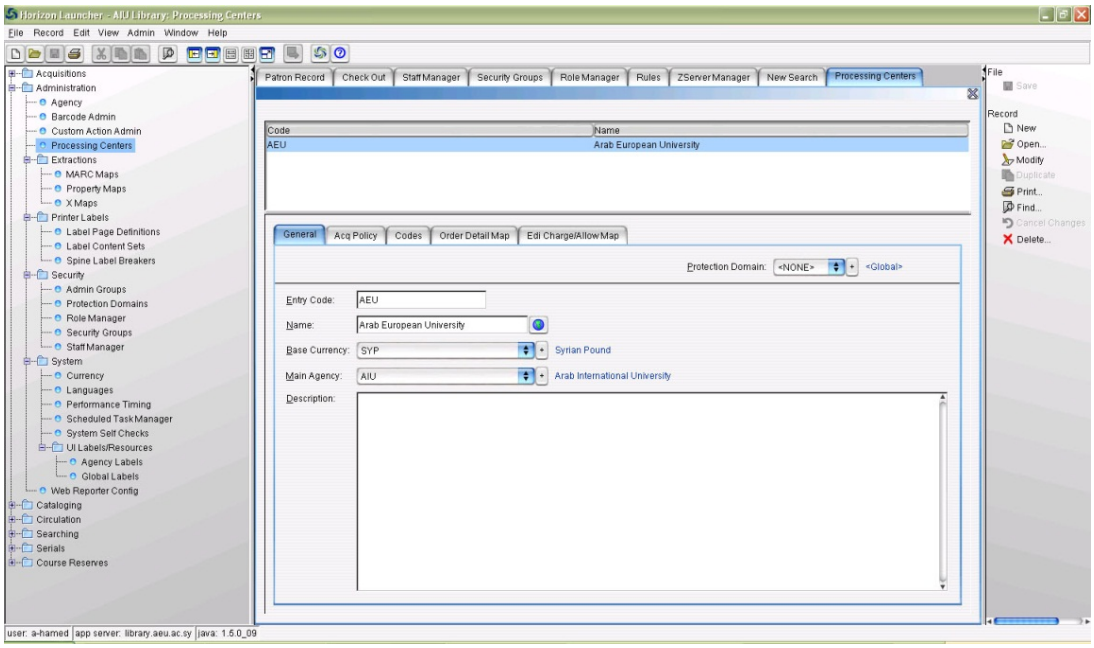



***Figure Appendix B. 4.*** **Horizon 8.0's Interface**

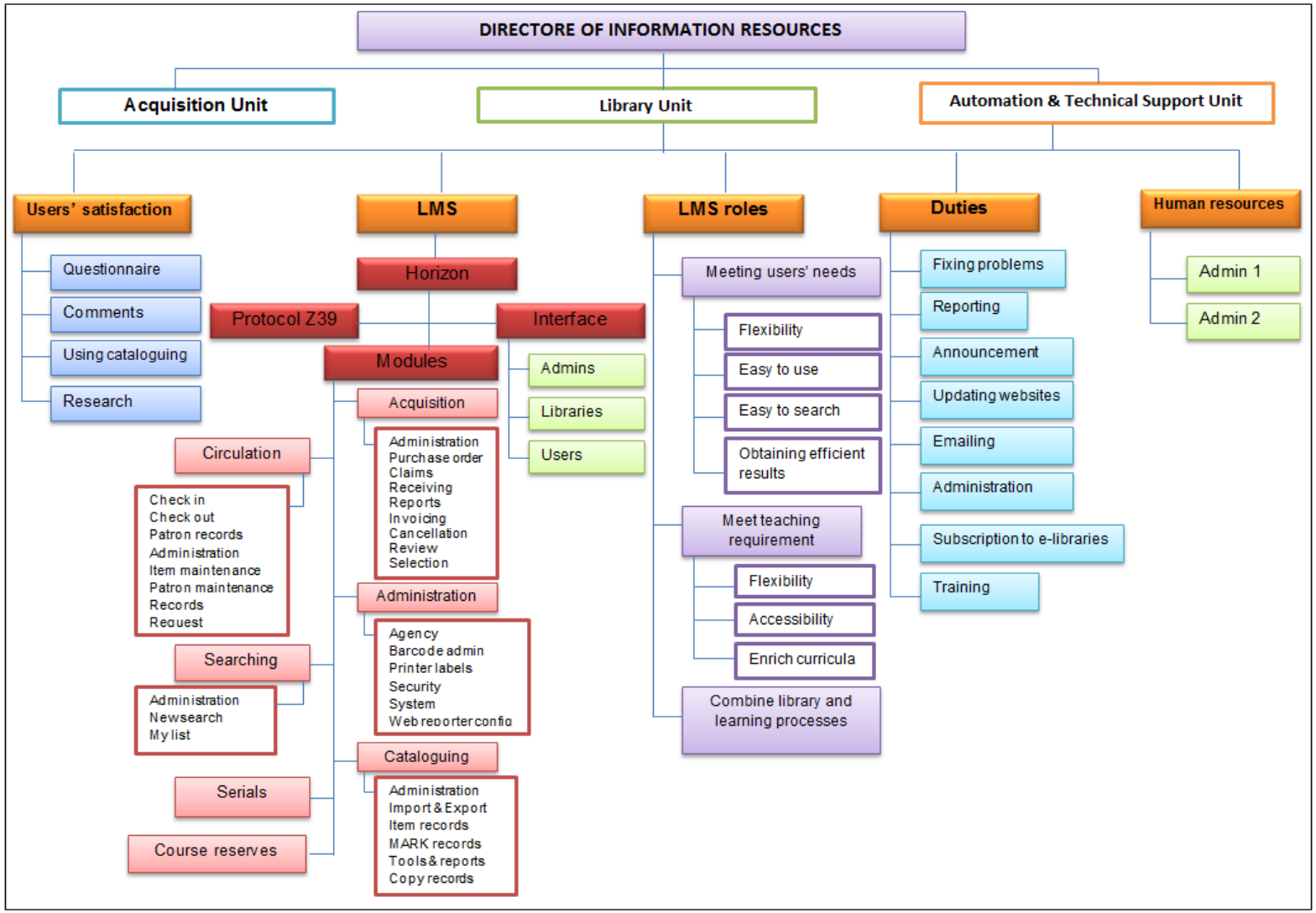



**Figure Appendix B. 5. The Structures of ATSU**

**Library Attendance**

Attending the LAIU is associated with the need to obtain information. It is also influenced by the examination periods. In the LAIU context, end-users are welcome to attend the Central Library or any of its branches, to benefit from its resources and services (AIU Library, 2011a). Figure Appendix B.6 illustrates the frequency of attending LAIU from September 2010 to July 2011.

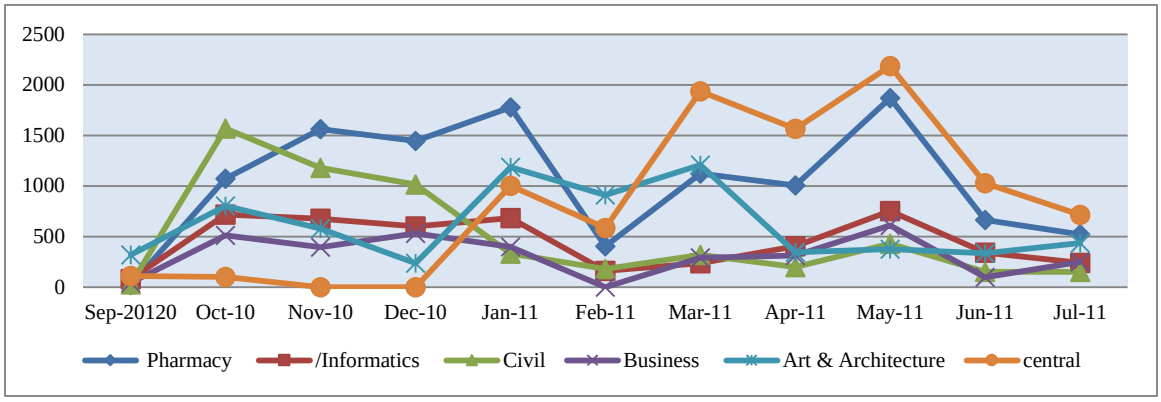



***Figure Appendix B. 6.*** **Frequency of Attendance at the LAIU (September 2010-July 2011).**

The figure showed that the Central Library and the Pharmacy Library reported the highest percentages of frequent attendance. The figure shows that the most attendance periods were in December and May. That is unsurprising, since end-users commonly attended the library before the exams period. Additionally, other increases were reported in October and March; as it is the time to prepare assignments. On the other hand, there were drops in the library attendance in September, February, and July. This was expected, as these are holiday periods. The percentages of those attending presented that the majority of the library branches declined dramatically after May, 2011. It might be because of the Syrian crisis.

**The Use of e-/IRs**

LAIU contains about 22,000 printed books, 14,000 e-books, 60 printed periodical titles and 22,890 e-journals, in addition to other types of IRs covering a wide range of general and specific subjects, and relating to the institution disciplines. (AIU, 2011; International Relations Office of AIU, 2009). End-users can borrow printed IRs, and download e-IRs, based on the library's rules and standards. According to the AIU (2011), the usage of e-IRs increases before and during the final exams in each term. Figure Appendix B.7 demonstrates the usage of e-IRs for both end-users who searched by themselves and who requested items. These data are provided by the ATSU (October 2009-July 2010).

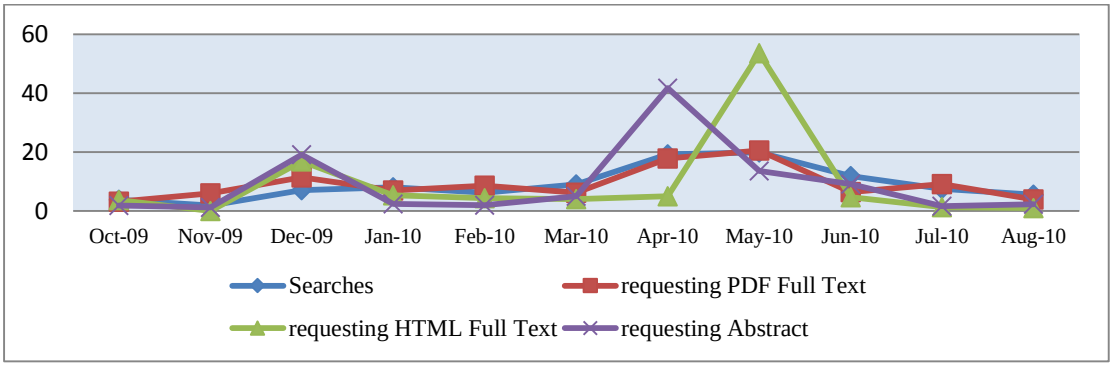



***Figure Appendix B. 7*. The Usage of e-IRs.**

The figure presented that the use of e-IRs increased in December, April and May. The highest percentage was for requesting HTML full-text articles in May 2010; this was the period for preparing for exams and writing up final projects, while the highest percentage of requests for abstracts was in April, when it was the time to begin selecting project topics and writing proposals. In general, the majority of the end-users (approximately 59%) preferred reading the abstract of e-IRs. Furthermore, approximately 12% tended to browse HTML full-text, while the percentage for reading PDF full-text articles was double of HTML full-text. Figure Appendix B.8 presents the general usage of e-IRs reflecting the end-users' behaviour toward seeking e-IRs.

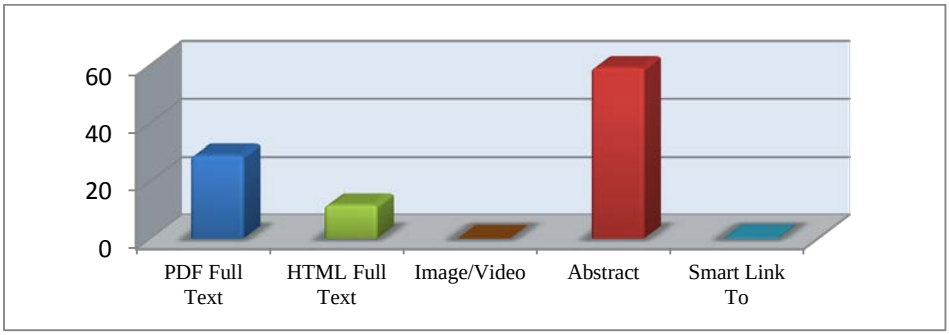



***Figure Appendix B. 8.* General Usage of e-IRs.**

An example of requesting full-text articles was provided by the ATSU. Figure Appendix B.9 depicts the number of full-text articles requested using SpringerLink (January 2009-December 2011).

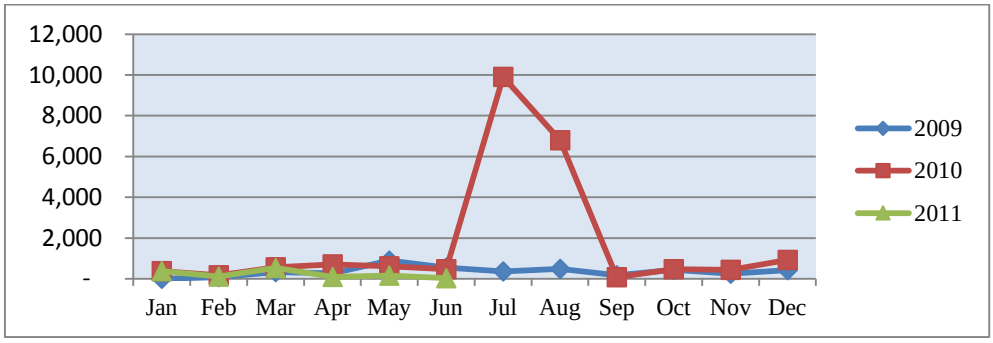



***Figure Appendix B. 9.*** **SpringerLink full-text article requests (January 2009-December 2011).**

The figure shows that the requests for SpringerLink full-text articles steadily decreased in 2009. There was a significant increase in terms of requesting SpringerLink full-text articles between June and August 2010, while the requests decreased noticeably during the rest of the year. This increase might be because of marketing and/or conducting orientations about SpringerLink. In addition, this was the period for completing final projects and dissertations. On the other hand, the requests were at the lowest level in 2011. This might reflect the impact of the Syrian crisis on the use of SpringerLink and other e-IRs, and on the library use in general.

**Library Services**

The library provides a range of services to its audience. These services are available either on-site or/and remotely. They are facilitated for teaching and research purposes and for meeting EUERs. An overview of offered services is provided as follow:

**Circulation Service:**

End-users can borrow printed IRs outside the library, except General references (dictionaries, encyclopedias and atlases), Special references (rare books, manuscripts, dissertations and theses), Periodicals, Reserved books, and the first copy of each book; these references are available just for inter-loan. Furthermore, end-users can renew borrowed items to extend the loan period, either via librarians helpdesk or by using e-catalogue (Automation Section, 2011). All users who have a valid ID are permitted to borrow printed IRs as shown in Table Appendix B.2.

**Table appendix B. 2**

***Circulation Period by End-user Types.***

| Patron Type | Number of Items | Loan Period |
|---|---|---|
| Faculty members | 10 | One semester |
| Lecturers and postgraduate students | 8 | Two months |
| Students | 5 | One month |
| University staff | 5 | One month |

**Training and Orientation:**

The library provides its end-users with a set of orientations and training sessions. Orientations take place systematically at the beginning of each academic year for two days. They are designed for new students and faculty staff, while training sessions are tailored and customised according to the EURs. Orientations and training aim to enhance end-users' skills (AIU Library, 2011a). They are designed to discover the library contents, teach end-users how to search and use the library e-catalogue and e-IRs, and to guide them in finding and using the library (Alassaf, 2011).

**Open Public Access Catalogue (OPAC):**

End-users are provided with free access to all e-/IRs in the library by using OPAC (http://library.aiu.ac.sy). OPAC is based on MARK records; which are coded numerically, or sometimes using numbers and letters for subtitles. Using OPAC offers opportunities to research required information, implementing a set of options (by ISBN, series, publisher, date, or any piece of information stored in the cataloguing record). See figure Appendix B.10.

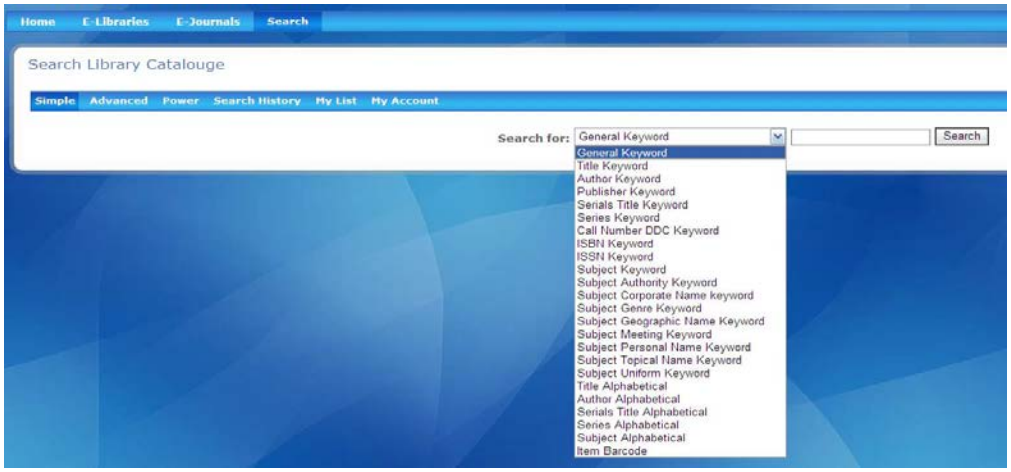



***Figure Appendix 2. 10.*** **E-Library Catalogue of the LAIU (AIU Library, 2011a).**

End-users can log into their e-catalogue, using their university number and password. Searching e-catalogue can be done using three options: Simple, Advanced and Power Search. All IRs (printed, audio-visual and electronic) are accessible. End-users have the opportunity to access, search, check in or out, reserve, and retrieve all IRs required, by themselves, at any time, from any computer in their library or at home (AIU Library, 2011a).

**Reservation Service:**

End-users can reserve items either by completing a printed form or by requesting online using the e-catalogue. If the item is available, it will be reserved for three days; whilst, if it is on loan, it will be reserved as soon as the item returns and if it have not been requested earlier (Automation Section, 2011). Figure Appendix B.11 demonstrates the reservation system using e-catalogue.

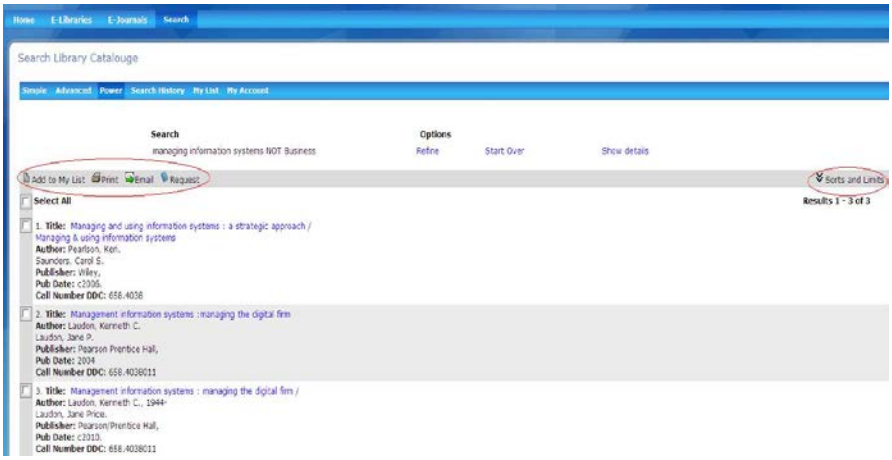



***Figure Appendix B. 11.*** **Reserving Items (AIU Library, 2011a).**

**Printing, Scanning & Photocopying Services:**

End-users are able to print the full-text of e-journal articles, and parts of e-books according to the copyright regulations of the library. The library branches of the LAIU provide a scanning service with high resolution, especially for Art and Architecture students, who require images, photos and models to be scanned for their study. Photocopying parts of printed IRs is also available for all end-user groups (students, academics and employees) (AIU Library, 2011a).

**Online services:**

LAIU offers a set of online services including: accessing e-IRs, searching e-catalogue and databases, browsing blackboard and websites. Wired and wireless Internet is available for end-users on campus during the library opening hours. End-users can access the Internet using their own laptops or by using the library facilities. The library provides free access to a number of e-journals and periodicals in different disciplines (Nature, IEEE, Harvard Business Review, VOGUE, L'arca, EBSCO and New Scientist), in addition to offering a range of open resources: Ohiolink library: www.ohiolink.edu, University of Montreal: http://www.bib.umontreal.ca, and Library of Congress: http://catalog.loc.gov. Furthermore, a number of e-libraries are subscribed to: Springer, H.W.Wilson, DOAJ, PMC, and The World Digital Library (AIU Library, 2011a; Automation Section, 2011).

**Reference Services (RSs):**

RSs aim to respond to end-users' inquiries, which are varied. In the LAIU, RSs are provided in two ways: face-to-face or virtually. Face-to-face inquiries are performed by a direct interaction between librarians and end-users, whereas Virtual inquiries are provided by using the university's email, or offering an "Answers to your Question" service which is similar to the "Ask a Librarian" service. End-users can send their request by completing an online form. See Figure Appendix B.12.

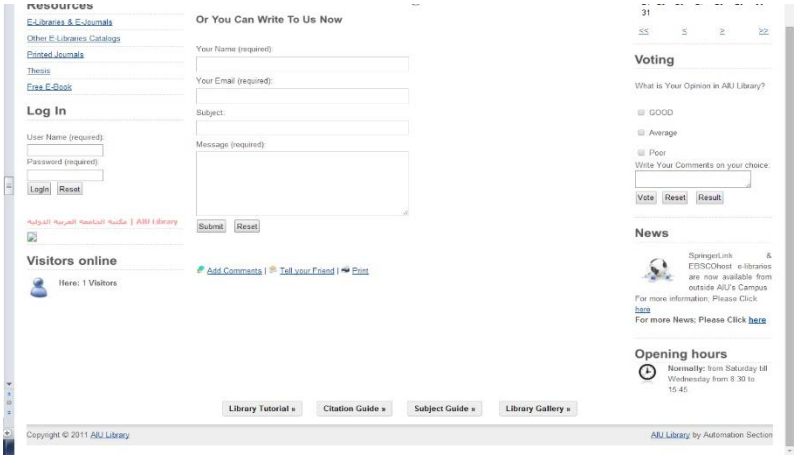



***Figure Appendix B. 12.*** **"Answers to your Question" service.**

Furthermore, the library provides an online guide on the library website, explaining how to find the library collection, and how to use the services and the references for citations. Librarians help end-users to understand the library features and roles in terms of classification, circulation roles, opening hours and general instructions. (AIU Library, 2011a, 2011; Automation Section, 2011).

In addition to all the services mentioned above, LAIU provides further services that keep end-users up-to-date with recent published information in their field of interest, such as Current Awareness Services (CAS), Selective Dissemination of Information (SDI), and more.

**Library Staff**

Three criteria are required in recruiting staff members which are: obtaining a higher education degree, having sophisticated skills in English, and technologies (Alassaf, 2011). LU was served by six librarians; one in each branch. The main roles of the librarians are to deliver, guide, assist, train, and educate users. Three librarians were involved to work in AU. They were responsible for dealing with suppliers and publishers, and purchasing e-/IRs. Moreover, ATSU consisted of two administrators, in addition to the manager of the DIR, who manages and monitors the activities and process of the DIR. The subscriptions to databases and e-libraries were handled by the administrators (International Relations Office of AIU, 2009). Interestingly, the library provided training and conferences to improve its staffs' skills and experiences.

**Library Facilities**

Three laboratories are attached to LAIU that facilitate its services and maximize its investment. End-users can use these laboratories free of charge. Laboratories are designed to serve end-users, especially students, in navigating databases and e-libraries, writing assignments, checking email, searching the Internet, retrieving information, and checking academic records and achievements (AIU Library, 2011a). Figure Appendix B.13 demonstrates the frequency of the labs use in 2010-2011.

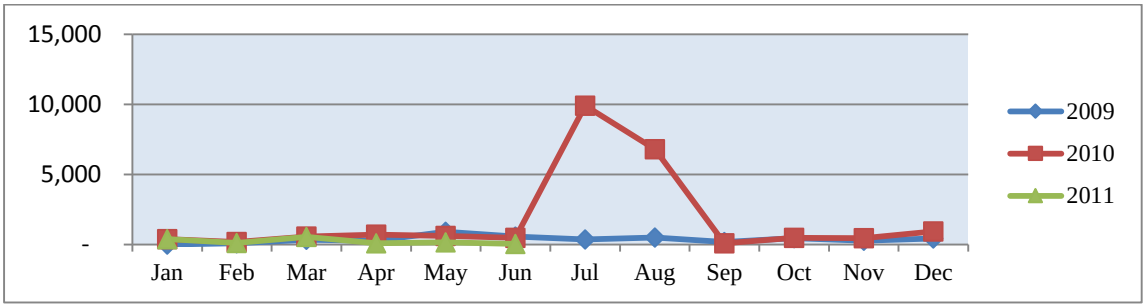



**Figure Appendix B. 13. The Frequency of Attending e-Library Laboratories (2010-2011). (Provided by ATSU)**

At the beginning of each year, inductions for the library and its use are delivered in these laboratories. This accounts for the increase in end-user numbers in October. Furthermore, the use of laboratories increases in the second semester (from March to May), which is the time for preparing for exams and final projects. On the other hand, attendance at the laboratories decreases or ceases from November to December, because this is the period of the re-registration and the first exam, and from July until September, because of the summer holiday.

**LAIU and Facebook**

The librarians of LAIU created an official page of the LAIU on Facebook in 2012 to increase the use, market its content and services, and to add social value to the library. Since the Facebook encompasses social features that provide interactive tools, linking the library with Facebook and other social networks increased the use of the LAIU. Figure appendix B.14 presents the increase of liking and using the LAIU page on Facebook from January 2013 until August 2013.

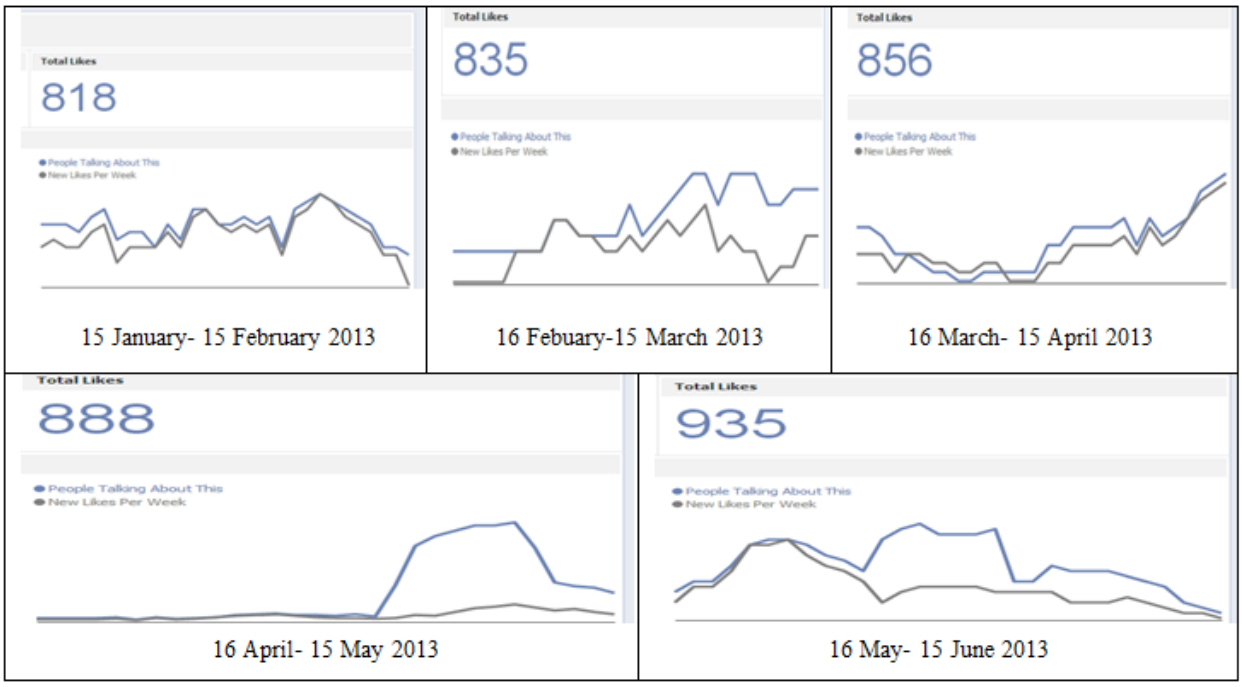


**Figure Appendix B. 14.The Increase of Interaction on LAIU's Facebook page.**

As seen above, the number of users who liked and used the LAIU's page on Facebook increased dramatically; however, this number decreased since April 2013 as a result of the Syrian crisis that affected all life sectors in Syria. Regardless, using the LAIU's Facebook page can be useful in marketing the library, updating and expanding the interaction between the library and its users.

# Appendix C: A List of SPUs

| University | Location | Establishment | Faculties | Website | Rank |
|---|---|---|---|---|---|
| **Arab International university (AIU)** | Daraa | 2004 | - Pharmacy<br>- Business Administration<br>- Architecture<br>- Fine Arts<br>- Civil Engineering | http://www.aiu.edu.sy/ | 3 |
| **Al-Jazeera** | Deir El Zour | 2009 | - Business Administration<br>- Engineering | www.jude.edu.sy | 9 |
| **Ittihad Private University (IPU)** | Rakaa Manbej | 2004 | - Architecture<br>- Information Engineering<br>- Administrative Science | http://uu-sy.com/new | 2 |
| **University Of Kalamoon (UOK)** | **Deirattiah** | 2003 | - Medicine<br>- Dentistry<br>- Pharmacy<br>- Health Sciences<br>- Engineering<br>- Applied Sciences<br>- Business and Management<br>-Diplomatic Science and International Relations<br>- Media & Applied Arts | http://www.uok.edu.sy | 1 |
| **'sity for Science and** | Al Qamishli Al-Hasakah | 2003 | -Administrative & Financial Sciences<br>- Engineering & Technology<br>-Modern languages& Humanities | www.must.edu.sy | 4 |
| **Yarmouk Private University (YPU)** | Damascus | 2008 | - Civil, Environmental and Architectural Engineering<br>- Informatics and Communications Engineering<br>- Administrative and Financial Sciences | http://www.ypu.edu.sy/ | 5 |
| **International University for Science and Technology (IUST)** | Daraa | 2006 | - Business and Finance<br>- College of Information Technology<br>- Engineering and Technology<br>- Dentistry<br>- Pharmacy<br>- Arts and Sciences | http://www.iust.edu.sy | 6 |
| **Al-Andalus University for Medical Science (AU)** | s | 2005 | - Dentistry<br>- Pharmacy | http://www.au.edu.sy | 7 |

| | | | | | |
|---|---|---|---|---|---|
| **Syrian International Private University for Science and Technology (SIUST)** | untryside | 2006 | - Medicine<br>- Dentistry<br>- Pharmacy<br>- Computer &Informatics<br>- Business Administration<br>- Petroleum Engineering | http://www.siust.edu.sy/ | 8 |
| **Wadi International University (WIU)** | Homs | 2006 | - Engineering<br>- Administrative& Economic Science | www.wiu.edu.sy | 12 |
| **Al-Hwash University for Pharmacy &Cosmetics (HU)** | Homs | 2009 | - Pharmacy<br>- Cosmetics | www.hpu.sy | 11 |
| **the Arab Private University for science & Technology (APUST)** | Hama | 2008 | - Engineering of Chemical Industries<br>- Engineering of Petroleum Industries | www.arab-univ.com | |
| **National Private University (NPU)** | Hama | 2007 | - Administration & Finance<br>- Architecture Engraining<br>- Urban Planning | www.wpu.edu.sy | |
| **The Arab Academy for Science, Technology & Marine Transportation (AAST)** | Lattakia | 2007 | - Management of trade logistics<br>- International Transport<br>- Computer Engineering Technology<br>- Business Administration | www.aast.edu.sy | |
| **Private University for Science & Arts (PUSA)** | Aleppo | 2004 | - Architecture<br>- Fine Arts | www.pusa-sy.org | 10 |
| **The Gulf University (GU)** | Aleppo | 2009 | - Information Engineering<br>- Business & Management | www.gu-aleppo.net | |
| **Ebla University (EU)** | Idleb | 2009 | - Engineering<br>- Management Science<br>- Pharmacy<br>- Languages & Humanities<br>- Political Science<br>- International Relations | www.ebla-uni.com | 13 |

# Appendix D: The supervisor permission to Collect Data

University of HUDDERSFIELD
Inspiring tomorrow's professionals

30th April 2012

**To Whom It May Concern**

This is to confirm that Maysoun Restoum is a PhD student under my supervision. She is working on a thesis investigating attitudes towards automated library services. I hope you will be able to assist her in collecting data for this work. I can assure you that the anonymity of any individuals consulted during this project will be preserved.

Yours sincerely

Dr. Steve Wade BSc MSc PhD FEHE
Course Leader
Dept of Informatics
School of Computing & Engineering

Tel No: 01484 472524
E-mail: s.j.wade@hud.ac.uk

SCHOOL OF COMPUTING &
UNIVERSITY OF HUD
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HD1 3DH

Queensgate Huddersfield HD1 3DH UK Telephone +44 (0) 1484 422288 Fax +44 (0) 1484 516151
Vice-Chancellor: Professor Bob Cryan BSc MBA PhD DSc
An exempt charity and a centre of excellence for vocational education and research

# Appendix E: The University of Huddersfield Permission to Collect Data

University of
HUDDERSFIELD

**TO WHOM IT MAY CONCERN**

**Mrs Maysoun RESTOUM** is currently undertaking doctoral research at the University of Huddersfield in the UK. The domain of her investigations rests in the area of Virtual Reference Services to improve the support to learners in electronic environments with such a service.

As our researcher is from Syria, she is very keen to conduct data collection in her own country. The focus of this project is on Higher Education in universities and Maysoun is working hard to gain the support of a critical mass of universities to participate in her study.

This letter is to humbly request such support for this student of ours. Moreover, to guarantee to you that Mrs Restoum is conducting this PhD research with our full knowledge and support under the auspices of this University.

We are certain that Mrs Restoum will be able to explain the details of her research more thoroughly with you, in person if necessary, as she is currently in Syria canvassing support from suitable institutions such as yours. Furthermore, she will be able to assure you about what she can provide in terms of findings in return for your involvement with this study, along with the usual assurances of respecting the confidentiality of each participating institution.

We thank you in anticipation of your positive response to our Syrian student's research project.

pp. J. Wilkins
Signed

Dr S J Wade (Main Supervisor)
**Director of Studies**
**Department of Computing and Engineering**
Tel: +44 1484 472524
E-mail: s.j.wade@hud.co.uk

Date

J. Wilkins
Signed

Ms J Wilkinson (2nd Supervisor)
**International Recruitment & Collaboration Manager**
**School of Computing & Engineering**
Queensgate, Huddersfield HD1 3DH, UK
Tel: +44 1484 472468
E-mail: j.wilkinson@hud.ac.uk

29/01/2010
Date

Queensgate Huddersfield HD1 3DH UK Telephone +44 (0) 1484 422288 Fax +44 (0) 1484 516151

# Appendix F: Interview Consent Form

PhD student: Maysoun Restoum

Computing & Engineering School

University of Huddersfield

I hereby grant_____ permission to the audio recording and transcription interview for the purpose of investigating the core activities undertaken in the library of Huddersfield university, and understanding its users' requirements in the digital age.

I agree to participate in this study voluntarily. I understand that I have the right to decline the interview at any time during the interview.

I agree to share the recording information with the interviewer to be used only for the purpose of investigation. I understand that all information I provided during the interview will be kept confidential and in secret. When the result of the recording data becomes available, it will be read, quoted, or cited form and disseminated for educational and scholarship purposes only.

This consent does not prevent any use, which may want to make of the information contained in the recordings or transcription.

I read the information above, and agree to participate in this study

Interviewee's name _____

Signature _____

Date _____

# Appendix G: End-users' Questionnaires

## Appendix G1: Understanding undergraduates' expectations and requirements

Dear participant

This questionnaire, being carried out by Maysoun Restoum for PhD dissertation/ the university of Huddersfield, UK.

This questionnaire aims to understand undergraduates' expectations and requirements of the Library of Arab International University in Syria. Understanding undergraduates' expectations and requirements will help in improving the library performance and meeting these expectations and requirements in a better way.

Data collected will be used only for academic purposes, and to achieve the mentioned aims above. Understanding undergraduates' expectations and requirements is a good opportunity to suggest any improvements that might be made for the library services and other functions. We are interested in understanding the undergraduates' expectations and needs to provide high quality.

Your participation to complete this survey is very appreciated. It will be important to improve your library performance to provide best services and information for you. This questionnaire will take approximately 10 minutes of your time.

Thank you for spending a few minutes to complete this questionnaire.

Maysoun Restoum
School of Computing & Engineering
Huddersfield University
Email: m.restoum@hud.ac.uk

Supervisors
Dr. Steve Wade, Julie Wilkinson
School of Computing & Engineering
Huddersfield University

**Section 1**: This section aims to investigate the undergraduates' interaction with their library

- **Do you visit your academic library?**

  ◯ Yes ◯ No (if no, go to Q4)

- **If Yes, how many times do you visit it?**

◯ Very often
◯ Often
◯ Sometimes
◯ Rarely
◯ Very rarely

- **Approximately, how many hours do you spend each week using your academic library?**

◯ Less than an hour/w
◯ 1-4 hours/w
◯ 5-8 hours/w
◯ 9-12 hours/w
◯ More than 12 hours/w

- **If No, Why**

◯ Use Internet
◯ Use another library
◯ Academic Curriculum
◯ Buy books or journals
◯ (Please specify)----------

**Section2:** it aims to investigate the undergraduates' requirements of the library regarding different characteristics.

- **What are your requirements of your academic library (select all related)**

◯ Social space

○ Learning space
○ Supportive information resources
○ High quality services
○ Experts
○ Personal services
○ Technological facilities

- **How would you rate the importance of the following factors in term of selecting information resources**

| | Most important | Important | I do not know | Less important | Unimportant |
|---|---|---|---|---|---|
| Accuracy | ○ | ○ | ○ | ○ | ○ |
| Accessibility | ○ | ○ | ○ | ○ | ○ |
| Cost | ○ | ○ | ○ | ○ | ○ |
| Understandability | ○ | ○ | ○ | ○ | ○ |
| Publication year | ○ | ○ | ○ | ○ | ○ |

- **Could you please select all library services that you use in your learning process**

○ Borrowing printed books
○ Browsing e-books
○ Borrowing printed journals
○ Accessing to e-journal and database
○ Inter-library loan
○ Reference service
○ Skill development
○ E-catalogue
○ Books reservation
○ Other, please specify:

- **Could you please rank all library services that you use from the most usage for the last one (using numbers)**

○ Borrowing printed books
○ Browsing e-books
○ Borrowing printed journals

- ○ Accessing to e-journal and database
- ○ Reference service
- ○ Printing
- ○ Photocopy
- ○ Books reservation
- ○ Inter-library loan
- ○ (Please specify)----------

**Section 3**: this section aims to measure the undergraduates' satisfaction with the different characteristics of the library.

- **How would you rate your library for**

| | **Excellent** | **Good** | **Fair** | **Poor** | **No opinion** |
|---|---|---|---|---|---|
| Find information | ○ | ○ | ○ | ○ | ○ |
| Use information | ○ | ○ | ○ | ○ | ○ |

- **To what extend are you satisfied with the library staff**

| Strongly satisfied | Satisfied | Neutral | Dissatisfied | Strongly dissatisfied |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

- **To what extend are you satisfied with your library's location and spaces**

| Strongly satisfied | Satisfied | Neutral | Dissatisfied | Strongly dissatisfied |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

- **To what extend are you satisfied with technological facilities**

| Strongly satisfied | Satisfied | Neutral | Dissatisfied | Strongly dissatisfied |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

**13. Do you think that your academic library provides adequately for**

| Strongly agree | Agree | Somewhat agree | Disagree | Strongly disagree |
|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Face-to-face Library services | ○ | ○ | ○ | ○ | ○ |
| E-library services | ○ | ○ | ○ | ○ | ○ |
| Training | ○ | ○ | ○ | ○ | ○ |
| Guidance | ○ | ○ | ○ | ○ | ○ |
| Announcement | ○ | ○ | ○ | ○ | ○ |

---

**Section 4**: this section aims to investigate the undergraduates' information-seeking behaviours of their library.

- **Which kind of library services do you prefer to use?**

○ Traditional services
○ Electronic services
○ Both of them

- **If your answer was traditional services, could you please explain why? (Select all related)**

○ More convenient to interact with librarians
○ More ability to explain my needs
○ Other (Please specify)----------

- **If your answer was electronic services, could you please explain why? (Select all related)**

○ Availability
○ Access to information anytime, anywhere
○ More convenient to use
○ More convenient to interact with librarians virtually
○ Keep me updated with information in my domain
○ Other (Please specify)----------

---

**section 5:** this section addresses the difficulties facing undergraduates in terms of their use to the library

- **Could you please select the difficulties of using your library (Select all related)**

○ Lack of time

○ Lack of printed books
○ Lack of printed journals
○ Lack of e-books
○ Lack of e-journals
○ Unable to browse e-books
○ Unable to access e-journal
○ Lack of assistance
○ Unfamiliar with the library services
○ Opening hours
○ Unable to visit the library anytime anywhere
○ (Please specify)----------

**Section 6:** this section reflects the undergraduates' perspectives of providing reference services

- **Which type of reference service would you like to use?**

○ Face-to-face consultation (discussion with a reference librarian directly)
○ Telephone consultation (having a conversation with a reference librarian by phone)
○ E-mail reference (send your query by email to a reference librarian)
○ Web-form (typing your inquiry and contact details in a box on the library's website)
○ Ask a librarian service (a quick free reference service)

- **Do you think that providing Virtual Reference Services into your library will offer you an opportunity to obtain your required information about (select all related)**

○ Look-up and use the catalogue
○ Starting points for terms of the assignments
○ Specific information about specific subject
○ Information literacy
○ Collection
○ IT problem and difficulties

**Section 7:** this part aims to collect data about participants

- **Gender** ○ Male ○ Female
- **Age** ○ 18-22 ○ 23-27

○ 28-32 ○ 33+

- **The level of study**

○ Undergraduate student- 1st year
○ Undergraduate student- 2nd year
○ Undergraduate student – 3rd year
○ Undergraduate student – 4th years
○ Undergraduate student – 5th year

- **Faculty** ----------

Thanks for your participation.

## Appendix G2: Understanding academics' expectations and requirements

Dear participant

This questionnaire supports work being carried out by Maysoun Restoum, a PhD student at the School of Computing and Engineering, Huddersfield University, UK. We are using this questionnaire to help us to understand the academics' expectations and the requirements of the library of Arab International University in Syria. Understanding academics' expectations and requirements will help in improving the library performance and meeting these expectations and requirements in a better way.

Data collected will be used only for academic purposes, and to achieve the mentioned aims above. Understanding academics' expectations and requirements is a good opportunity to suggest any improvements that might be made for the library services and other functions. We are interested in understanding the academics' expectations and needs to provide high quality.

Your participation to complete this survey is very appreciated. It will be important to improve your library performance to provide best services and information for you. This questionnaire will take approximately 10 minutes of your time.

Thank you for spending a few minutes to complete this questionnaire.

Maysoun Restoum

School of Computing & Engineering

Huddersfield University

Email: m.restoum@hud.ac.uk

maysoun70@hotmail.co.uk

Supervisors

Dr. Steve Wade, Julie Wilkinson

School of Computing & Engineering

Huddersfield University

School of Computing & Engineering

Email: s.j.wade@hud.ac.uk

j.wilkinson@hud.ac.uk

**Section 1:** This section aims to investigate the academics' interaction with their library

- **Do you visit your academic library?**
  ◯ Yes ◯ No (if No, go to Q4)

- **If yes, how often do you visit your academic library?**
  ◯ Very Often ◯ Often ◯ Sometimes ◯ Rarely ◯ Very Rarely

- **Approximately, how many hours do you spend each week using your academic library?**

◯ Less than an hour ◯ 1-4 hours ◯ 5-8 hours ◯ 9-12 hours ◯ More than 12 hours

- **If you answered "NO" to Question 1, what are the reasons behind that? (Select all related).**

☐ I use the Internet ☐ I buy my own books or journals
☐ I use another library ☐ I use academic Curriculum
☐ Other, please specify:

**Section 2**: it aims to investigate the academics' requirements of the library regarding different characteristics.

**5) What are your requirements of your academic library (select all related)**

◯ Social space

◯ Learning space

◯ Supportive information resources

◯ High quality services

◯ Experts

◯ Personal services

◯ Technological facilities

**6) How would you rate the importance of the following factors in term of selecting information resources**

| | Most important 1 | Important 2 | I do not know 3 | Less important 4 | Unimportant 5 |
|---|---|---|---|---|---|
| Accuracy | ◯ | ◯ | ◯ | ◯ | ◯ |
| Accessibility | ◯ | ◯ | ◯ | ◯ | ◯ |
| Cost | ◯ | ◯ | ◯ | ◯ | ◯ |

| | | | | | |
|---|---|---|---|---|---|
| Understandability | ○ | ○ | ○ | ○ | ○ |
| Publication year | ○ | ○ | ○ | ○ | ○ |

**7) Could you please select all library services that you use in your teaching process**

- ☐ Borrowing printed books
- ☐ Browsing e-books
- ☐ Borrowing printed journals
- ☐ Accessing to e-journal and database
- ☐ Inter-library loan
- ☐ Reference service
- ☐ skill development
- ☐ e-catalogue
- ☐ Books reservation
- ☐ Other, please specify:

**8) Could you please rank all library services that you use from the most usage for the last one (using numbers)**

- ☐ Borrowing printed books
- ☐ Browsing e-books
- ☐ Borrowing printed journals
- ☐ Accessing to e-journal and database
- ☐ Reference service
- ☐ Printing
- ☐ Photocopy
- ☐ Books reservation
- ☐ Inter-library loan
- ☐ (Please specify)----------

**<u>Section 3</u>**: this section aims to measure the academics' satisfaction with the different characteristics of the library.

**9) How would you rate your library for**

| | Excellent 1 | Good 2 | No opinion 3 | Fair 4 | Poor 5 |
|---|---|---|---|---|---|
| Find information | ○ | ○ | ○ | ○ | ○ |
| Using information | ○ | ○ | ○ | ○ | ○ |

**10) To what extend are you satisfied with the library staff**

| Strongly satisfied | Satisfied | Neutral | Dissatisfied | Strongly dissatisfied |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

**11) To what extend are you satisfied with your library's location and space**

| Strongly satisfied | Satisfied | Neutral | Dissatisfied | Strongly dissatisfied |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

**12) To what extend are you satisfied with technological facilities**

| Strongly satisfied | Satisfied | Neutral | Dissatisfied | Strongly dissatisfied |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

**13) Do you think that your academic library provides adequately for**

| | Strongly agree 1 | Agree 2 | Somewhat agree 3 | Disagree 4 | Strongly disagree 5 |
|---|---|---|---|---|---|
| Face-to-face Library services | ○ | ○ | ○ | ○ | ○ |
| E-library services | ○ | ○ | ○ | ○ | ○ |
| Training | ○ | ○ | ○ | ○ | ○ |
| Guidance | ○ | ○ | ○ | ○ | ○ |
| Announcement | ○ | ○ | ○ | ○ | ○ |

**Section 4**: this section aims to investigate the academics' information-seeking behaviours of their library.

**14) Which kind of library services do you prefer to use?**

◯ Traditional services ◯ Electronic services ◯ Both of them

**15) If your answer was traditional services, could you please explain why? (Select all related)**

☐ More convenient to interact with librarians
☐ More ability to explain my needs
☐ Other, please specify:

**16) If your answer was electronic services, could you please explain why? (Select all related)**

☐ Availability
☐ Access to information anytime, anywhere
☐ More convenient to use
☐ More convenient to interact with librarians
☐ Keep me updated with information in my domain
☐ Save time and effort
☐ Other, please specify:

---

**section 5:** this section addresses the difficulties facing academics in terms of their use to the library

**17) Could you please select the difficulties of using your library (select all related)**

☐ Lack of time
☐ Lack of printed books
☐ Lack of printed journals
☐ Lack of e-books
☐ Lack of e-journals
☐ Unable to access e-journal
☐ Unfamiliar with the library services
☐ Unable to visit the library anytime anywhere
☐ Lack of assistance
☐ Unable to browse e-books
☐ Open hours
☐ Other, please specify:

**section 6:** this section reflects the academics' perspectives of providing reference services

**18) Which type of reference service would you like to use?**

- ☐ Face-to-face consultation (discussion with a reference librarian directly)
- ☐ Telephone consultation (having a conversation with a reference librarian by phone)
- ☐ E-mail reference (send your query by email to a reference librarian)
- ☐ Web-form (typing your inquiry and contact details in a box on the library's website)
- ☐ Ask a librarian service (a quick free reference service)

**19) Do you think that providing Virtual Reference Services into your library will offer you an opportunity to obtain your required information about (select all related)**

- ☐ Look-up and use the catalogue
- ☐ Starting points of lectures
- ☐ Specific information specific subject
- ☐ Information literacy
- ☐ Collection
- ☐ IT problem and difficulties
- ☐ Other, please specify:

---

**Section 7:** this section presents the academics' awareness of the importance of the academic library in supporting learning environment

**20) Do you use library resources to reinforce your lecture?**

○ Yes ○ No

**21) Do you motivate your students to use AIU library resources?**

○ Yes ○ No

**22) How do you motivate your students to use their library to support their EP?**

- ☐ Borrowing IRs
- ☐ Browsing e-catalogue
- ☐ Accessing e-IRs and databases
- ☐ Using the library internet

---

**Section 8:** this part aims to collect data about participants

**23) Gender**

○ Male ○ Female

**24) Age**

◯ Less than 30 ◯ 30-39 ◯ 40-49 ◯ 50-59 ◯ 60+

**25) Teaching experience**

◯ 1-5 years ◯ 6-10 years ◯ 11-15 years ◯ 16-20 years ◯ More than 20 years

**26) Faculty**

◯ Faculty of Pharmacy
◯ Faculty of Engineering and Informatics
◯ Faculty of Business Administration
◯ Faculty of Architecture
◯ Faculty of Civil Engineering
◯ Faculty of Fine Arts

# Appendix H: Interviews

## Appendix H1: An Example of The Librarians' Interviews

**PART A: personal information**

**14.** Name of library: _____

**15.** Current position: _____

**16.** Grade: _____

**17.** What is your gender? Male Female

**18.** What is your age? _____

**19.** Highest academic qualification: _____

**20.** Total working experience as a librarian: _____ year (s)

**PART B: Interview**

1) Could you please provide me an overview of the library in terms of location, collections, and staff?
2) What is the visit average of end-users attendance of the library every day, whether they are students, academic?
3) Why do you think users attending the library? What are the reasons behind it? Could you classified?
4) What do you think EUERs of such academic library?
5) How do you identify the users' needs? What are the criteria for understanding the users' needs in terms of obtaining and accessing to the information required? What is based on?
6) Do you think that end-users' requirements of academic library have changed in the 21 century, as a result of adopting technology within academic libraries and the information revolution? What has changed? What do end-users looking for?
7) Do you think that there are distinctions between the end-users' requirements? E.g. students' requirements are different from academic staff 's requirements.

8) How do you understand the EUERs of the library? Are there other ways adopted to understand the users' needs?
9) What is your role as a librarian in terms of meeting the end-users' requirements?
10) How do you evaluate the level of requirements achievement?
11) Do you think that their needs are limited to accessing particular information or they need additional services and skills development?
12) What is the main role as a librarian?
13) How do you motivate the users to use the library and its resources?
14) Do you motive tutors to visit and use the library? Do you aware of their role in encouraging the student?
15) How do you evaluate the level of services provided? What are the criteria?
16) When you provide the library with a new service or book, do you announce it on the bulletin or on the university or library website?
17) How do you think that you should marketing services for better delivery?
18) What skills have you gained? And, do you think that you need to develop new skills?
19) How do you think that you can activate the role of the library more to support the educational process?
20) Do you think that linking the library website with a social networking like the Facebook and Twitter could activate the role of the library and increase the number of users?
21) In your opinion, what are the strengths and weaknesses of the library management system?
22) Do you think that students are satisfied with the services provided?
23) What are the most services revealed the users' satisfaction?
24) How do you measure the level of the end-users' satisfaction?
25) Do you satisfy with the level of the library performance?

26) Do you have Statistics of the library usage, information resources usage?

27) What are library methods to respond the users questions?

28) What are the most frequent inquiries of end-users? And in what areas or topics?

29) Have you participated in training courses as a trainer or trainee?

30) Do you think that such training courses will upgrade the librarian skills and improve the services provided?

31) Do you think that linking the library with social communication networks and media can enhance the library performance, therefore, increase the level of satisfaction?

32) What are the strengths and weakness of the services and resources provided?

33) What is the library role in supporting the learning process? How the library is involved in the teaching and learning process?

34) How do you seek to improve your services? And what are the threats facing you as a library?

35) Would you like to add further information?

## Appendix H 2: An Example of The Administrators' Interviews

**PART A: personal information**

i. Name of library: _____

ii. Current position: _____

iii. Grade: _____

iv. What is your gender? Male Female

v. What is your age? _____

vi. Highest academic qualification: _____

vii. Total working experience as a librarian: _____ year (s)

**PART: Interview**

1. What are the main duties as a technician an as a person working in librarianship domain?
2. How do you communicate with users?
3. What do you think are the EUERs of the academic library?
4. Do you think that linking the library website and social communication websites increase users visit? What are the benefits behind adopting this idea? What are your aims to link them together?
5. Do you think that the users' requirements have been recently changed and information is needed to deliver in new or different ways?
6. Do you think that there are any differentiations between the requirements of students or academic staff?
7. Which indicators and Standards do you use to determine users' requirements?
8. What are the skills that have you gained through your work at the Department of Automation? And what are the other skills that you think that you need to obtain?
9. Do you think that you still need to develop your communication skills or self-development skills or other skills?
10. Have you attended training course of librarianship domain or other training courses related to the library management system?

11. Do you encourage your academic staff and students to use you academic library, its services and its information resources?
12. Do you think that libraries in a digital age have a crucial role of supporting learning environments?
13. What is the environment of the library management system?
14. Is Horizon related to other systems or it is standing by alone?
15. Do you think that the library portal is sufficiently efficient to meet the users' requirement?
16. What do you think that the strengths and weaknesses of Horizon?
17. As an administrator, what are the main features that should be taken in consideration to choose a library management system?
18. Do you think that the system adopted by your university is able to meet your requirements and users' requirements?
19. Do you think that the existing system needs to be developed in order to meet the users' needs in more efficient way?
20. Do you think that the development should comprise the technical side only or it should include the human resources as well?
21. Would you like to add any further information?

# Appendix I: Example of the Coding Tree

**Nodes**

| Name | Sources | References |
|---|---|---|
| associating the library with social communication websites | 8 | 26 |
| awareness | 10 | 57 |
| change of the library enviroment | 1 | 1 |
| changing users' requirements | 1 | 1 |
| development of the library field | 12 | 180 |
| Information resources | 11 | 63 |
| Electronic information resources | 10 | 17 |
| Printed information resources | 8 | 18 |
| information seeking | 1 | 1 |
| interaction | 1 | 1 |
| library management system | 10 | 51 |
| library performance | 10 | 71 |
| Library services provided | 12 | 416 |
| library staffs' roles | 10 | 49 |
| library visit and usage | 9 | 44 |
| marketing | 11 | 44 |
| strengths | 10 | 49 |
| support learning environment | 11 | 43 |
| technicians' roles | 1 | 3 |
| training | 12 | 61 |
| users' requirements | 11 | 99 |
| differentiation between users' needs | 8 | 25 |
| methods of identify the users' needs | 9 | 12 |
| unability to identify users' needs by themselves | 2 | 3 |
| understanding users' needs | 7 | 18 |
| users' satisfactions | 9 | 24 |
| weaknesses | 11 | 46 |

# Appendix J: Library Services Provided by The LAIU

The librarians identified a set of library services provided and described in more detail, and discussed the methods of the provision. An example of each service was addressed in order to understand the whole picture of the real situation in the LAIU.

**Circulation Service**

As mentioned by two of the librarians, circulation service was considered as a one of the most common services that influenced the end-users' satisfaction. All librarians indicated that the LAIU provided normal and non-normal circulation services. Furthermore, precise rules were determined to specify the numbers of books allowed to be borrowed either for USs or AS. The librarian F explained the rules of circulation services when he stated:

"*The most important service is a circulation service. There are different categories of users. So, the circulation period differs regarding to the user group. Students are allowed to borrow 5 books for a month with the possibility to extend it for 15 days. In case of delay of returning the book, they pay as a penal, 20 S.P for each day of delay. While in case of losing or failing to return the book, they will be charged the price of the book plus 200 S.P*"

Since the circulation service was defined by specific rules; thereby, a set of the IRs was externally allowed to borrow as a result of their noteworthy value or their high prices. The librarian G mentioned:

"*We offer normal and non-normal circulation services. Normal circulation service is for the majority of the books, while non-normal circulation is just for journals, dictionaries which are very important or very expensive references. Users can borrow these reference to use it inside the library* ".

Thus, the LAIU provided the circulation service for all categories of the end-users in order to capitalise the collection of IRs. The circulation service was provided based on a specific rules adopted by the LAIU.

**Current Awareness Service (CAS)**

Since a CAS was used to inform and update end-users about the new arrivals of IRs and databases subscribed, the librarians of the LAIU believed that providing the CAS was crucial to support the end-users in their EE. They stated that the CAS was provided using different ways. The librarian S indicated that:

"*Current awareness service is done by announcing and informing end-users via the websites, Bulletin board and stands to display the new arrival of books and journals or subscribe to a particular library. As well as using lists and emails to update our academic staff*"

There were differences in terms of using the method to deliver this service. Sending e-mails and preparing lists of IRs were used just to update the AS,

while hosing the information on the library and university websites, and using bulletin board and stands were for all end-users of the LAIU.

**Book Reservation Service**

A Book Reservation Service was provided by the LAIU for all end-users in two approaches (printed form and e-form). The librarian F mentioned that providing a Book Reservation Service was important in terms of reinforcing end-users in their EP by gaining the information and resources required. He explicated:

"*A book reservation service either through the university website or directly through the librarian*".

**Online Services**

The libraries of AIU provided users with three laboratories connected to the Internet with more than 40 computers. The aims of this service were to assist end-users to use the library online catalogue, to search on online search engines and to benefit of the subscribed databases. The librarian C mentioned that:

"*… Internet services; the library provides Internet laboratories in addition to computers available for searching and using the library catalogue. Furthermore, the library provides users a number of subscribed databases*".

Providing online services such as e-catalogue, and the availability of the databases and e-libraries were crucial to meet the end-users' requirements in the educational environment. On the other hand, facilitating approximately 40 computers was not sufficient regarding to the number of students enrolled in the university, and other groups of users.

**Selective Dissemination of Information (SDI)**

SDI meant altering and informing a group of users selected about special areas of interest for the new arrival of information resources and subscribed databases. Providing this service was limited to AS. Phone, face-to-face contact, and emails were used as approaches to deliver this service. A special form was adopted to determine the users who were interested in special areas of research. In this context, the librarian C stated:

"*We send emails to the academic staff who are interested in new books or new services. Furthermore, we inform them about new catalogues in specific topics. Even for journals, we send email to the academic staff announcing them for new journals, where each educator interested writes his name and date of viewing in a special form. By using these forms, we can identify the trends of each one of them*".

As mentioned, this service was just provided for the AS, while other groups of the end-users were excluded as a result of the huge numbers of the students for both under and post graduate.

**Photocopying and Scanning Services**

Providing Photocopying and scanning services were required by a number of faculties' libraries more than others; based on the area of specialization. For example, as a nature of the faculty of the FAA that contained very expensive and valuable references and that included a worthy number of images, it was beneficial to offer these services for more availability. The librarian S indicated that:

"*Sometimes the restrictions and rules were imposed on borrowing certain books and references caused some kind of dissatisfaction, but we solved this problem by providing scanning and photocopying services… the library has a high-quality scanner which produces images with a high level of accuracy and in a short time*".

It was seemed that the end-users' requirements varied according to their educational process requirements. Since increasing the level of the end-users' satisfaction was one of the main objectives of the LAIU. Thus, providing scanning and photocopying services were crucial to raise the end-users' satisfaction.

**Translation Service**

Translation service was just mentioned by the librarian A, who was aware of the need of developing his skills and knowledge in order to meet the users' need for his library. He stated that:

"*Most sources in the library are in German, and that makes me able to guide users better to their needed information, for example, I have helped a German professor in translating a text from German into Arabic, I can say that we also offer a translation service"*.

Critically, it was appeared that the translation service was provided by the librarian A himself as a result of his interest to develop his skills in terms of learning German, and his awareness of the need of investing a set of German information resources which available in his library.

To sum up, a set of the library services were provided within the LAIU such as circulation, CAS and online services. The aims of providing these services were to respond to the end-users' expectations and requirements of the library and to support them in their teaching and learning process. Additionally, it provided extra services by the librarians as a result of the understanding of the end-users' expectations and requirements will be crucial to enhance the LP.

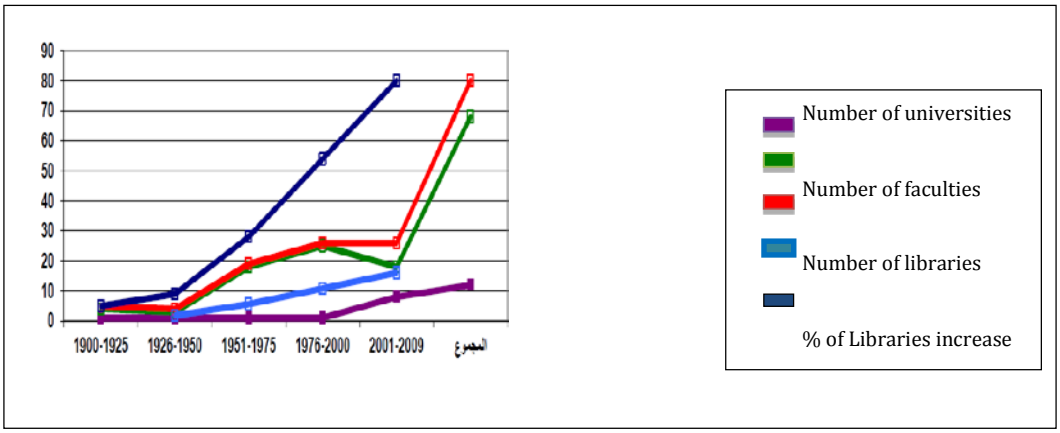
# Appendix K: Syrian Academic Libraries (SALs)

Limited studies have explored the field of SALs; however, there are a number of studies that investigate ALs regardless whether they are governmental or private (Ahmed, 2010; Al-Samir, 2009; Alassaf, 2011). Certainly, the awareness of the importance of universities' roles in developing society has increased; thus, the awareness of the importance of ALs in promoting SHES has also increased in parallel. Thus, the number of SALs has dramatically increased. According to Ahmed (2010), SALs had increased in number to 80 library by 2009.

***The Growth of HEIs and SALs (Ahmed, 201, p.69)***

| Years | Number of universities | Number of faculties | Number of libraries | Libraries increase % |
|---|---|---|---|---|
| 1900-1925 | 1 | 4 | 5 | - |
| 1926-1950 | 1 | 3 | 4 | 180% |
| 1951-1975 | 1 | 18 | 19 | 560% |
| 1976-2000 | 1 | 25 | 26 | 1080% |
| 2001-2009 | 8 | 18 | 26 | 1600% |
| Total | 12 | 68 | 80 | |

The majority of universities were established in 2000s, while the rapid increase of the number of faculties began in the 1970s. It was expected that the number of SALs would increase as a result of increasing the number of HEIs to confront and serve the prompt growth in numbers of enrolled students




**The Development of HEIs and SALs (Ahmed, 2010, p.69)**

The number of the HEIs and SALs has dramatically increased between (1950- 2009). The development began in 1950, and reached 80% in 2009. This reflects the affirmative impact of the independence from Turkish and French occupations on the SHES (section 2.2).

Since SALs are attached to Syrian universities, they are located to cover a considerable number of scientific fields and specializations; SALs serve 469 scientific domains. Until 2010, 282 members of library staff were involved in working as academic librarians; nevertheless, less than 25% of them were qualified (Ahmed, 2010). This illustrates a lack of the SALs' standards and strategies, and a lack of the awareness of the academic librarians' role in the EP and this can negatively affects the performance of SALs.

SALs capitulate to the centralism of the SHES. Its budget is from a portion of the whole HEIs budget. The automation and digitisation of SALs began in the late 80s and early 90s. Digitalised projects have been used to develop the system internally; however, the disadvantages of these projects outweighed their benefits (Omran, Y, 2005; cited in Alassaf, 2011). For instance, the pilot project, SYReLIB, has been funded by the European Commission as part of the TEMPUS programme. This project aimed to support the socio-economic reform in Syria (April 2007- November 2008) in two SGUs (the University of Aleppo and the University of Al-Baath) with support from two British universities (Robert Gordon University and the University the Middlesex) and the eIFL140 consortium. Furthermore, library management systems (LMSs), such as Horizon, have been adopted in a number of SALs. For instance, Horizon has been implemented in the central AL in the University of Damascus in 2008 (Alassaf, 2011; Johnson, 2010) and in a number of SPALs (section 2.3.4).

With the adoption of LMSs, the access to e-format of IRs became available, alongside with providing access to printed IRs (such as books, journals, and other types of items) (Alassaf, 2011). Purchasing is the common format of the IRs' acquisition. The findings of Ahmed (2010) and Al-Samir (2009) reveal that IRs were to an extent efficient. They show that more than 50% of end-users were satisfied with the IRs provided, although there is a weakness of IRs in terms of providing valuable and most up-to-date versions and subscribing to trustworthy databases. The finding of Alassaf (2011) was in agreement with Ahmed (2010) and Al-Samir (2009) findings. She points out that there was a need to provide IRs that support end-users in their EP and research. This can be due to a limitation of an acquisitions strategy, the method of education that is based on indoctrination, and/or a limitation of end-users' skills or research strategies.

Indeed, SALs have confronted a number of challenges and barriers that affect their performance. Firstly, the majority of SALs used local management systems based on "Access/Excel". Secondly, IRs were not arranged in a way for ease of usage. Ahmed (2010) and Al-Samir (2009) suggest that the majority of libraries of the SGUs did not have a strategy to organise their IRs. Thirdly, the majority of the libraries of SGUs did not offer an online cataloguing service that enables end-users to discover the collection of the e-/IRs. Finally, the SALs relied on on-site services such as circulation and photocopying. On the other hand, the findings of AL-Samir (2009) confirm that SPALs were more advanced in adopting technologies and delivering information services (section 2.3.4). Furthermore, a set of challenges, facing the leaders of SALs, is identified by Alassaf (2011). These challenges are related to economic, technological, professional, legitimate, organizational issues.

One of challenges confronting SALs is the decrease of the end-users satisfaction level. According to Ahmed (2010) and Al-Samir (2009), more than 60% of the end-users were not satisfied with the quality of a number of e-/LISs provided. Their dissatisfaction was based on several difficulties facing them through their use of the libraries. These difficulties were related to a lack of the IRs, the unfamiliarity with the classification system, and/or a lack of research and technical skills. Another difficulty was related to a lack of library staff numbers and/or skills in meeting their requirements. In addition, Alassaf (2011) adds that the main difficulties facing end-users were the lack of the time, and the restriction of

SALs opening hours. Thus, it was necessary to involve extra staff, training and upgrading the skills of existing staff and end-users, and to extend the SALs opening hours to overcome the shortage of time and respond to end-users' requirements.