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**THE RHETORIC OF ACCOUNTS OF METHODOLOGY IN ENGLISH AND ARABIC
EDUCATIONAL RESEARCH ARTICLES: A CONTRASTIVE GENRE ANALYSIS**

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

The University of Huddersfield

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Abstract

Genre analysts have conducted contrastive studies on research articles (henceforth RAs) written in different languages giving primary attention to the introduction section. The methods section has not been given similar attention although it is an essential part of empirical RAs. There are no contrastive studies, to the best of my knowledge, which have tackled accounts of methodology of English and Arabic RAs. This dissertation, therefore, aims to identify and discuss the cross-cultural similarities and differences in the rhetorical features (i.e. moves and steps; see Swales 1990) of the accounts of methodology of Educational RAs written in English and Arabic and to compare these articles in terms of the assumed shared knowledge between writers and readers.

In pursuing these aims, two sets of method sections were analysed based on Swales' (1990) move analysis approach and bottom-up processing. One set is written in English and it consists of 36 method sections. The other set is in Arabic and consists of 40 method sections. All sections were selected from RAs published in prestigious English and Arabic journals in the field of Education. In order to identify the assumed shared knowledge, the perspective of tacit knowledge was used.

The findings show that there are similarities at the move level between the English and Arabic RAs and there are some differences at the step level. In some Arabic articles, some steps reoccur in one and in the same RA resulting in repetition while this is found in fewer English articles. The findings also illustrate some cultural differences in identifying the assumed shared knowledge.

The key contribution to knowledge is to provide similarities and differences in the rhetorical features which shape the accounts of methodology of English and Arabic Educational RAs, so information about Arabic academic discourse is given. The results of this dissertation offer insights for enhancing writing textbooks. The results may also help empower beginner academic writers from the two discourse communities. This can be realised by the proposed framework which describes all possible rhetorical features of the accounts of methodology. Beginner academic writers could follow the rhetorical structures in their writing of accounts of methodology. Another contribution is to identify the presuppositions about what readers already know. Identifying the authors' assumptions presents a picture about how the two discourse communities differ and about what it is that readers may need to understand.

Keywords: Rhetorical structures, cross-cultural, contrastive genre, methodology and presupposition.

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The Rhetoric of Accounts of Methodology in English and Arabic Educational Research Articles:

A contrastive genre analysis

Ahmad Issa Tawalbeh

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Table of Contents

Abstract	2
Acknowledgements.....	3
Copyright Statement.....	5
Table of Contents	6
List of tables	11
Chapter one	12
Introduction.....	12
1.1 Background.....	12
1.1.1 Rhetoric	12
1.1.2 Contrastive rhetoric	14
1.1.3 Writes and readers' relations.....	16
1.1.4 Shared knowledge.....	17
1.1.5 Shared knowledge and genre.....	18
1.2 Genre of RAs	24
1.2.1 Analysis of RAs.....	25
1.2.2 Analyses of the methods section	26

1.2.3 Relation between genre of RAs and culture.....	29
1.3 Rhetoric in Arabic tradition.....	30
1.3.1 Arabic rhetorical analysis.....	32
1.4 Statement of the study problem	34
1.5 Significance of the study.....	37
1.6 Purpose, aim and objectives of the study.....	39
Chapter two.....	41
Literature review.....	41
2.1 Reviewing the rhetorical analysis in English RAs	41
2.2 Reviewing the rhetorical analysis in Arabic RAs	52
2.3 Reviewing cross-cultural studies	55
2.3.1 English and Chinese.....	56
2.3.2 English and Spanish.....	57
2.3.3 English and Arabic	60
2.4 Summary.....	64
Chapter three	66

Methodology	66
3.1 Theoretical background	66
3.1.1 Top-down and bottom-up.....	68
3.1.2 Tacit knowledge	72
3.2 Database and selection criteria	77
3.3 Data collection procedures	80
3.4 Analytical framework.....	84
3.5 Procedures of the analysis	87
3.6 Coding reliability	91
3.6.1 Coding reliability in English RAs	91
3.6.2 Coding reliability in Arabic RAs.....	92
Chapter four.....	94
Linguistic features.....	94
4.1 The English RAs	94
4.2 The Arabic RAs	124
4.3 Summary and discussion.....	160

Chapter five	165
Moves and steps	165
5.1 The English RAs	165
5.2 The Arabic RAs	193
5.3 Comparing the two sets	226
 Chapter six	 238
A non-language-specific framework	238
Chapter seven	246
Organisation of moves and steps	246
7.1 Sequencing	246
7.1.1 Other rhetorical features.....	249
7.1.1.1 Repetition	249
7.1.1.2 Glossing.....	259
7.2 Location	263
7.2.1 The English RAs.....	264
7.2.2 The Arabic RAs	272
7.2.3 Summary	280

Chapter eight	282
Conclusion	282
8.1 Summary comparison of the two sets	282
8.2 Implications of the study	290
8.2.1 Implications for research into academic discourse	291
8.2.2 Implications for readers and writers of research	292
8.2.3 Implications for pedagogy.....	293
8.3 Recommendations	294
8.4 Limitations of the study	295
References	296
Appendices	310
Appendix 1: presence and absence of the steps in the English RAs	310
Appendix 2: presence and absence of the steps in the Arabic RAs	312

List of tables

Table 2. 1 Swales’ ‘CARS (1990, p.141) model’	42
Table 2. 2 Swales’ ‘CARS (2004, p. 230,232) modified model’	43
Table 3. 1 Journal ranks in 2013	81
Table 3. 2 Journal ranks in 2014	81
Table 3. 3 Total number of English RAs.....	84
Table 3. 4 Total number of Arabic RAs.....	84
Table 3. 5 The modified version of Nwogu’s (1997) outline	87
Table 5. 1 The moves and steps of the accounts of methodology in the English RAs	166
Table 5. 2 The moves and steps of the accounts of methodology in the Arabic RAs	194
Table 6. 1 A non-language specific framework.....	238
Table 7. 1 Occurrence of steps outside the methods section of English and Arabic RAs	280

Chapter one

Introduction

1.1 Background

This section is divided into five sub-sections. The first describes a classical conceptualisation of rhetoric and it shows how it is related to the present study. The second reveals the relevance of the current study to the field of contrastive rhetoric. The third considers the importance of writers and readers' relations. The fourth sub-section deals with writers and readers' shared knowledge. The last sub-section shows what elements writers and readers can share within genre knowledge.

1.1.1 Rhetoric

Since its coinage in classical Greece, the term 'rhetoric' has been considered an art whose main function is to study how persuasion is achieved in any subject matter (Aristotle, 2009). One of the most powerful means of persuasion, according to Aristotle, is demonstration because people are persuaded when matters are demonstrated. It can be said that 'persuasion' is relevant to this study which deals with accounts of methodology of research articles (henceforth RAs) whose writers try to convince their readers of the validity and reliability of the methods described.

In terms of rhetoric as practice, Corbett (1966, p.22-28) demonstrates that rhetoric passes through five phases which are: 'invention, arrangement, style, memorizing of speeches and delivery'. The first phase means discovering the way of finding arguments that can help an orator support his viewpoint. Corbett mentioned that some proofs are already available and orators need

in this case to look for the correct source or place to find their supporting arguments. This phase is relevant to my study as empirical methods already available are used and their use is persuasive of the validity and reliability of what is being described because they are generally accepted in the field. In the second phase, an orator enters a stage of selecting and organising ideas within spoken or written discourse. Corbett outlines how ideas can be organised using the Latin rhetoricians' organisational pattern of discourse, as follows: 1- introduction, 2- description of the case, 3- outline of an argument, 4- proof, 5- refutation of counter ideas and 6- conclusion. The third phase 'style' deals with the choice of words in connection with some qualities such as simple, correct, clear and ornamental. Style also considers combining words in phrases or clauses using syntax and collocation. It can be said that the consideration of the choice of words is related to the origin of the word 'rhetoric'. Corbett clarifies that the Greek word of rhetoric is 'rhêma' which means 'word'.

The second and third phases go in line with Young, Becker and Pike's (1970) explanation of rhetorical process in terms of arrangement of ideas in discourse and in terms of writers' choices in their writing process. Young et al. (1970, p. xii) argue that

rhetoric is concerned primarily with a creative process that includes all the choices a writer makes from his earliest tentative explorations of a problem in what has been called the 'pre-writing' stage of the writing process through choices in arrangement and strategy for a particular audience, to the final editing of the final draft.

The fourth phase was not given a lot of attention by rhetoricians. Corbett explains that there is not a lot to talk about memorising and there was no more need for it after the increased interest in written discourse by rhetoric. The last part of rhetoric is considered significant in realising persuasive discourse and it can be possessed by practice and by analysing orators' delivery. This phase was also ignored after the invention of printing and focusing on written discourse.

The definitions of rhetoric and the description of its parts presented above are related to what rhetorical features mean in the current study, which describes the discourse features employed in the accounts of methodology of English and Arabic RAs. As for the first phase, this study is concerned with identifying the text segments the writers compose in their writing process. In line with the second phase, my study describes how these segments are arranged, positioned and realised. With regard to the third phase, this study discusses the linguistic features used to realise these segments and how these features are joined together and it shows what effect a change in parts of a text can create. In addition, the current study deals with assumed shared knowledge interpreted according to writers' choice of words or phrases.

1.1.2 Contrastive rhetoric

The present study is relevant to contrastive rhetoric, which is concerned with different types of texts. It is associated with the 'theory of text types and genres', which is essential to make a comparison between texts (Connor, 1996). Contrastive rhetoric, according to Connor (2002, p. 497), draws on four areas: 'text linguistics, the analysis of writing as a cultural and educational

activity, classroom-based studies of writing, and contrastive genre-specific studies'. The current study as a contrastive genre analysis falls under the fourth domain.

The significant work in the field of contrastive rhetoric was initiated by Kaplan (1966), who analysed paragraph organisation in ESL. He affirms that the rhetorical patterns of the first language interfere with second language writing. He maintains that this field can meet the needs of students who are good at syntax but cannot write good texts. It helps them understand grammar, new vocabulary and ideas beyond the sentence level. Connor (2002) adds that this approach has an invaluable influence on the teaching of writing in ESL and EFL settings and on recognising the differences in writing across cultures.

It has been shown that culture influences writing and writers' practices (Candlin and Hyland, 2014). Ostler (2013) adds that both writing and reading are affected by the differences in the rhetorical patterns across cultures. Contrastive rhetoric can help readers by providing them with knowledge about these patterns so they can construct their schema which includes knowledge of conventional patterns and a set of expectations. Ostler (2013) explains that communication fails to occur if the writer's schema does not meet the readers' expectations. This can happen with readers who do not have the schemata that help them understand a text as they are from a different culture to the writer. This is important in the context of academic writing because this is now an international domain, so that it is expected that readers will hail from many different cultures. Furthermore, knowledge of readers' expectations can help writers decide if writing is coherent and clear (Connor, 2002). Therefore, writers need to anticipate readers' reactions according to which they adjust their texts to make communication possible (Bhatia, 2013).

1.1.3 Writes and readers' relations

It is very important to make sure that written texts are clear and can be understood. Wright (2014) points out that readers will stop reading if they do not understand as they are 'economical with their time' (p. 90). Therefore, writers need to make special efforts to engage their readers and consider their expectations to enable them to recognise and interpret the writer's purpose, respond to the text and compose a similar text to the writer's (Hyland, 2007, 2014). According to Hyland, the writer can engage his readers by anticipating and commenting on their reactions and directing them to parts of the text. By doing this, relations can be established between writers and readers, who write or interpret a text according to each other's objectives and strategies. Within these relations, writers share meanings with their readers by using accepted resources (Hyland, 2004). This is important for academic writing, both because the aim is the communicating of knowledge and because its subject matter is often complicated.

Matsuda and Silva (2010) considered the relationship between writers and readers in their discussion of aspects of writing. In the relational aspect, writers are required to consider the relationships among the writing elements: 'writer, reader, text and reality'. The strategic aspect of writing involves relying on different strategies to create and develop texts in response to the rhetorical situation, which is 'a particular social and material condition under which written expression and communication take place' (Matsuda and Silva, 2010, p. 233). In the textual aspect, writers in formalised situations rely on structural and discursive features. These situations involves constraining typographical features stylistically. Writers are not only required to write

grammatical sentences, but also cohesive ones in a coherent text to allow the readers to follow their text.

Writers and readers need to consider each other's needs to establish successful communication. This means that the writer is aware of readers' need to understand a text and the reader is aware of the writers' needs for expression. Nystrand, Himley and Doyle (1986) discussed these needs under the principle 'mutual co-awareness' resulting in interaction in writing. Moreover, Myers (2014) demonstrates that, in order to create a text, writers rely on some text conventions given by the discourse community and the readers do the same while interpreting the text. Writers and readers depend also on each other's awareness of these conventions.

1.1.4 Shared knowledge

Writers need to consider the audience and their prior knowledge because these can influence the writing content (Bhatia, 2014; Swales and Feak, 2004). Burgess (2013) shows that the readers' knowledge influences the process of writing RA introductions. She compared the rhetorical patterns employed by different groups of contrastive linguistics. Burgess states that one of the groups (the English Spanish Language Specialists) focuses mainly on 'making topic generalisations' by providing a lot of background information within this step in the introduction section. She explains that this group writes for general English journals whose readers have their interest in departments of English Philology in Spain; therefore, the readers tend to have limited knowledge about the issues that this group addresses.

It can be noted that considering the readers and what they already know is essential while composing a text. A writer needs to look carefully at his/her language choices and see whether these choices can be known to his/her readers. In doing so, readers are likely to understand written texts as the writer intends. Expert writers do not only consider their readers but also check if their readers interpret the communicative purpose of their texts as they intend (Bhatia, 2014). Bhatia's example on this is how news reporters assure that their readers understand the events as they intend by giving what is called in journalism a slant to the news report. The purpose of a text is realised by some language features which might be part of knowledge shared between writers and readers and consequently can enable the reader to understand easily. A writer can also help readers by taking into account the content knowledge of the field. Awareness of the audience, as Bruce (2008) clarifies, includes the shared knowledge between the writer and readers. This awareness causes writers to consider the already established aspects of content knowledge about a discipline to produce an acceptable genre.

1.1.5 Shared knowledge and genre

Johns (1997) explains that writers and readers who have a shared knowledge of a genre can share some elements. The first is the name of a genre. Writers and readers may share names for written texts and these names can help identify these texts, comprehend the discourses that people are interested in and understand the main purposes of the text. A shared name can cause writers and readers to have some expectations about features of the text and its context. Swales (1990) showed the importance of using nomenclatures for genres by members of a discourse community. He provided some examples on nomenclatures that can indicate the communicative

purpose of a certain genre such as ‘introductory lecture’. Some other examples describe the occasion such as ‘final examination’.

The second element is ‘shared communicative purposes’. They can play an important role in categorising genres and in achieving communication between writers and readers. Johns adds that identifying writers and readers’ purposes can help students develop their genre knowledge. She asserts that a writer needs to establish background knowledge on conventions, such as form, content and argumentation, in the area of a genre and uses this background to adjust suitable conventions to assist him/her in fulfilling communicative purposes in a particular context. Swales (1990) demonstrates the importance of communicative purposes in his definition of genre as it:

comprises a class of communicative events, the members of which share some set of communicative purposes. These purposes are recognized by the expert members of the parent discourse community, and thereby constitute the rationale for the genre. This rationale shapes the schematic structure of the discourse. (p. 58)

Swales illustrates that a genre is associated with the kind of communicative event and the communicative purpose is a criterion to identify a genre. The purpose forms the rationale which determines the content and distinguishes one genre from another. Swales’ example on this is how a ‘good news’ letter differs from a ‘bad news’ letter. The rationale for the first is that communication will go on and the information conveyed is welcome unlike the rationale of the ‘bad news’ letter, which indicates that the information is not welcome. (However, Swales did not

give attention to the importance of linguistic features in his definition as they can play a role in realising the purpose itself and hence contributing to define a genre – see section 1.5).

Johns' third element is knowledge of writers and readers' social roles as they are within texts and contexts. The role is associated with the purpose and they both influence writing and reading of a text. Johns' example on roles is that the writer of an RA might explain and the reader understands and criticises. The writer and reader here have discourse roles. But these roles take place within the social roles of professional academia. The discourse roles can be influenced by the social roles of those having power or authority. Johns' example on this issue is when a judge exerts power over readers of his given court order.

The fourth element, as Johns describes, is having 'shared knowledge of context' which she used to refer to the physical place and non-textual elements that accompany reading and writing. She demonstrates that this kind of knowledge enables individuals to deal easily with texts by identifying and recognising contextual features which occur repeatedly in daily life. When a text occurs in a common context as a result of recurring contextual elements, people can call their prior genre knowledge to predict, process and recognise that text. Johns describes this fourth element in terms of events and non-textual elements; however, this element can be better identified as shared knowledge of scripts. One can become familiar with a genre after having experience in dealing with that genre. For example, the more a researcher reads and writes an RA the more experience s/he gains and such experience can establish familiarity with the genre of RAs. A researcher after a period of time can produce RAs more easily than in his/her first time.

With Johns, the fifth element is ‘knowledge of formal text features’. There are features which can refer to the macrostructure of the whole text. Johns explains that they can be headings such as methodology, phrases such as: it can be concluded, or other conventions. However, it would seem more logical to include the first element (name of a genre) under this fifth element for the similarity it shares with headings (see the new typology below). Johns demonstrates that there are also some rhetorical features described as ‘moves and steps’ and they can appear within a section of RAs. The term ‘move’ is used by Swales (1981) to refer to a rhetorical unit that carries a function in a text. A move can be realised by some elements which Swales calls ‘steps’. A good example on exploring the rhetorical features is Swales’ (1981) analysis of RA introductions. He found that these introductions consist of four moves: ‘Establishing the Field, Summarising Previous Research, Preparing for Present Research and Introducing Present Research’ (Swales, 1981, p. 22a). Hyland (2004, p. 67) gives another example on the moves of RA abstracts. The moves are: ‘introduction, purpose, methods, product and conclusion’. Johns (1997) adds that grammatical choices can appear at the sentence level as in the use of the compound nouns in the sciences. All these text forms can reveal the generic purposes to writers and readers and they are essential to understand and produce a genre.

The sixth element, according to Johns, is ‘shared knowledge of text content’. Constructing genre knowledge requires considering the types of text content, vocabulary, the organisation of content and the assumptions about readers’ past knowledge and about suitable use of details. Based on this and what has been mentioned above by Bhatia (2014), Bruce (2008) and Swales and Feak

(2004), it can be said that writers need to consider readers' prior knowledge to create acceptable genres.

The seventh element is 'shared register'. Johns mentions that this aspect focuses on the concentrations of particular vocabulary and grammatical features within a text. It gives attention to how vocabulary contributes to writers and readers' communicative purposes and to an understanding of a discipline. It can be noted that this element is different from the fifth one (knowledge of formal text features) because it deals with specialist terminology relevant to a specific discipline. As for the grammatical features aspect, it can discuss the frequency of a grammatical pattern in a text such as the passive voice in RAs. The last element is 'awareness of intertextuality'. Johns demonstrates that academic texts are influenced by texts of the same genre or from outside the genre, and writers and readers rely on their past genre knowledge and experiences to interpret a text within a certain context.

Given the above overlaps in the elements presented by Johns, I propose that the elements can be classified in a new typology, as shown below:

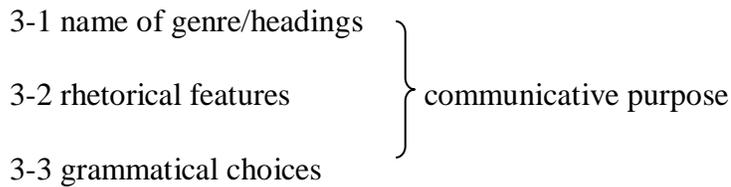
1- Shared knowledge of writers and readers' social and discourse roles.



Communicative purpose

2- Shared knowledge of scripts.

3- Shared knowledge of formal text features:



4- Shared knowledge of text content.



5- Shared register.



6- Shared awareness of intertextuality.

It can be seen that the element ‘communicative purpose’ can go with other elements. This is because of the following: 1- it is associated with writers and readers’ roles, 2- the subcategories under the third element (formal features) can signal the communicative purpose and 3- the use of vocabulary (under the fourth and fifth element) contributes to writers and readers’ communicative purpose. Some of the elements given in the new typology are deemed useful to the analysis conducted in the present study. Firstly, the first element is considered in the current analysis by discussing the roles of the authors and the subjects of the RAs being reported. Secondly, this study compares English and Arabic RAs in terms of the third element (formal text features) while paying special attention to the rhetorical features. Finally, the current analysis tackles the fourth element (text content) by describing how the discourse features are organised in the accounts of methodology of English and Arabic RAs.

1.2 Genre of RAs

Swales (1990, p. 177) shows that the RA has a close relationship with other ‘research-process genres’ such as theses, dissertations, grant proposals, monographs, presentations and abstracts. The genre of RA has gained attention from genre analysts. Flowerdew (2013) and Kanoksilapatham (2005) justify this attention in terms of the role that the RA plays in creation of knowledge and in showing academic performance and professional progress. An RA is a means of communicating knowledge among scholars in many fields. Therefore, it is necessary to analyse the rhetorical structure of RAs.

Bruce (2008) explains that creation of extended texts like RAs may depend on the following areas of knowledge used for categorisation: ‘social genre, cognitive genre(s) and linguistic features’. Bruce (2008, p.8) clarifies that a social genre is ‘socially recognized constructs according to which whole texts are classified in terms of their overall social purpose’. Bruce’s example of social aspect of genre is the sections conventionally found in RAs (e.g. the introduction, methods, results and discussion sections). Each section is realised by specific rhetorical purposes shaping cognitive aspect of genres. He proposes that social genre includes knowledge of context, epistemology, stance, content schemata and cognitive genre. Thus, Bruce (2008) and Johns (1997) have discussed some similar elements involved in the knowledge of genre. They both point to the knowledge of context as a way to assist writers and readers in producing and understanding academic genres. However, Johns discusses context in terms of non-textual elements of a situation where writing is conducted while Bruce refers to discipline

knowledge, epistemology, cognitive genre and schematic structure. Also, both researchers point to the rhetorical features of a genre. Bruce mentions this under content schemata as they involve the system of moves and steps by which patterns for academic texts are provided.

1.2.1 Analysis of RAs

The analysis of text structures can be performed using a top-down approach (Biber, Connor & Upton, 2007). One way to apply this approach is by following the move analysis that was initially developed by Swales (1981). Swales has classified the discourse units of the introduction section based on their communicative purposes and he uses the term ‘move’ with its realisations ‘steps’ to refer to these discourse units, which shape the schematic structure of a text. Swales’ idea of using rhetorical moves in genre analysis was also used by Bhatia (2013), who considers a move as a tool serving ‘a typical communicative intention which is always subservient to the overall communicative purpose of the genre’ (Bhatia, 2013, p.75). A move can be realised in a phrase, clause, sentence or a paragraph and it consists of at least one proposition (Connor and Mauranen, 1999, p. 51).

The terms move and steps are employed in this research following Holmes (1997), Nwogu (1997) and Swales (1981). Swales (2004, p. 228) defines a ‘move’ as ‘a discursal or rhetorical unit that performs a coherent communicative function in a written or spoken discourse’. Similarly, Holmes considers a move as a text segment formed by a particular communicative function. Nwogu (1997) defines a move as a segment of text consisting of linguistic features and elements, which can indicate the discourse content in the segment. He states that there should be

a match between the linguistic features and the function of a segment to realise a move. These definitions can serve the meaning of a move in this study. It can be defined as part of a text which consists of categories having specific purposes and is realised by some linguistic choices.

One of the RA sections that has been most extensively studied is the introduction. For example, Swales (1990) focused on the rhetorical structure of the introduction section in hard and social sciences. Kanoksilapatham (2011) identified the moves and steps of RA introductions in the field of Civil Engineering. Latic (2010) analysed the introduction section of RAs in Economics. However, other sections have not been given the same attention. Some researchers have examined the discussion section like Peacock (2002), who analysed the moves of discussion sections across seven disciplines. Brett (1994) described the moves of RAs in Sociology focusing on the results section. The literature review section was analysed by Jian (2010). Some work has been done on the methods section (see section 1.2.2 below).

1.2.2 Analyses of the methods section

Methodology can be considered the backbone of conducting empirical research and reports of this research describe how a study was conducted and how it may affect the research results (Weissberg and Buker, 1990). Lim (2006) observes that the methods section is important for several reasons: 1- to connect a research method with previous procedures or with the other sections of the research, 2- to strengthen the credibility of the results, 3- to persuade readers of the validity of the instruments utilised to obtain the results, 4- to prevent possible challenges to research designs and 5- to avoid uncertainties about results and relevant explanations. In

addition, it is the information given about empirical method which makes a piece of research replicable. Therefore, as Mur-Dueñas (2007) states, methodology plays a major role in writing a successful RA.

Some researchers have analysed the methods section of RAs. Firstly, Brett (1994, p. 49-50) shows that there are three tasks present in the methods sections of Sociology RAs, namely, 1- describing how the data are collected, 2- explaining how the concepts and variables work and 3- stating the statistical techniques used in obtaining the findings. This last task limits the description to quantitative research. Secondly, Pramoolsook, Li and Wang (2015) compared the methods section of 20 RAs from two sub-disciplines; Management and Marketing. They adopted Lim's (2006) structure of the rhetorical features representing the method sections of Management RAs (as shown in section 2.1). They have found that most of the sections of the two sub-disciplines varied from Lim's moves pattern and there are differences between these sub-disciplines. Thirdly, Musa, Khamis and Zanariah (2015) identified the moves of 60 method sections in the field of Biomedical Engineering. Two of the moves: stating the inclusion criteria for the sample and describing the materials might be considered as part of the first task in Brett's categories above (how data was collected). Lim (2006) indicates that the description of sample and sampling technique or criterion in his pattern are steps within the procedures of data collection. Another move found by Musa et al. (2015) about the statistical analysis of the experiment is similar to task 3 in Brett's as they both (the move and task 3) deal with the statistical analysis of data. The last move found by Musa et al. is different from Brett's categories as it is about describing study procedures.

Fourthly, Nwogu's (1997, p. 135) identified the moves constituting the methods section of Medical RAs. These moves are: describing procedures of data collection, describing experimental procedures and describing procedures of data analysis (further information about the constituent steps are provided in section 3.4). Finally, Kanoksilapatham (2005) conducted a move analysis on Biochemistry RAs. Her results revealed that there are four moves in the methods section of these articles; two of the four moves are conventional and other two are optional. The conventional moves are: 1- describing materials and 2- describing experimental procedures. The description of materials is represented by listing the material and providing the source and background of the materials. The experimental procedures are realised by the steps: documenting established procedures, providing detailed description of procedures and justifying them. The optional moves are: 1-providing detailed information about the apparatus and 2- describing statistical procedures. It can be seen that the move analysis of the two researchers (Nwogu and Kanoksilapatham) agree to a large extent with what was found in the analyses of Brett (1994) and Musa et al. (2015) mentioned above. Both Nwogu and Kanoksilapatham have found that the experimental procedures and the statistical analysis of data are among the moves which appear in their analyses. Moreover, similar to Brett, the procedures of data collection occur also in Nwogu's analysis. The move, 'describing materials' appears in the analysis of Musa et al. (2015) and Kanoksilapatham (2005). This may indicate to some important moves to be employed in the methods section.

1.2.3 Relation between genre of RAs and culture

Some researchers have examined the relation between culture and genre. Hámori (as cited in Sun, 2014, p. 296) mentions that genre is ‘culturally defined’. Bhatia (2014) observes that the selection of the rhetorical strategies varies from culture to culture and writers need to be aware of cross-cultural restrictions. This is similar to Kaplan’s (1966) notion about rhetoric as it evolves out of a culture and varies across cultures.

As an example on the relation between culture and the introduction section, Sun (2014) conducted an analysis on 60 MA thesis introductions written in English by Chinese, Norwegian and English native students. He noted that both Norwegian and English groups, who have more cultural similarities between them than with the Chinese group, employed the step, ‘counter claiming’ while Chinese students did not. Chinese students consider it inappropriate to challenge previous work. Chinese students, in contrast with the other two groups, avoid using the pronoun ‘I’ as they are influenced by their traditional culture which supports modesty.

Another researcher Yakhontova (2013) showed how culture exerts its influence on conference abstracts. For example, English writers, compared with Ukrainian and Russian (U/R), favour a writer responsible tradition as they express their ideas in a way that ensures readers’ understanding. The English abstracts appear to show a rhetorical feature of ‘interestingness’ as they use appealing language and they do a ‘selling’ task while the U/R abstracts look ‘uninteresting’ as they perform a ‘telling’ task. Yakhontova explains that the different cultural contexts influence the rhetorical features of these abstracts and they are behind the appearance of

‘interestingness’ feature. She adds that the English abstracts ‘are reader oriented, use helpful (for the addressees) metadiscourse and have a distinct cognitive and formal structure’ while the U/R abstracts ‘avoid textual organisers and any formal structuration’ (Yakhontova, 2013, p. 230).

The different cultural contexts may affect the rhetorical moves or steps of RA methodology. One study by Kafes (2016) claims that the disciplinary culture constrains the steps and the sub-steps of the method sections of MA theses and RAs written by Turkish writers. This researcher applied Lim’s (2006) moves pattern and found that some steps in this pattern are absent from the methods sections he analysed. In another study, Mur-Dueñas (2007) discussed cultural effects on the methods section of English and Spanish RAs in the field of Business Management. She notes that all of the English RAs employ the step: referring to previous research which follows a similar procedure, while five out of 12 Spanish RAs use this step. Mur-Dueñas believes that the writers of the English RAs use this feature as a persuasive strategy because they work in a more competitive environment trying to publish their products internationally unlike the writers of the Spanish RAs whose research aimed at national readership. This can be related to the ‘communication context’ dimension wherein the writers of the English RAs communicate their thoughts internationally and the writers of the Spanish RAs communicate nationally.

1.3 Rhetoric in Arabic tradition

The discussion above has surveyed the western tradition of scholarship on rhetoric and genre. Indeed, most of the studies cited above have focused on the sections of, specifically, English RAs, mainly the introduction section, and have showed description of their rhetorical structures.

This thesis, however, compares English RAs with Arabic RAs, so we need to take a quick look at the Arabic tradition of scholarship in this area.

Rhetoric in Arabic was most significantly characterised by conciseness in the pre-Islamic era (Husein, 2001). Conciseness, as Husein clarifies, was used by Arabs only when required to do so in a way that does not impact the intended meaning and its value. In addition to conciseness, Husein adds that there are some other features such as simile, metaphor and metonymy, which were important in the Arabic notion of rhetoric. Arabs' poetry employed a great deal of these features to the extent that it became an artistic image reflecting rhetoric. Husein confirms that rhetoric is then represented in the Quran, which displays a major and a challenging example of perfect rhetoric.

Rhetoric is defined by some linguists as conformity of speech to context and showing the eloquence of speech (Sabbagh, 1998, p. 140). Moreover, Al-Bakr (2013), just like Al-Jarim and Ameen (1999), regards rhetoric as an art by which ideas are expressed clearly, eloquently and correctly and by which speech is produced appropriately according to context and to recipients. Al-Bakr's (2013, p. 177) definition of rhetoric has diverted the emphasis to the use of language in a way that makes it capable of persuading and effecting. This is similar to what has been already mentioned about the persuasiveness function of rhetoric.

Arab rhetoricians emphasise three rhetorical disciplines which are [9ilm albadii9], [9ilm al ma9aani] and [9ilm albayaan]. These are demonstrated by Al-Jarim and Ameen (1999) as follows: the first one is concerned with improving pronunciation and meaning aspects of speech.

The second considers meaning and ideas and how to select a linguistic construction according to the context. The third is concerned with expressing explicitly or implicitly one meaning using different ways or constructions such as metaphor, simile and metonymy. Abdul-Raof (2006) argues that it is not easy to distinguish one discipline from the other and some rhetorical features of one discipline mix up with another discipline.

It is clear from the above explanation of rhetoric that it is similar to how Corbett (1966) identifies the 'style' part of rhetoric as it is associated with a correct, clear and ornamental selection of words (see section 1.1.1). Rhetoric in Arabic revolves around the suitable use of eloquent and ornamental speech according to context and this use presupposes a correct selection of words. This is similar to the definition of Young et al. (1970) of rhetoric in terms of writers' choice of words in their writing process (see section 1.1.1).

1.3.1 Arabic rhetorical analysis

Abdul-Raof (2006) offers a general overview of the practices in the Arabic rhetorical analysis. He indicates that Arab rhetoricians have referred to the Quran to benefit from its stylistic, semantic, lexical and syntactic case study while conducting their rhetorical analysis. He clarifies that Arab rhetoricians have conducted their analysis at three separate levels as follows: At the word level, they have examined the morphological, phonetic and semantic characteristics of a lexical item in an attempt to set up the forming features of eloquence (faSaaHah). At the sentence level, the Arab rhetoricians have tried to create the theoretical framework of Arabic rhetoric and to prove the inimitability ('i9jaaz) of the Quran. At the text level, rhetoricians have

analysed literary and Quranic texts. Abdul-Raof adds that Arab rhetoricians have been aware of foreign rhetorical works and they have learned from translations of foreign studies like Aristotle's.

Abdul-Raof points to the significance of the Arabic rhetorical studies in raising awareness of: the relation between the producer of text and the addressee, the relation between text and context, the addressee's expectations, the appropriate use of a lexical item in the proposition and the selection of appropriate proposition in the appropriate situation and for the suitable addressee. It can be seen, therefore, that the relationship between the speaker and the addressee attracts the attention of the Arabic rhetoricians. It is a relation in which a speaker makes assumptions about the audience cognitive abilities. (Abdul-Raof, 2006).

Rhetorical analysis in Arabic has been conducted on literary and academic discourse. Some studies have shown that repetition occurs a lot in Arabic prose and it can have a rhetorical effect. Najjar (1990) indicates that repetition performs a function in literary Arabic as opposed to scientific discourse. It can create text cohesion (Fakhri, 2004; Johnstone, 1983). Johnstone shows how it can be used as a persuasive strategy, which is viewed by this researcher as argumentation by presentation because it relies on presenting the truths by repeating and paraphrasing them.

Arabic argumentation is not the same as western argumentation. The first focuses on 'through argumentation' by supporting ideas and substantiating them, but the latter relies on counterargument by opposing ideas and substantiating counterclaims (Hatim as cited in Connor, 2002, p. 500). Other differences appear between rhetoric in Arabic and English at the level of

culture. Some of what Abdul-Raof (2006) called ‘allegorical’ meanings are used in Arabic but are not familiar in English. This researcher gives an example by which an Arab husband may describe his wife as a dairy cow. It is considered a positive feature because it praises a wife that has got a lot of milk for her newly born baby. On the other hand, it is considered derogatory if an English husband describes his wife as a cow.

Many other studies have focused on the introduction section of Arabic RAs (Alotaibi, 2013; AL-qahtani 2006; Fakhri, 2004, 2009; Najjar, 1990). Fakhri (2004) investigated the rhetorical patterns of 28 RA introductions from Humanities and Social Sciences. He found that only 11 of the introductions employ all of the moves identified by Swales (1990) (these moves are presented in chapter two). 11 introductions do not review previous works and another 17 include a few citations without challenging previous work. Fakhri attributes the lack of criticising previous work to cultural differences in terms of the way knowledge is conveyed and of what is considered as scholarship. These Arabic introductions focus on showing information so they are ‘knowledge-telling’ type, as opposed to ‘knowledge-transforming’, which involves reflection and criticism. Fakhri concludes that it seems enough for the Arabic introductions to rely on knowledge-telling to prove scholarship deserving of publication.

1.4 Statement of the study problem

Some studies have paid a lot of attention to introductions in Arabic RAs and a few other studies have analysed the methods section written in different languages and in different disciplines. However, no contrastive studies, to the best of my knowledge, have tackled the accounts of

methodology of Arabic and English RAs. This study attempts to fill this gap by analysing the rhetorical structures of the accounts of methodology of RAs written in English and Arabic in the sub-field of Curricula and Methods of Instruction and by identifying the presupposition about what readers already know.

Methodology is a low-profile aspect of RAs, the least glamorous bit, so that misunderstandings can perhaps occur more easily, and non-understandings more easily brushed aside as not important, than in other parts of RAs. Methodology is necessary for completing research as it can be considered as a plan to deal with the research problem (Wong, 2002). Despite its significance, methodology has not been given adequate attention (Kanoksilapatham, 2005; Peacock, 2011) and it has been downplayed in the scientific fields as it, according to Berkenkotter and Huckin (as cited in Lim, 2006, p. 283) has occupied a small space or been placed in a non-traditional location in articles.

In addition, personally, I faced a difficulty when I wanted to write an RA for the first time as I did not know how to build my research in general and how to explain my methodology in particular. In my MA study, I did not have enough instruction in research writing and I had only a comprehensive exam to obtain the degree; therefore, I did not have any practical knowledge in writing research. When I began looking for sources to help me write my research, I found most of the work was conducted on the introduction section, for example Swales' (2004). Only a few researchers have analysed the methods section of RAs written in English in some disciplines. For instance, Medical RAs by Nwogu (1997) and Biochemistry RAs by Kanoksilapatham (2005).

A few move structures have been proposed for the methods section of English RAs, for example Lim's (2006) pattern and Nwogu's (1997). The existence of such structures contradicts Bruce's (2008) observation. He claimed that there are generally no proposed structures for the methods section. On the other hand, the only move structure, as far as I know, that describes the rhetorical structure of the methods section of RAs written in Arabic is Najjar's (1990). However, Najjar analysed RAs drawn from the field of Agricultural Sciences, which is different from the one dealt with in the current study, and he addressed six components, as mentioned in section 2.2. Thus, due to scarcity of such move/step structures, novice Arabic research writers may have difficulties in finding a resource to help them write their accounts of methodology. Peacock (2011) shows that researchers, non-native speakers in particular, need to have knowledge of the moves of the methods section. In order to help them with their writing, he presented the moves that appear in the method sections of RAs in eight disciplines, as shown in section 2.1. Indeed, there is also a need to find out what RA writers consider important (and not important) in their accounts of methodology and whether these assumptions are rhetorically justified/realistic in terms of reader understanding.

Tawalbeh and Al-Zuoud (2013) pointed to the necessity of conducting research in Jordanian universities as a condition for graduation. In their study, they assert that many students do not have enough knowledge in research writing as they make many errors while writing their research including methodology. For example, the students did not give a full description of the sample and did not mention the theoretical framework. The current study might help such students improve their writing of accounts of methodology.

1.5 Significance of the study

Some studies (Brett, 1994; Kanoksilapatham, 2005 and Nwogu, 1997) have analysed the whole RA, but they did not give methodology central focus in their analysis. Also, there are no studies, to the best of my knowledge, which have dealt with the accounts of methodology of Arabic RAs in the sub-field of Curricula and Methods of Instruction (see section 3.2 for the rationale of choosing this sub-field). Accordingly, this study comes to make a detailed analysis of the accounts of methodology of English and Arabic Educational RAs by exploring the rhetorical structure as well as the linguistic exponents. This analysis includes also identifying the assumed shared knowledge between writers and readers of the accounts of methodology.

Readers can establish not only familiarity with convention, but also conscious and declarative knowledge of the moves and steps of the accounts of methodology. Having such knowledge can inform readers about the purpose of text segments and can help them better understand this section. Johns (1997) points that the moves that represent the introduction section of RAs can assist experienced readers to efficiently understand the introduction section.

The current study focuses on the accounts of methodology, not on the section headed 'Methods' or something like that, in order to examine how the empirical procedures are reported in the RAs. This identifies the moves and steps which occur not only inside the methods section but also those outside it. This examines the position of these moves and steps and the location of methodology in the RAs (see section 7.2). Therefore, such analysis can help us understand how methodology is constructed in RAs and it can serve as a guide for readers of RAs because it

gives them a general idea of what to expect and how it is likely to be presented. The analysis can also inform these readers of where to read to have a complete understanding of all methodological elements employed in an RA. In addition, exploring the linguistic features may reveal to readers what sentences, clauses or phrases are doing and what a text intends to achieve. The analysis of linguistic features is conducted to find how steps are represented and it is carried out based on the transitivity framework which, to the best of my knowledge, has not been applied to the English and Arabic RAs, except for Paltridge (1997). This researcher examined only one element, ‘background information’ of the introduction sections from RAs in the field of Environmental Studies (see section 4.3).

It is hoped that this study forms an image about what it is that the reader needs to understand by identifying the presuppositions about what the reader already knows. Writers may assume shared knowledge with readers on some concepts that may not be recognised by readers. This can lead to miscommunication between writers and readers not only across cultures but also within one same culture. Therefore, writers need to anticipate their readers’ expectations and write their texts accordingly. Moreover, this study may help researchers understand different academic cultures and help Arab students to write the accounts of methodology of English or Arabic RAs more effectively by teaching them the rhetorical features which may enhance teaching materials. Bruce (2008) and Flowerdew (2013) assert that descriptions about the organisation of information (moves and steps) can be an important part in instructional materials. Furthermore, this study is a response to Peacock’s (2011) demand for conducting research which investigates RA methodology. Finally, a non-language-specific framework is proposed for the accounts of

methodology. This framework may be considered as a reference for Arab beginner writers who need help in writing their accounts of methodology. Such framework can be used as a guide for analysing and comparing more texts of the same genre and as a medium for writers to compose their texts (Bruce, 2008). This framework is a guide for practice and an inventory of all the elements that are possible in the accounts of methodology.

1.6 Purpose, aim and objectives of the study

The purpose of this study is to examine the methodological elements of English and Arabic Educational RAs. It aims to compare the two sets of texts and identify and discuss their cross-cultural similarities and differences. This is to be realised by achieving the following objectives:

- 1- Analysing the rhetorical structure ‘moves and steps’ of the accounts of methodology of RAs in the field of Education, specifically in Curricula and Methods of Instruction.
- 2- Identifying the linguistic exponents which realise the moves and steps and showing how they are put together.
- 3- Describing the sequence of these moves and steps.
- 4- Identifying the location of the methodological elements in the RAs.
- 5- Identifying the assumed shared knowledge between writers and readers of the English and Arabic articles.
- 6- Proposing a non-language-specific framework for the accounts of methodology.

In other words, these objectives are reflected in the following research questions:

1- What is the rhetorical structure of the accounts of methodology in the field of Curricula and Methods of Instruction?

A. What are the moves and steps of the accounts of methodology?

B. How are these moves and steps realised (linguistic exponents)?

C. What is the sequencing of these moves and steps?

D. Where are they located in the RAs?

2- What do the writers of the accounts of methodology assume is known to readers?

3- How can the moves and steps of the accounts of methodology of English and Arabic RAs be used to propose a non-language-specific framework?

Chapter two

Literature review

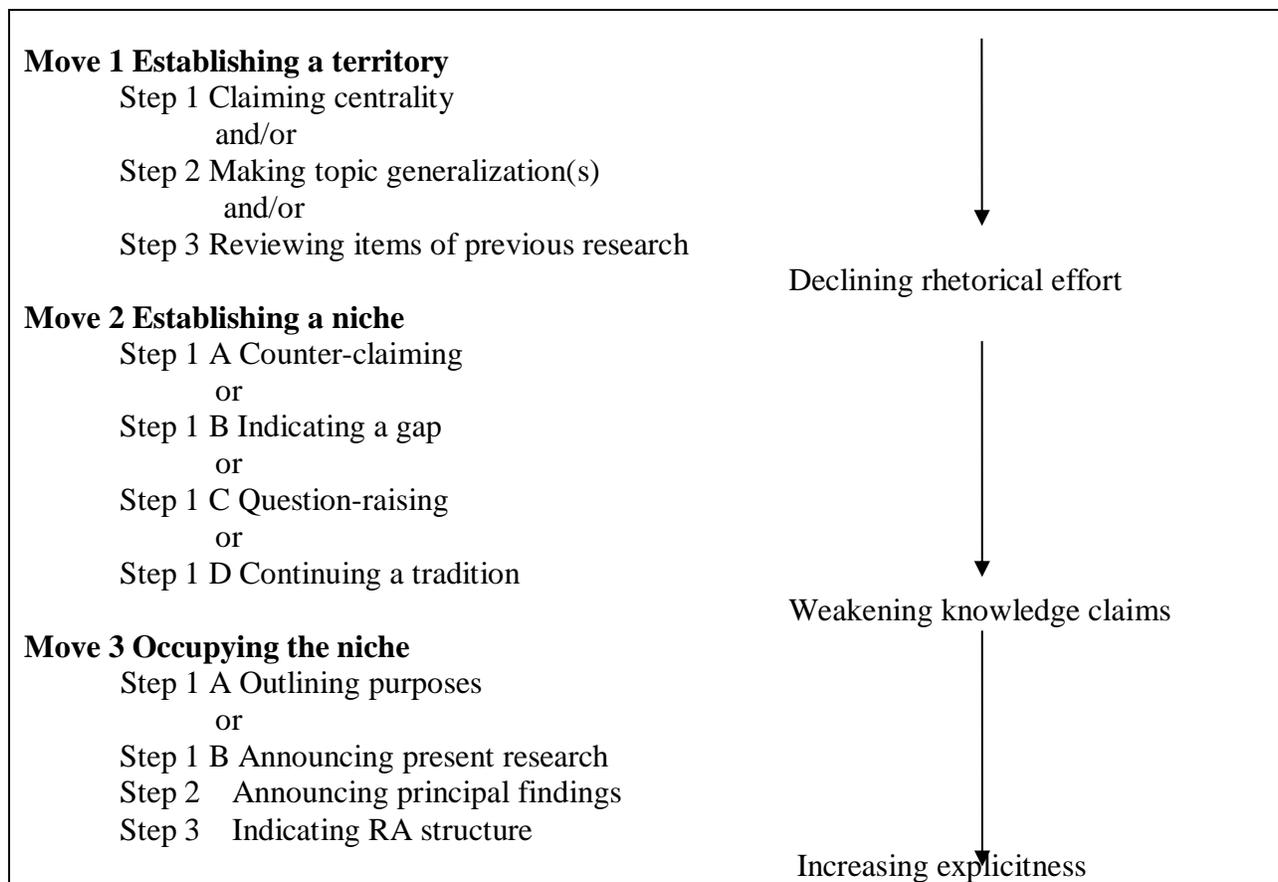
This chapter reviews the studies that have investigated the sections of RAs. It is divided into four sections. The first deals with studies conducted on the main sections of English RAs such as the abstract, introduction, results and discussion. It then compares, contrasts and evaluates the studies that have analysed the methods section. The second section reviews the literature examining RAs written in Arabic. The third section of this chapter begins with a review of studies which have compared and contrasted RAs in English and other languages and it ends with reviewing contrastive studies on English and Arabic RAs. The last section is a summary and it indicates to the gap intended to be bridged by this study.

2.1 Reviewing the rhetorical analysis in English RAs

Many researchers have investigated various sections of English RAs: the introduction section (Swales, 1981), the methods section (Nwogu, 1997) and the results, discussion and conclusion sections (Ruiying and Allison, 2003). The most seminal work was conducted by Swales (1981) in an attempt to represent the rhetorical structure of RA introductions. His analysis shows that there are certain moves and steps which represent the introduction section. Such analysis offers a significant example of how move analysis has been applied to RA introductions and may be extended to such other sections as the methodology. Swales analysed 48 RA introductions, 16 of them were selected from the field of Physics, 16 from Social Sciences and 16 from Biology/Medicine. He found that there are four moves forming most of the introductions of these

disciplines (these four moves are already given in section 1.1.5). Swales' description of moves was criticised by Crookes (1986) for the difficulty of separating the first two moves. Thus, Swales (1990) solved this problematic issue by combining these two moves in one move called 'establishing a territory'. The second move in his edited structure is 'establishing a niche' and the third is 'occupying the niche'. He called this structure 'Create a Research Space (CARS) model', as in the table below.

Table 2. 1 Swales' 'CARS (1990, p.141) model'



Swales then modified this model in 2004 by mainly changing the steps of the moves. Step 1 and 2 became one step named as 'topic generalizations of increasing specificity'. Step 3, 'Reviewing

items of previous research' can be used within the three moves. The first three steps in move 2 were combined into one step which is 'indicating a gap' that conveys a function similar to the three steps. Step 1D in move 2 was replaced by a new clearer step which is 'adding to what is known'. A new optional step was also added to move 2 which is 'presenting positive justifications'. Finally, move 3 was renamed as presenting the present work. This move consists of seven steps as clarified in the following table.

Table 2. 2 Swales' 'CARS (2004, p. 230,232) modified model'

<p>Move 1 Establishing a territory (citations required) via Topic generalizations of increasing specificity</p>
<p>Move 2 Establishing a niche (citations possible) via Step 1A Indicating a gap or Step 1B Adding to what is known Step 2 (optional) Presenting positive justifications</p>
<p>Move 3 Presenting the present work (citations possible) via Step 1 (obligatory) Announcing present research descriptively and/or purposively Step 2* (optional) Presenting RQs or hypotheses Step 3 (optional) Definitional clarifications Step 4 (optional) Summarizing methods Step 5 (PISF**) Announcing principal outcomes Step 6 (PISF) Stating the value of the present research Step 7 (PISF) Outlining the structure of the paper</p> <p>*Steps 2-4 are not only optional but less fixed in their order of occurrence than the others ** Probable in some fields, but unlikely in others</p>

The introduction section has been given a lot of attention by many researchers compared with other RA sections. For example, Briones (2012), Kanoksilapatham (2012), Lakic (2010) and Samraj (2002) applied Swales 'CARS model' to RA introductions to analyse the moves and steps of this section. They show that, in spite of the similarities between the rhetorical structures of the RA introductions they analysed, and Swales 'CARS model', there are disciplinary variations which appeared in the generic structure of this section.

Another area which move analysis has been conducted on is RA abstracts. A remarkable analysis of a typical abstract was done by Bahtia (2013). He found four main moves which are: '1- introducing purpose 2- describing methodology 3- summarising results 4- presenting conclusion' (Bahtia, 2013, p. 148-149). These moves appeared in Hyland's (2004) classification of moves. He carried out a move analysis on 800 abstracts selected from eight disciplines and he found five moves (as mentioned in section 1.1.5). The most frequent patterns appearing in Hyland's analysis are purpose-method-product in hard sciences and introduction-purpose-product in Humanities and Social Sciences. Hyland reported that these differences are due to disciplinary variations. He clarifies that writers of hard sciences belong to the same community and draw on shared knowledge between them and readers that is necessary to analyse the texts. Those writers assume that their audience possess a great deal of knowledge that helps them understand the rationale, the significance and the value of their studies. On the contrary, writers of soft sciences provided more explicit information in the introductions of these abstracts to familiarise the readers with the background of their research.

Move analysis has been extended to the other sections of RAs. Brett (1994) analysed 20 RAs in Sociology and focused on the communicative functions of the results section. However, Brett did not mention what framework he used to analyse his data. He only stated that he used Swales 'CARS model' to analyse the introduction section. Brett (1994, p.52) classified the functions of the results section under three main categories: 'Metatextual, Presentation and Comment'. Brett explains that the writer, under the first category, introduces information in a text that directs readers to other texts. The Presentation category is to present or emphasise the findings and how they have been created. The last category gives explanation, comparison, evaluation, summary and/or implications of the results. Brett showed that these categories are similar to the elements of the results section presented by Weissberg and Buker (1990). For example, the first move, 'Pointer' from Metatextual is identical to the first element, 'Location of results' which appeared in Weissberg and Buker's analysis. The 'Statement of Finding' move from the 'Presentation' category is the same as the second element, 'most important findings'. The 'Implications of Finding' move from the 'Comment' category is similar to the last element, 'comments on the results'.

Furthermore, the moves in Brett's analysis are also equivalent with those found by Hopkins and Dudley-Evans (1988) and Weissberg and Buker (1990) in the discussion section. The shared moves are: 1- presenting the findings, 2- explanation of findings, 3- comparison of results with previous studies, 4- evaluation of findings; whether or not they agree with the hypothesis, and 5- implications of results. Such similarities between the moves of results and discussion might explain why some researchers tend to combine both results and discussion sections in one

section. Another similarity between Brett and Hopkins and Dudley-Evans' studies is that the moves of both sections, results and discussion, occur in a cyclical pattern. That is, certain moves are repeated more frequently than other moves throughout a section. For example, the following move pattern appeared several times in Brett's study: pointer→ statement of finding→ substantiation of finding→ comment.

Within the discussion sections, some researchers (Basturkmen, 2012; Holmes, 1997; Peacock, 2002) captured rhetorical variations across different disciplines. They found that the moves or steps vary according to the discipline to which they belong. Making an analysis at the level of steps or sub-steps can be useful for displaying disciplinary variations (Basturkmen, 2012). The following is an example that can show similarities and differences between Social Sciences and Natural Sciences as given by Holmes (1997). He selected 30 discussion sections from Social Sciences; History, Political Science and Sociology. Then, he applied Hopkins and Dudley-Evans' (1988) move pattern of discussion section to his data. He maintains that the structures of the whole RAs and of the introductions of Social Sciences are similar to those in Natural Sciences, which were already examined by Hopkins and Dudley-Evans. In this sense, Holmes pointed out that the RAs of both sciences can be considered as parts of the same genre. However, those disciplines of Social Sciences have certain characteristics that distinguish them from Natural Sciences. For example, the number of move cycles, mainly in Political Science and Sociology, is smaller than those in the Natural Sciences and no obligatory move occurs in all of the RAs in the Social Sciences. A move cycle does not usually occur in the discussion sections of

History. Holmes states that History RAs have particular features but it may be considered as a subgenre of the Social Sciences RA genre because it shares features with these sciences.

In contrast with the above mentioned studies, there are a few researchers who have analysed the RA methods section. Lim (2006) collected 20 RAs in the discipline of Management for analysis of communicative moves and steps. He wanted also to describe the linguistic features associated with these rhetorical categories. He identified three moves in most of the methods sections: 1- describing data collection procedures, 2- outlining how variables are measured and 3- explaining procedures of data analysis. Move 1 is realised by describing the sample, recounting data collection procedures and justifying these procedures. The steps that realise the second move are: 1- giving an overview of the design and 2- explaining and justifying how variables are measured. The third move consists of the steps: 1- recounting and justifying procedures of data analysis and 2- previewing results. Lim showed how constituent steps which belong to the same communicative move bear rhetorical differences that could affect the choice of linguistic features. However, he identified neither how much information is given to readers of Management RA methods section nor what knowledge was shared with them to be able to know what they need to understand about this section.

Lim's move pattern (2006) was used by Kafes (2016) to compare the method sections of MA theses written by novice Turkish writers and RAs written by expert Turkish writers. His results indicate that the two groups employed all of the moves in Lim's pattern. However, the main differences occur at the step and sub-step levels. The RA writers did not employ some steps such as 'justifying data collection procedures' and 'justifying the methods of measuring the variables'

while these steps are included in the MA theses. Kafes mentions that the reason behind the differences might be due to the continual feedback and support that the MA theses writers receive from their supervisors and can help them in their writing. He claims that writing of MA theses is more careful than RA writing. It is clear that Kafes compared two different types of sample; the MA theses versus RAs and novice writers versus expert ones. It could be these differences that caused the differences in the method sections.

The methods section is considered one of the main four sections that construct an RA: Introduction, Methods, Result and Discussion. Some researchers have analysed the generic structures of the methods section as part of an analysis of the whole RA (Brett, 1994; Kanoksilapatham, 2005; and Nwogu, 1997). The most common moves that appeared in their methods section are: 1- describing the procedures of experiment and 2- describing the statistical procedures/tools. Nwogu and Kanoksilapatham classified the second move as optional because it occurred in less than 50% in Nwogu's data and in less than 60% in Kanoksilapatham's. The moves described in Nwogu and Brett's structures are similar to those outlined above by Lim (2006). Yet, Brett's analysis focused mainly on the results section and gave less attention to the methods section. In addition, Weissberg and Buker (1990) prescribe 'information elements' of the methods section, but without indicating the function of these elements. It would be more beneficial to provide the functions of these elements to help have a better understanding of the methodological elements. Those elements are: 1- overview of the design, 2- population and/or sample, 3- setting, 4- restrictions, 5- sampling technique, 6- procedures, 7- materials, 8- variables

and 9- statistical analysis (Weissberg and Buker, 1990, p. 92). It is noted that the focus of these studies is on the entire RA not solely on the accounts of methodology.

The only study that analysed the method sections of English Educational RAs was conducted by Zhang and Wannaruk (2016) using Swales' move analysis approach. Zhang and Wannaruk collected 120 RAs which belong to different sub-disciplines in Education. These sub-disciplines do not involve the sub-field of Curricula and Methods of Instruction, which is tackled in the current analysis. 96 of the articles use quantitative or mixed research design of quantitative and qualitative and 26 articles use a qualitative design (It is not clear how many RAs these researchers collected as the numbers 26 and 96 do not match with the total number (120) they selected). These researchers relied on the communicative purpose regardless of linguistic forms to identify the moves of the method sections. It would be more helpful and convincing to consider the linguistic exponents in determining what they represent because they can help identifying the purpose of text segments. The moves found in their data are as follows: 1- describing the design of the study, 2- describing procedures of data collection and 3- describing data analysis procedures. The first move has no constituent steps while the second involves description of the research context, sample, and instruments; elaborating and justifying data collection procedures; and considering ethical standards. The third move consists of the following steps: 1- recounting and justifying data analysis procedures and 2- establishing coding reliability. These elements are found in some other researchers' data such as Lim's categories presented above except for the steps which tackle research context, ethical standards and coding reliability.

However, the different sub-disciplines and designs dealt with in Zhang and Wannaruk's study can be considered as a variable threatening the consistency of their data. RAs of different disciplines or sub-disciplines can have different generic structure, as described below in Peacock's (2011) study. As an example of such variation, Zhang and Wannaruk found that the step 'compliance with ethical standards' is more concentrated in the Journal of Health Education than the other journals they selected for the analysis. These researchers suggest that this variation is apparently due to variations in the journals. Therefore, it can be said that this is a sub-disciplinary variation because the journal of Health Education publishes RAs in the sub-field of Health Education. Another example of variation caused by different research designs, Zhang and Wannaruk admit that the step, 'establishing coding reliability' is specific to the RAs of the qualitative design only. It can be seen that Zhang and Wannaruk's study is different from the present study in terms of relying on the communicative purpose only in the analysis and in using different research designs and different sub-disciplines. Zhang and Wannaruk's findings given above encourage adopting one design and one sub-field to avoid any possible variable that can influence the accuracy of the rhetorical analysis.

The methodology has appeared to display not only disciplinary differences but also interdisciplinary variations. Peacock (2011) analysed 288 RA methods section in eight different disciplines: Biology, Chemistry, Physics, Language and Linguistics, Business, Environmental Science, Law and Public and Social Administration. He found that 'procedure' is the only move that occurs in all RAs. The other two moves that occur frequently in the sciences (Biology, Chemistry and Physics) are: material and data analysis, and there are two move cycles which are:

materials →procedure and procedure →data analysis. In Language and Linguistics, Business, Law and Public and Social Administration, a higher number of moves appears frequently: they are, 1- overview of the method used in the research, 2- aims, hypothesis and questions of research, 3- location and 4- limitations. The cycle of moves is more varied and complicated in these non-sciences and there are differences in the moves used and their frequency within these disciplines. As for the Environmental Science, Peacock confirms that it is different from all of the disciplines above in having longer and more complex methods section. Nevertheless, Peacock did not provide elaboration on what steps or linguistic features may be used to realise the function of those moves.

Peacock indicated that the methods in the sciences depend on readers and writers' shared knowledge while in the non-sciences they are described carefully, step by step. This confirms Swales' (1990) view about the methods in hard sciences. Swales (1990, p. 170) describes them in Physical and Life Sciences as 'enigmatic, swift, and presumptive of background knowledge'. Hence, variation in RA methods relies on how much information and elaboration they provide (Swales and Feak, 2004). These two researchers describe the methods in soft sciences as extended and as condensed in hard sciences. They explain that the methods in Social Sciences contain detailed description and there could be some development, but they are already established and sometimes taken for granted in Natural Sciences and Engineering.

It is important to consider the idea of assumed shared knowledge by authors while writing research methods to achieve successful communication with readers. They need to take into account also the amount of information needed for explicit indication (Najjar, 1990).

2.2 Reviewing the rhetorical analysis in Arabic RAs

In reviewing studies that have dealt with Arabic academic discourse, most of them have analysed RA introduction sections. Ahamad and Yusof (2012) and Fakhri (2004) examined the rhetorical organisation of RA introductions using Swales (1990) 'CARS model'. Such studies mean that move analysis is applied to the introductions of Arabic articles and may be applied to the accounts of methodology of Arabic RAs. These studies state that the Arabic introductions differ from the 'CARS model' with regard to their organisation and only a few of them use CARS moves. Fakhri has added that the Arabic introductions are hybrid because they represent a mixture of two rhetoric types, reader-responsible and writer responsible. This caused different degrees of explicitness and directness in announcing the organisation of the RAs. Fakhri explains that most of the introductions do not present the structure of the RAs explicitly and thus they are a reader-responsible type whereas a few of the introductions directly guide the readers by stating the RA structures. It is the writer's responsibility to communicate ideas clearly and directly. Fakhri also discussed the presence of repetition and flowery expressions as they strengthen the text content.

On the other hand, there are some other distinctive features available in the Islamic RA introductions analysed by Ahamad and Yusof (2012). These researchers state that the writers of these introductions have made reference to the Quran and Hadith as significant sources to support their views on a certain topic in the literature review aspect of the introductions. The writers have established background knowledge by reviewing notions and issues instead of

reviewing other research findings. Ahamad and Yusof conclude that these particular characteristics cannot be explained by the 'CARS model'.

Religious beliefs may be reflected in the genres produced by Arab writers. These writers might add new components to an already established genre due to these beliefs. Al-Ali (2010) investigated 100 acknowledgments of Ph.D. dissertations written by Arabic native speakers in Humanities and Social Sciences. He examined the rhetorical and linguistic choices used to express gratitude. He showed how the generic structure of this section is affected by the socio-cultural norms and religious traditions. For example, in 25% of the acknowledgments, the writers start with an opening move in which he used Quranic verses or prophetic sayings. In addition, 70% of data include another move which is 'praising and thanking Allah (God)'.

Rhetorical variation may also appear between different Arabic disciplines. An example of this is Fakhri's (2009) comparison between Humanities and Law. He collected 50 introductions from each field for a contrastive analysis based on two rhetorical functions; research justification and reader orientation. The findings showed that the introductions in Law consist of more statements of purpose and declaration of article structure to guide readers. The differences between the two disciplines occur mainly in announcing the structure of research. Fakhri explains the existence of this function in Law as a reflection of French rhetorical features in these introductions turning them into a hybrid state. Another finding relates to the scarcity of references to previous scholarly work to justify the research in both disciplines and there are no challenges to them. The writers, instead, used more topic importance claims in Law to justify their research. Similar to

this, Najjar (1990) reported that the writers in his study refer to others' research to provide only background information without challenging scholars' work.

Najjar's (1990) dissertation is the only study, as far as I know, that investigated the methods section in Arabic RAs. He analysed the rhetorical and linguistic components of 48 method sections in the sub-fields of Agricultural Sciences: Soil, Plant Production, Plant Protection and Animal Production Sciences. The components that Najjar found are: '1- Establishing time and place of study; 2- Re-announcing purpose(s) of study; 3- Describing investigated sample(s); 4- Describing study design; 5- Describing investigative and experimental procedures; 6- Describing statistical procedures for data assessment' (p.149). The most frequent components are 'investigative procedures' and 'describing samples'. Further, cycling of some components, mainly 3, 4 and 5, exists in this section.

Najjar found that writers have mentioned standard procedures in a form of checklists without explaining them in detail because they form part of shared knowledge with readers. He states that they are labelled and can be 'presumptive of a highly specialised knowledge by the reader' (Najjar, 1990, p. 154). This finding corresponds with Swales' description of the RA methods in hard sciences as condensed. On the other hand, the procedures of experiment, which constitute a large part of component 5, are described in detail. Finally, Najjar added that repetitions and redundancy are highly noticed in the methods section although they are not usually exclusive to it.

Najjar did not only analyse the methods section in his study, but he also investigated the other sections conventionally found in RAs; introduction, results and discussion. As he concentrated his attention on the introduction section, the methods section was not the main focus in his analysis, a reason that makes his study different from the scope of the current study. Another difference is that the discipline considered in Najjar's dissertation belongs to the scientific field while the discipline considered here in the present study relates to Social Sciences. Variation across these disciplines may arise as noticed earlier in some studies above. Also, he did not take into consideration interdisciplinary variation that might result from analysing the different sub-fields of Agriculture. Moreover, Najjar did his analysis in 1990, so it might be considered important to update the analysis of the generic structure of RA methods as genres may change over time (Swales and Najjar, 1987). Finally, Najjar's study does not answer the question of the present research about similarities and differences between the methodological elements of English and Arabic RAs. His focus was only on Arabic and there was no comparison with English RAs.

2.3 Reviewing cross-cultural studies

This section presents some examples of studies that contrast RA sections in English and other languages. The following sub-sections tackle contrastive studies between English and Chinese RAs, English and Spanish RAs and English and Arabic.

2.3.1 English and Chinese

The study presented below displays a contrastive genre analysis between English and Chinese RA introduction sections. Zhang and Hu (2010) examined the generic structures and linguistic features of 40 medical RA introductions written in Chinese and English. They employed Swales' (1990) 'CARS model' to contrast the move and step occurrences in the RA introductions of these two languages. Zhang and Hu state that there are significant differences in the rhetorical structures of these introductions. Firstly, about 90% of the English RA introductions follow the 'CARS model' while 50% of the introductions in Chinese RAs deviate from the model. Secondly, the English introductions are of knowledge transforming form because they include critical evaluation of previous studies whereas the Chinese introductions are of knowledge telling form as most of them avoid challenging previous work. Thirdly, the moves and steps of the Chinese introductions are realised by culture-specific linguistic features such as ornamental expressions and humble statements. The existence of such study encourages conducting a similar one between other languages on the other sections of RAs including the methodology.

Another paper presented by Ping and Lingli (2010) contrasted English and Chinese method sections. They applied Swales' (1990) theory of genre to 60 RAs drawn from two different fields, the Linguistics and the Medical. They assert that there are four moves which represent the function of the English and Chinese RA methods in the two disciplines. These moves are: 1- introducing purposes, questions or hypotheses; 2- describing the population/sample; 3- describing experimental/data collection procedures and 4- describing data analysis procedures (Ping and Lingli, 2010, p. 130). It can be noted that Ping and Lingli's analysis shows moves

which are very similar to those already presented above by Najjar (1990) and Peacock (2011). Moves (3 and 4) also go in agreement with the ones found in other studies already discussed such as Brett (1994), Lim (2006) and Nwogu (1997).

Ping and Lingli (2010) pointed out that the variations between the English and Chinese articles occur at the level of move and step frequencies. There are barely noticeable differences between step frequencies in the methods section written in English and those in Chinese in the same field. Furthermore, the move and step frequencies vary according to the discipline. For example, the occurrence of move 1, 'introducing the purposes and questions of the research' in the field of Applied Linguistics is greater than that in the Medical field. Another variation concerns the amount of information given under a move or a step. For instance, the procedures of experiments are not explained in detail in the Medical articles as they rely on readers' background knowledge.

2.3.2 English and Spanish

A genre contrastive analysis of English and Spanish RA abstracts was done by Martín (2003). He wanted to explore what rhetorical differences are between English RA abstracts published internationally and RA abstracts published nationally in Spanish journals. He gathered 160 abstracts from Phonetics and Psychology RAs. Martín noticed that the Spanish abstracts followed the international standards founded by the English academic community. They consist of four main units that form the essential structures of an RA: introduction, methods, results and conclusion. Although the introduction unit occurs in all of the abstracts, except in one English abstract, move 2, 'Establishing a niche' of this unit is present in much fewer Spanish abstracts

than English ones. Another significant difference is that the frequency of occurrence of the result unit in the English abstracts is much higher than that in the Spanish ones. As regards the methods unit, the only main distinction is the longer statements that describe the method unit of the Spanish abstracts. The most common linguistic features utilised to express this unit are the past tense and passive constructions and there are some examples of present tense and active forms in the Spanish data.

The reasons for such rhetorical variation between the two languages, as Martín declared, refer to socio-cultural factors and, most importantly, to different numbers and expectations of the members of the two discourse communities. Martín explains that the deletion of move 2 in the Spanish texts has to do with the type of community the Spanish researchers are addressing. This community in the Social Sciences field considers criticising other researchers' work as unconventional so there is no need to establish a niche. On the contrary, the English community in the same field considers it necessary to justify a research as there is a higher number of members who work in a more competitive research environment and try to publish their products internationally. Martín's finding supports Zhang and Hu's (2010) in terms of criticising previous work in the English introductions and avoiding that in the Chinese ones. Such findings may reveal that the critical evaluation of other researchers' work is a practice followed in the English community and that the Spanish and Chinese communities are similar in avoiding this practice. With regards to the socio-cultural factors as summarised by Martín, they involve different intellectual and cultural styles and insufficient academic writing instruction.

The socio-cultural context was also found to form and restrict the methods in an RA (Mur-Dueñas, 2007). Mur-Dueñas contrastively examined the rhetorical functions of 24 Business Management RAs published in English and Spanish. She found that there are a number of steps which realise the function of the RA methods in the two languages. The followings are the steps: 1- describing the sample, 2- describing procedures of data collection, 3- stating final size of sample, 4- presenting and/or defining variables and measures, 5- describing procedures of data analysis, 6- referring to past literature, 7- referring to previous research which follows a similar procedure, 8- claiming validity, 9- comparing results with previous research, 10- pointing to findings of marginal analysis and 11- introducing aim or structure of the section (Mur-Dueñas 2007, p. 127-130).

Mur-Dueñas (2007) confirmed that the number and type of steps in the English RA methods are more homogenous than the Spanish ones. Other significant differences relate to the frequency of inclusion of some steps. For example, step 7 was found to occur in all English RAs while it appeared in only five Spanish RA methods. The researcher attributes the generic differences to the highly competitive environment in which writers of English RAs try to persuade their readers of their research credibility, and then try to publish their articles internationally. The cross-cultural analysis conducted by this study raises a question about cultural differences or similarities in RA methodology produced in other languages such as English and Arabic.

2.3.3 English and Arabic

The following studies show that a contrastive analysis has been conducted between the two languages, English and Arabic, using move analysis approach. They offer insights into the differences in rhetorical features found in the abstracts, introductions and job application letters of English and Arabic and urge conducting research to contrast other sections of English and Arabic RAs.

Similar to the previous contrastive studies, Al-Ali (2004) confirms the effects of the culture on shaping a particular genre. He used Bhatia's (1993) approach to investigate the differences and similarities between move structures of 60 job application letters written by English native speakers and Arabic native speakers. The findings reveal that the letters share similar communicative functions recognised by certain moves. The variations between the two languages are in the number, length and types of moves employed. There are two moves, 'Glorifying the institution' and 'Invoking compassion' which appeared only in the Arabic letters. Al-Ali explains that the Arabic writers used such cultural specific features as a persuasive strategy to gain the employer's help. On the other hand, the English writers gave more supporting information under the move, 'promoting the candidature' and employed the move, 'Asking for interview' to convince the employers. The latter move is absent from the Arabic corpus. Al-Ali justifies its absence in terms of some cultural restrictions, which cause employers to ignore occasionally the interviews held for employment. Finally, Al-Ali states that the opening and the closing moves of Arabic job application letters are realised by Quranic verses and religious expressions as a reflection of the writers' religious beliefs. It can be seen that religious

beliefs exert their influence on Arabic texts such as the acknowledgment section and job application letters (Al-Ali, 2004, 2010) and introduction section (Ahamad and Yusof, 2012).

Rhetorical dissimilarities exist also between English and Arabic RA abstracts (Al-Ali and Sahawneh, 2011; Elbadri, 1998). These researchers conclude that the moves constituting the abstracts are not shared in the two languages. In addition, they state that the methods move is included in a few abstracts in the Arabic data. Al-Ali and Sahawneh (2011) explain that the Arabic writers, unlike the English, tend to focus on *what* (i.e. content) rather than *how* through the high frequency of ‘introducing thesis structure’ and ‘outlining purposes’ moves. As a result, the methods and results moves are present in only 42% and 40% of abstracts respectively. The deletion of these moves results in a new format making the Arabic abstracts asymmetric, a feature that was also found by Elbadri (1998) in the Arabic abstracts.

Al-Ali and Sahawneh (2011) added that while Arabic writers use only active voice in the methods move, the English writers emphasise the procedure by using passive constructions. Another difference relates to the type of information mentioned within the methods move. In the English abstracts, there is an identification of the source, setting, characteristics and size of sample, description of tools used and defining criteria for data collection. In the Arabic abstracts, the information given describes only the source of the sample. Similar to Martín (2003), Al-Ali and Sahawneh consider that the socio-cultural context and academic expectation can be behind the rhetorical differences between English and Arabic RA abstracts. For example, a reader from the English academic community anticipate that the abstract will present the procedures of implementing the study as these are sometimes considered more important than the findings.

This explains, according to Al-Ali and Sahawneh, why the methods move exists in more English abstracts.

There are two dissertations (Alotaibi, 2013 and AL-qahtani, 2006) which analysed the introduction section of English and Arabic RAs. AL-qahtani (2006) compared and contrasted the introductions written by three groups of researchers. The first is an Arabic group educated in the Arab world, the second is an Arabic group educated in the United States and the third is a group of American native speakers. AL-qahtani wanted to examine the effects of different educational backgrounds on the generic organisation of RAs introductions. He collected five introductions written by each group in the field of Educational Psychology. He reported that there are considerable differences between both Arabic groups in the aspect of number of sentences that shape each move of the introduction. As an example, move two 'establishing a niche' was given more weight by the second Arabic group educated in the US. Next, the second Arabic group used fewer religious sentences, deemed irrelevant, at the onset of their introduction than the first Arabic group. AL-qahtani affirmed that those differences are due to different educational backgrounds of the Arab writers.

AL-qahtani illustrates the moves of the Arabic introductions in two rhetorical structures. One is a 'homegrown Arabian' employed by the first Arabic group. The second structure is hybrid which consists of features drawn from the local structure and the American structure. These mixed features, as pointed out by AL-qahtani, are the results of cross-cultural effects of US writing norms that affect the Arabic group who were educated in the US. Finally, AL-qahtani shows that other differences do exist between those Arabic groups and the Native American group. For

instance, all introductions written by the Americans contain the three moves of the ‘CARS model’ and cycles of moves 1 and 2, unlike most of the introductions by the Arabs which include only two moves and lack move cycles. These differences cannot be explained in terms of the effects of the writers’ educational backgrounds and can raise the importance of considering other factors such as cultural ones.

The main focus of the second dissertation (Alotaibi, 2013) is the examination of the relationship between RA abstracts and introductions. He chose 40 English and Arabic RAs from Educational Psychology and Sociology and analysed the generic organisation of the two sections, the introduction and abstract. The findings of his study confirm that these sections as well as their relation are varied across languages and across disciplines. First, there is one paragraph that represents the English abstracts whereas the Arabic abstracts include from one to five paragraphs. Moreover, the moves in the Arabic abstracts are explicitly introduced but they are implicitly realised and combined with each other in the English abstracts. The most frequent move pattern appearing in all abstracts is the purpose, method and product moves. This finding resembles Hyland’s (2004) pattern for abstracts in hard sciences and contradicts his abstract move pattern of Social Sciences. Finally, unlike the Arabic texts, the introduction and abstract sections are more related in English in the field of Sociology in terms of move 1, ‘establishing a territory’ and move 2, ‘establishing a niche’. Alotaibi’s dissertation differs from the current study because it examines disciplinary differences in the introductions and abstracts of RAs.

2.4 Summary

The first part of this chapter reviews the studies that have examined the generic organisation of the main sections (abstract, introduction, methods, results and discussion) of RAs written in English. The researchers have shown how these sections differ across the disciplines that they belong to in terms of moves, steps and move cycles. Methodology of RAs has not been discussed in enough detail by many researchers as the rhetorical analysis of the methods section has been done as part of a comprehensive investigation of the whole RA. Some findings have revealed that the methods in RAs vary according to how much information they include. They depend on readers and writers' shared knowledge in hard sciences while they give background knowledge in Social Sciences.

The second part focuses on the rhetorical features of Arabic RAs. The results have pointed to rhetorical variation due to different disciplines and due to writers' religious beliefs. Some RA introductions consist of hybridised components. Other characteristics found in the Arabic introductions and acknowledgment sections are repetitions, redundancy, ornamental expressions and references to Quranic verses and Hadith (prophetic speech). Only one past study has examined all sections of Arabic scientific RAs including the methods section. The researcher in this study affirmed that standard procedures are given in a form of shared checklists without elaboration. The last section of this chapter reviews the studies on contrastive genre analysis. The researchers have shown how the occurrence frequency of some moves and steps that realise the same section of an RA differs across disciplines and across cultures. Some findings have shown

the role of socio-cultural factors in shaping and restricting a particular genre. The RA methods section represents an example of rhetorical variation across scientific and social disciplines and it can show how its moves might be formed according to the cultural context in which they are produced.

It is clear that the RA sections written in different languages have received the attention of many researchers in order to investigate the rhetorical patterns with or without their linguistic exponents. However, to the best of my knowledge, there are no contrastive studies that have examined the rhetorical and linguistic features of the accounts of methodology of English and Arabic RAs. In addition, there are not any studies that compared these languages in terms of readers and writers' shared knowledge about the accounts of methodology. Therefore, this study attempts to fill this gap by investigating the rhetorical and linguistic features which shape the accounts of methodology of RAs of the two languages and by identifying the presupposition about what readers already know about this section. This is conducted by using not only the move analysis approach, as noticed in the studies reviewed in this chapter, but also other approaches and techniques that have not been applied yet to this section of journal articles (see section 3.1).

Chapter three

Methodology

3.1 Theoretical background

The current study belongs to the field of contrastive rhetoric as it culturally contrasts a research genre (the methodology) across two different languages, English and Arabic. It was Kaplan (1966) who initiated work in this field by examining writing in ESL settings. His main finding is that students transfer their first language rhetorical patterns while writing in English resulting in interference. The current study matches with the field of contrastive rhetoric and with Kaplan's view about how writing is different across cultures as it examines cross-cultural similarities and differences in the rhetorical structure of the accounts of methodology written in English and Arabic. In addition, the view that this study as a contrastive genre analysis falls under the umbrella of the contrastive rhetoric field is supported by Connor (1996, 2002). He states that genre-specific domain is one important area under this field.

The genre analysis conducted in the present study follows two important approaches: the approach of English for Specific Purposes (henceforth ESP) as in the work of Swales (1990) and Bhatia (2013) (as already mentioned in Chapter One) and the systemic functional approach (henceforth SF). In the SF approach, genre is analysed in terms of what Martin (1992) calls schematic structure which he uses to refer to text structure. Schematic structure is defined by Bruce (2008, p.16) as 'The stages or steps that are conventionally followed in the typical organization of the content of a genre'. Bruce summarises that genre analysis in SF can be

conducted according to the schematic structure and lexico-grammatical features which correlate with the steps of the schematic structure. The present study follows this method by examining the lexico-grammatical features in terms of the transitivity analysis (see section 3.5) and by describing how these features realise the organisational rhetorical structures of the accounts of methodology of English and Arabic RAs.

Similar to the SF approach, Bruce clarifies that the ESP framework examines the organisational stages of text content (moves and steps) and their linguistic realisations. Within this framework, the major contribution in genre-specific domain is offered by Swales (1990) in his analysis of the research genre; the introduction section. For him, a genre is identified basically in terms of the communicative purpose it carries. He does not refer only to communicative purpose in his move-step analysis, but also to the linguistic exponents used to realise a step. Some other researchers have a stance similar to Swales. Firstly, Bhatia (2013) clarifies how the introduction and abstract sections share the same context but they are considered as different genres because they have different communicative purposes. He also analysed genres occurring in different contexts; introductions of a dissertation and of a laboratory report. He maintains that they are considered as sub-genres of the academic introductions genre because they have similar communicative purposes. Secondly, Biber (1988) indicates that genre, as opposed to 'text type', is identified according to external factors concerning writers' purpose. 'Text type' makes reference to the linguistic form as a basis to determine similarity between texts. Therefore, 'text type' is needed to identify communicative purpose as there are linguistic features which can tell what a text intends to achieve. The theory of text type and genres is relevant to the field of contrastive

rhetoric (Connor, 1996). It is needed to compare different types of texts. Connor's definition of genre is also in line with Swales', as texts created according to specific purposes.

3.1.1 Top-down and bottom-up

Swales' 'move analysis' approach was used in the current study to analyse the rhetorical features (moves and steps) of the accounts of methodology. However, it is not enough to use only this approach in the analysis. This approach works as a top-down process by breaking the higher units of discourse into smaller ones. Some rhetorical features (moves and steps) in the data of this study do not match with the features of the empirical framework initially used in the analysis (see section 3.4). Therefore, it is worthwhile to look at the smaller elements of these features (see below) and then to see what they do in the text. One useful way to do this is by using bottom-up processing. Jeffries and McIntyre (2010) distinguish between 'bottom-up processing' and 'top-down processing' and clarify their importance for readers to understand a text. The first relies on using textual elements to make meaning while the second refers to the use of prior knowledge of the world to help comprehend a text.

An example of bottom-up processing comes from the psychologist Gibson (1966) in his study of perception. According to Gibson, perception is formed when the senses detect and convey to the brain information about the world. The senses are activated by being exposed to stimuli from the surrounding environment, which is the source of all stimuli and the source of sufficient detail about the stimuli. Gibson (1972) asserts that perception is direct. It depends on detecting sensory information and does not require employing past experiences or memories of the past. It can be

understood that bottom-up is a process that begins with experiencing incoming data (stimulus) in the bottom level and ends with perception at the highest level.

Bottom-up processing is described in specifically visual terms by Palmer (1999). The bottom level includes depicting the retinal image which passes through subsequent interpretations via the visual pathways at higher levels. Palmer points out that the input of this process is lower-level representations and the output is higher-level representations. Similarly, Norman (1976) uses the phrase bottom-up to describe a sequence of processes that starts out from the incoming data and is developed in an increasingly sophisticated analysis. The incoming data, according to Norman, is at the bottom level of the analysis which proceeds in successive layers until they reach the top level wherein the final recognition of the data occurs. Therefore, the concept of bottom-up processing is also described as a data driven process.

The objection to the concept of bottom-up processing as a way of making sense of the world is that it does not take account of expectations (Norman, 1976 p. 41). It could, in fact, be argued that the idea of starting any process without some expectations, and often without some previous experience, simply does not conform to reality. The mention above of increasingly 'higher-levels' seems to imply some already-existing cognitive organisation, which is at least partly formed by our past experiences. People are not blank sheets of paper onto which images can be simply impressed. To put this another way, perception, like everything else, always takes place in a context. This context (which includes our personal context i.e. past experience) gives us expectations which we use to make inferences about what it is that we are seeing. From this point of view, Gregory (1970) proposed an alternative (top-down) hypothesis about how people

perceive things. According to Gregory, perception is indirect and depends on employing past experience and previously stored knowledge in the brain to interpret a stimulus from the surrounding environment and to make inferences about what we see. This top-down process, as Norman (1976, p.41) clarifies, depends on conceptualisation of incoming data and involves analysis of the context to make sense of the world.

All this theorising about processes was concerned chiefly with visual perception. Reading an academic article is visual too but it has a great deal of context. For example, the knowledge of the reader that s/he is reading an academic article about a certain topic leads to various expectations, as does his/her knowledge of a particular writing system in a particular language. Such knowledge generates expectations concerning grammar, punctuation, spelling, content and style of writing which can help the reader/viewer to make sense of the marks on the flat surface (i.e. writing) and to interpret them in a way that enables him/her to comprehend what s/he reads/sees. The reader/viewer can see the marks on the surface as not only an object, but also as a message to understand and comment on. Therefore, perceiving these kinds of marks has lots of context and it is different from perceiving an object such as a flower. That is why it makes sense to start the analysis in this thesis from a top-down perspective. However, the limitation of top-down is that it can miss (i.e. not 'see') phenomena which, as they do not fit easily into top-down expectations, are new to the perceiver and so have never been conceptualised by him/her. While top-down is a better reflection of how people make sense of the world, scholarly analysis needs bottom-up as well, as a way of finding new ways of looking at the world, in this case, academic texts.

In light of the above considerations, the analysis in this thesis starts with top-down; that is, it is framed and organised according to moves and steps that have been observed by Nwogu (1997), as this is the best available representation of what likely readers would expect to find in an account of the methodology of an RA. The analysis then uses bottom-up. Both processes are essential for the processing of information and for making more sense of the data (Norman, 1976). Bottom-up processing is useful in this study for conducting fine-grained analysis of the data. It performs tasks that the top-down process may not do in discovering features that are not part of the pre-defined categories that this study starts with. This indeed turns out to be the case. The 'new' features include moves and steps which add to and develop the existing categories of Nwogu's (1997) outline initially used in this thesis (see section 3.4 for further information on the new features added to Nwogu's outline).

Bottom-up processing helps me in moving in organised steps from one phase to another higher phase to compose a complete detailed image of the data. It investigates the texts by focusing in its first phase on relatively small elements of a text: verbs and their tenses and then phrases and clauses and the lexico grammatical features employed therein. But notice that even the analysis of such small elements as the word involves some top-down processing as the concept of a word is an expectation and we use our past experience to recognise words. The second phase involves examining the function introduced by such elements to realise a sub-step or a step and finding a match between the lexico grammatical features and these sub-steps and steps. In another higher phase, the overall purpose for a group of steps representing a move is deduced. It is at these two latter phases of analysis where the new steps or moves appear and are used to develop Nwogu's

outline. After that, the series of moves with their constituent elements are gathered into groups to represent one structure for the accounts of methodology in English RAs and another structure for the Arabic. In the top final level of the process, the whole image that groups all of the methodological elements in both English and Arabic RAs is introduced.

3.1.2 Tacit knowledge

In order to help identify the assumed shared knowledge between writers and readers, the concept of tacit knowledge has been found useful in this study. This concept was first considered by Polanyi (1983) in terms of the notion that ‘we can know more than we can tell’ (p. 4). Polanyi’s example of this is how we can recognise someone’s face among a million other faces, but we cannot spell out how we recognise it. This observation can perhaps be more obvious if we consider how it is possible to guess where a person comes from by his/her face. As a result of culture-specific norms, people from a particular place do the same kinds of things with their facial muscles. This in turn can play a role in shaping their face. People sometimes talk confidently about an Irish face or a French face, but there appears to be no racial basis for this distinction so it could be the muscles, of which there are so many it would be impossible to spell out the information received about all of them. However, as Bruce and Young (2012) point out, there are some qualities about human face that can be easily articulated such as sex, age and skin colour (Bruce and Young also mention the debatable concept of ‘race’). It can be said, then, that there is some information about the human face which *can* be articulated.

Polanyi contends that tacit knowledge is acquired by the active shaping of experience and it cannot be articulated. Polanyi's discussion of tacit knowledge as untellable fits with the origin of this concept in the Latin 'tacitus' which means silence (Zappavigna, 2013). Zappavigna points out that one of the synonyms of tacit is ineffable. Ineffability, as she summarises, is used as a criterion to distinguish tacit knowledge from explicit knowledge. Zappavigna observes that there are two positions regarding the notion of tacit knowledge: the strong position denies the possibility of its articulation in any linguistic form while the weak position maintains that it is merely difficult to put such knowledge into words. There is an analogy to be drawn here between these two positions and the two positions that have been taken on the Sapir-Whorf hypothesis. This hypothesis has two versions: the strong version states that language determines thought while the weak one states that language merely affects thought (Connor, 2002). The strong version can be interpreted as meaning that there is no thought without language, which therefore runs directly counter to the strong position of tacit knowledge, which separates linguistic articulation from knowledge. The weaker versions of the two conceptions are, however, compatible. The weak position on tacit knowledge allows for the possibility, albeit sometimes very difficult, of articulating all knowledge, while the weak position on the Sapir-Whorf hypothesis recognises that what gets articulated can have an effect on thought, and therefore knowledge. In both cases, a relation between language and thought/knowledge – but not a deterministic one – is maintained.

The idea that it is sometimes absolutely impossible to articulate what one knows threatens the relation between knowledge and language and can indicate, as Zappavigna (2013) points out,

that knowledge is separated from language. Gascoigne and Thornton (2013, p.5) also observe that considering tacit knowledge as not tellable confirms the principle of inarticulacy: ‘there can be knowledge that cannot be articulated’. Gascoigne and Thornton argue that the impossibility of articulating tacit knowledge may affect its status as knowledge because it does not make sense that there is something known if knowledge is untellable.

This discussion can be illuminated by considering the work of linguists. It can be said that Polanyi’s conceptualisation of tacit knowledge as not tellable ignores the role of linguists in making tacit knowledge visible and in uncovering implicit meaning in discourse (Zappavigna, 2013). Zappavigna demonstrates that our knowledge of language is an example of tacit knowledge that has been made explicit in grammars and textbooks. This is an example of representing tacit knowledge explicitly by linguists. There are different approaches as to how direct these representations of our linguistic knowledge are. Only Chomskyan linguistics purports to represent it directly; that is, it purports to actually tell exactly what it is that we human beings know linguistically (i.e. what our brains actually know) (Sampson, 1980). Other approaches (e.g. Halliday and SFG) simply attempt a useful way of organising information we know so it becomes tellable and accessible to readers. These two different approaches to linguistic description were contrasted by Householder (1952) as ‘God’s truth’ versus ‘hocus pocus’. In the former, the linguists’ role is to find out the structure of human linguistic competence and to describe it clearly while the ‘hocus pocus’ position considers a language to be an incoherent mass of data and linguists perform the task of arranging, organising and imposing a sort of intelligible structure on this mass (Householder, 1952). The former approach makes a

stronger case for the tellability of tacit knowledge but even the latter succeeds in putting into words knowledge that has previously been unarticulated.

Another example on how tacit knowledge has been made explicit is given by Rice (2015) in terms of the ability of articulating knowledge about physical environment without being experts. Rice interviewed university students who developed specific experiences about the design of their university campus. They described this design in terms of that of a prison. Thus, she observed that those students' experiences helped them produce tacit knowledge that had not been articulated using the technical vocabulary of disciplinary specialists, but it was articulated in a particular discourse. The two examples mentioned above can help me deal with the shortcoming of the theorisation of tacit knowledge: the claim of the impossibility of putting it into words. It can be said that there is still an ability for giving explicit information about what people tacitly know. Therefore, the weak position is adopted as a point of departure in this thesis to study what information is made explicit – and what is not made explicit – by RA writers in the accounts of their methodology.

Tacit knowledge can offer an important contribution to identify referents relying on the functional relation between two entities. Polanyi (1983, p. 10) illustrates this relation as follows: 'we know the first term only by relying on our awareness of it for attending to the second'. He describes the first entity as proximal of which our knowledge may not be tellable and from which we attend, and the second as distal which we attend to. Polanyi clarifies that particulars in the proximal entity appear in isolation while they appear as a comprehensive unit in the distal entity (for a collection of Polanyi's essays, see Grene, 1969). He adds that looking at the particulars in

isolation does not yield comprehension and they are meaningless while seeing the coherent unit which these particulars constitute makes them meaningful and raises our awareness of them. To further demonstrate the from-to relation, Polanyi claims that tacit knowledge has a power of integration that can integrate a set of sounds (proximal) to an entity (distal) after they have been converted tacitly into the name of that entity. Making sense of the sounds is achieved by attending from them to the entity which shapes their meaning. Attending from particulars to the comprehensive entity of which they are part is a process of interiorising that endows these particulars with meaning.

The process of attending from the proximal to the distal entity can be useful in the current analysis to help identifying the referents of nouns and have better understanding of different terms used by the RA writers. This, in addition to the tellability principle of information discussed above, can help show what information may be needed and help identify what the writer assumes is known to readers and can form part of a shared knowledge. In addition, the use of the bottom-up allows referring to the given linguistic choices in the accounts of methodology to determine how referents are identified and who the writer assumes the reader is. Another way to look at the linguistic features is by making reference to some practices of the 'linguistic model of naming' designed by Jeffries (2010, p.18). One of these practices includes the selection of a noun to identify a referent and another is to look at the modifiers accompanying a noun to give a clearer identification of that referent.

3.2 Database and selection criteria

The database for this study consists of two sets of RAs in the area of Curricula and Methods of Instruction. One set is written in English and the other set in Arabic. The English set consists of 36 method sections while the Arabic consists of 40 sections. These sections were selected from RAs published in prestigious English and Arabic journals in the field of Education. Articles in Curricula and Methods of Instruction are published in Educational journals. Choosing the Educational field is based on the importance of the methodology in Educational research compared with other areas such as Biochemistry (Swales, 1990). Swales (1990, p.170) explains that this importance is due to a number of parameters such as ‘the nature of the discourse community, the level of agreement about appropriate methodology, the extent to which a demonstrably adequate methodology is deemed necessary, and the role assigned to controlled experiment in the discipline’. It seems that these aspects indicate that methodology is problematic in the Educational field that it is in others and therefore has to be made explicit. Perhaps this salience of methodology is shared by a number of related fields. However, all aspects of methodology tend to be made explicit in the Educational field more so than others, so that in this study we can see all aspects of methodology displayed.

The second reason for considering the Educational field is as Fakhri (2009) states that this field shows considerable cultural characteristics. The third reason for choosing this field is to be able to find RAs published in Arabic. In scientific disciplines, researchers in the Arab world publish their work in English.

The RAs included in this study met the following criteria: Firstly, English articles were written by authors affiliated with universities located in countries where English is spoken as the first language. These countries are the United States, the United Kingdom, Canada, Australia and New Zealand. The Arabic articles were written by authors affiliated with universities in countries where Arabic is spoken as the first language. The countries that are deemed to have Arabic as L1 are Algeria, Sudan, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine, Qatar, Somalia, Sudan, Syria, Saudi Arabia, Bahrain, the United Arab Emirates and Yemen. This criterion can show that all authors partake of a particular academic culture. This means that the RAs were written by authors who belong to universities in countries deemed to have English or Arabic as L1.

This criterion does not rely on the native-speaker status because it is very difficult to determine if the authors are native speakers. Rampton (1995) argues that although nativity implies language inheritance, one can acquire a language in social settings. This can happen by being members in many social groups such as the family and region. When this membership changes, the language changes too. Another reason for not considering the native speaker status is that there can be RAs written by non-native speakers, but they have a native-like status. Rampton adds that non-native speakers can do things such as writing reports that native-speakers cannot. It can be misleading to consider one as a native-speaker of a language just by being born in the group where that language is spoken as s/he may not speak that language well (Rampton, 1995).

Secondly, all RAs belong to the discipline of Curricula and Methods of Instruction. There are other sub-disciplines that fall under the umbrella of Educational Sciences such as Educational

Psychology, Educational Administration, Special Education, Educational planning, Educational Technology and Educational History and Philosophy, but they are not included in the analysis in order to avoid variations that might occur between these sub-disciplines. Swales and Feak (2004, p. 224) maintain that ‘Methods are very variable across the disciplines’. Such variations are considered as a possible variable which was excluded by sticking to just one clearly defined sub-field to make sure that the data are consistent and properly comparable. Another practical reason for choosing Curricula and Methods of Instruction is due to my familiarity with this sub-field that can help me in analysing the data.

Thirdly, all articles are experimental or quasi-experimental and review articles are excluded. Finding RAs whose design is experimental or quasi-experimental is an indicator that these articles contain a methods section. These kinds of research design involve manipulation of one variable as an intervention and examining its effects on other dependent variables. There can be some other extraneous variables affecting the dependent variable of a study, but these are controlled in the experimental design by allowing the random assignment of participants to any of the experimental or control groups. Each participant in this design has an equal chance of assignment to these groups. When it becomes difficult to control the extraneous variables, researchers implement a quasi-experimental design wherein participants are not randomly assigned to the conditions of a study.

Fourthly, all articles were published within (2013-2014) to make sure that the genres of RAs are the most current as these years were the two most recent, readily available at the time of the data collection. Furthermore, a genre might undergo some changes through time (Swales, 1990).

Thus, the RAs were selected within a span of two years. These contiguous years (not e.g. 2009 and 2014) were selected because the focus of the present study is not on diachronic variation but rather on presenting a synchronic picture (the cross-cultural variation). In addition, this timespan would give enough data and choosing a shorter span might risk the possibility of an atypical dataset due to special issues of journals, which are guest-edited.

Finally, all articles were published in prestigious journals. These journals are likely to have the most influence in the field, with the most respected academics in the field wishing to publish in them more than others, to some extent acting therefore as a model for articles written in this field. They are also likely to have a large and wide (though not necessarily the largest) readership.

3.3 Data collection procedures

To ensure that the journals are prestigious, the English journals were selected according to their impact factors as provided by the Journal Citation Reports (2013 and 2014). Kanoksilapatham (2005) used the same procedure in selecting the top journals for her study. The following tables show the ranks of the top Educational journals in 2013 and 2014 as classified by the Journal Citation Reports, respectively:

Table 3. 1 Journal ranks in 2013

Journal	Impact factor
1- Review of Educational Research	5.000
2- Educational Psychologist	4.844
3- Journal of Research on Educational Effectiveness	3.154
4- Educational Research Review	3.107
5- The Journal of the European Association for Research on Learning and Instruction.	3.079
6- Journal of Research in Science Teaching	3.020
7- Educational Researcher	2.963
8- Science Education	2.921
9- Journal of the Learning Sciences	2.862
10- Research in Developmental Disabilities	2.735

Table 3. 2 Journal ranks in 2014

Journal	Impact factor
1- Review of Educational Research	3.897
2- Educational Psychologist	3.611
3- The Journal of the European Association for Research on Learning and Instruction.	3.585
4- Journal of Research in Science Teaching	3.162
5- Scientific Studies of Reading	2.941
6- Reading Research Quarterly	2.884
7- Science Education	2.825
8- Computers and Education	2.556
9- Educational Researcher	2.527
10- Internet and Higher Education	2.463

The journals *Review of Educational Research* and *Educational Research Review* are excluded because they publish only reviews of research literature which make them different from original RAs. The journal *Educational Psychologist* is also excluded because it does not publish empirical RAs. Therefore, the selected journals that are at or near the top are 1- *Journal of Research on Educational Effectiveness (JREE)*, 2- *The Journal of the European Association for*

Research on Learning and Instruction (EARLI) and 3- *Journal of Research in Science Teaching (JRST)*. Moreover, all these journals are refereed, international and have global readership. The editors of these journals are affiliated with respected universities in the United States, the United Kingdom, Australia, New Zealand and in some other European countries.

On the other hand, there is no classification for the top Arabic journals. Therefore, two Jordanian experts in the field of Education were consulted to recommend the prestigious Arabic journals in Education. One of them is a member in the editorial board of a Jordanian journal and the other is associate professor in Curricular and Methods of Instruction. The two experts agreed that the following three journals have high prestige in Education: 1- *Almajalah al'urduniyah fii al'uluum altarbawiyah: The Jordanian Journal of Educational Sciences (JJES)* which is published quarterly by the Deanship of Research and Graduate Studies, Yarmouk University, Jordan. 2- *Almajalah aldawliyah ll'abHaath altarbawiyah: The International Journal for Research in Education (IJRE)* which is published at the United Arab Emirates University. 3) *Majalat al'uluum altarbawiyah wa alnafsiyah: Journal of Educational and Psychological Sciences (JEPS)* which is published by the Faculty of Education at the University of Bahrain. The members of the consultative board of these journals are professors from well-regarded and international universities located across the Arab world, in the United States and in the United Kingdom. These journals are international, refereed and bilingual. Researchers can publish their articles in either English or Arabic and their papers are considered for promotional purposes.

After selecting the top journals, some procedures were employed in collecting the appropriate RAs. Firstly, I have collected the abstracts of the Educational RAs published in 2013 and 2014.

Then, I have gathered information about the authors from the RAs to ensure that they meet the first criterion. After that, I have decided which articles are experimental or quasi-experimental by reading the abstract and looking for helpful keywords which are experiment, intervention, control group, experimental group, treatment condition, experimental design or quasi-experimental design. The presence of one of these words is enough to satisfy the third criterion. I have used this strategy instead of downloading all articles and looking for methodological elements. It was sometimes slow to download an article due to some errors in internet connections. The next step was for one of the experts and I to sit together and read the keywords of the RAs and then the titles and/or the abstracts to identify which of them belongs to Curricula and Methods of Instruction. The keywords given in all of the RAs could give initial indication that the RAs are related to this sub-field, but it was necessary to read the abstracts to make sure of this. The keywords and phrases that help identifying the RAs as belonging to this sub-field are those that denote the use of different teaching strategies, educational programmes or language skills-related interventions. Some of the keywords are as follows: construct map, case/schema-based instruction, problem-solving strategy, inquiry instruction and team/collaborative learning. Finally, I have only downloaded the complete articles that satisfy the selection criteria mentioned above in section 3.2.

The highest number of articles was selected from EARLI because this journal occupies the fifth rank in 2013 and the third rank in 2014. Thus, data were collected from this journal in 2013 and 2014, as can be seen in table 3. 3. Other RAs were chosen from JREE only in 2013 and from JRST in 2014 according to their ranks in those years.

Table 3. 3 Total number of English RAs

Journal	No. of RAs in 2013 that matches the criteria	No. of RAs in 2014 that matches the criteria	Total number of selected
EARLI	14	11	25
JREE	4	-	4
JRST	-	7	7
			36

The RAs were collected from the Arabic journals in 2013 and 2014, as shown in table 3. 4.

Table 3. 4 Total number of Arabic RAs

Journal	No. of RAs in 2013 that matches the criteria	No. of RAs in 2014 that matches the criteria	Total number of selected
JJES	6	6	12
IJRE	2	8	10
JEPS	8	10	18
			40

3.4 Analytical framework

The framework that has been initially used in this study is Nwogu's (1997, p. 135) outline for the methods section of Medical research papers. His study was conducted on all sections of RAs chosen from five referred medical journals. The outline consists of the following moves and constituent elements:

Move 1: Describing Data-Collection Procedure.

1-1 Indicating source of data.

1-2 Indicating data size.

1-3 Indicating criteria for data collection.

- Move 2: Describing Experimental Procedures.
 - 2-1 Identification of main research apparatus.
 - 2-2 Recounting experimental process.
 - 2-3 Indicating criteria for success.
- Move 3: Describing Data-Analysis Procedures.
 - 3-1 Defining terminologies.
 - 3-2 Indicating process of data classification.
 - 3-3 Identifying analytical instrument/procedure.
 - 3-4 Indicating modification to instrument/procedure.

This outline was used by Mur-Dueñas (2007) in analysing 24 method sections of Business Management RAs written in English and Spanish. The RAs were selected from four journals published during 2003 and 2004 in each of the two language communities. The results indicated that some steps of Nwogu's (1997) outline do not appear in Mur-Dueñas' (2007) sample. These steps are: 3-2 indicating process of data classification, 3-3 identifying analytical instrument/procedure and 3-4 indicating modification to instrument/procedure. On the other hand, there are some new steps found in Mur-Dueñas' (2007) sample which are not present in Nwogu's (1997). These include 'outlining variables and measures', 'reference to previous literature' and 'reference to past research which follows a similar methodological procedure'.

In addition, Nwogu's (1997) outline was also adopted by Huang (2014) to analyse five Medical RAs which were published between 2005 and 2013. The moves and steps that occur in Huang's study are different from Nwogu's. The first move in Huang's is to describe the materials of the study and it is realised by steps different from those within the first move in Nwogu's; they are 'length of study period' and 'type of data'. The second move differs from Nwogu's in the sense that it describes what criteria the subjects have to meet. Although the third move carries a name similar to the second move in Nwogu's outline, it consists of three different steps, which are:

randomisation, the measure used and a summary of results. Move 4, ‘analysis of the experiment’ is realised by two steps similar to those in Nwogu’s. The two steps describe the statistical tests and the software used to make the calculations. However, steps 3-1, 3-2 and 3-4 in Nwogu’s outline are not available in Huang’s.

Nwogu’s outline was initially applied to a sample of three English RAs; one article from each journal. It was found that his outline does not accommodate the data under investigation because some moves and steps in the outline do not match with the sample. As a result, bottom-up processing was employed by exploring the linguistic features and deciding what step they can represent and under what move a step falls (for more information on employing bottom-up processing, see section 3.5 below). The outline was inductively developed by adding some moves and steps which appeared to become necessary for representing the accounts of methodology. The following are the modifications which were performed at the level of moves and resulted in changing the constituent steps: the first move, ‘Describing data-collection procedure’ falls under the new move, ‘measure’ and it is replaced by the move, ‘sample of study’. The modified version contains ‘sample of study’ as the first move which consists of the following steps: 1- size of sample, 2- study population, 3- setting and site of study, 4- characteristics of sample and 5- sampling technique/design. The second move is identical to Nwogu’s, namely, ‘procedures of study’. Under this move, the steps 1- design of study and 2- implementing of an intervention or a material are added. This move also describes the fidelity of implementing the experiment and identifies the interventionists. The third move, ‘measure’ consists of the following steps: 1- identify a measure of variables, 2- items of a measure, 3-

validity and reliability of a measure, 4- data collection and 5- scoring procedures. The last move, ‘data analysis procedures’ is the same as the third in Nwogu’s, but with differences between the constituting steps. It is composed of 1- statistical analysis model, 2- statistical test, 3- performing preliminary analysis and 4- analysis procedures. These moves and steps are outlined in table 3.5 below.

Table 3. 5 The modified version of Nwogu’s (1997) outline

Moves	Steps
1- Sample of study	1- size of sample 2- study population 3- setting and site of study 4- characteristics of sample 5- sampling technique/design
2- procedures of study	1- design of study 2- implementing of an intervention or a material 3- fidelity of implementing the experiment 4- identifying interventionists 5- identifying apparatus 5- recounting procedures
3- Measure	1- identify a measure of variables 2- items of a measure 3- validity and reliability of a measure 4- data collection 5- scoring procedures
4- data analysis procedures	1- statistical analysis model 2- statistical test 3- preliminary analysis 4- analysis procedures

3.5 Procedures of the analysis

The data analysis proceeded as follows: The first procedure was conducted based on top-down process using Swales’ (2004) move analysis approach to identify the moves and steps of the

accounts of methodology by reading and understanding the general purpose of the texts and the specific rhetorical function of text segments. I then began matching the moves and steps from Nwogu's (1997) outline with my data. As mentioned above, I used a sample of three English RAs and found that my sample does not match with some moves and steps from Nwogu's and this resulted in modifying the outline.

The modification of the outline occurs in a bottom-up processing by starting at the first level with analysis of the linguistic elements: tense, voice and the lexico grammatical features to help determine the steps and then the moves. Dudley-Evan (1994) relied on the linguistic evidence and on understanding both the text and the discourse community's expectations of the text in determining the moves of the discussion section.

The lexico grammatical features that realise the moves and steps were described using the systemic functional grammar approach (Halliday, 1985) in the first level of analysis. Halliday and Matthiessen (1999) demonstrate that there are three metafunctions for making meaning: ideational, interpersonal and textual and they are all realised in the lexico-grammar system. The focus of the current analysis is on identifying the components of ideational meaning; participants, processes and possibly circumstances, all of which are assigned semantic labels (Halliday, 1985). Identifying the ideational meaning helps in showing which semantic label is used to realise a step and what types of processes are used to realise one step. Halliday explains that there are three main process types realised by verb groups and each process has its own participants realised by noun groups. The different types of processes with their participants form the transitivity analysis. The first process is the material (doing/happening) and it involves the

following participants: 1- an actor who performs an action; 2- a goal affected by the action; 3- a recipient, who receives something and 4- a client, for whom something is done. The second process is a mental one (sensing) and it includes two participants: a conscious one (senser) performs the mental process and what is perceived, thought, or felt (phenomenon). The third process is the relational process (being/having) and it is of two types: 1- The attributive process has one participant (carrier) and it is assigned an attribute. 2- The identifying process has a participant (token) and it represents another one (value). These two processes can also be possessive ones, in which one participant is a possessor that owns something (possessed). The circumstances are adjuncts or prepositional phrases that are optionally attached to the process. Halliday adds that there are other types of processes such as: 1- The behavioural process, which comes between material and mental processes, 2- The verbal process has a participant (sayer) saying something (verbiage) to another (receiver) and 3- The existential process indicates that something exists called existent.

In the analysis of the linguistic features of the Arabic data, transcription and word by word translation are given under some examples to give a clearer image of the original construction and word order employed in the Arabic examples. The transliteration was conducted based on the transcription system used in Najjar's (1990) study.

The second level in the bottom-up processing includes making inferences about the function of text segments to assign steps for the linguistic constructions. The third level investigates what purpose a set of steps can share to classify them under a move. A small number of steps and moves from my data were matched with the ones in Nwogu's (1997) outline while several new

ones were added to the outline. This modified version, already presented in table 3.5, was applied to all of the sample, to which the same series of bottom-up steps as described above were applied. The resulting moves and steps were matched with those in the modified outline. This stage includes adding any new moves or steps to the modified outline if there was no match with the existing ones. The fourth level ends with one final modified outline for the accounts of methodology of the English RAs and one for the Arabic. To obtain reliability of move analysis, a rater participated in analysing the data. The rater is a PhD candidate in Linguistics. Two training sessions of two hours each, were conducted to make sure that the rater knew how to analyse the data. The rater was asked to use the final modified outline to assign the sentences, clauses or phrases to a move or a step type. And then, the rater and I discussed the findings of the analysis and solved small discrepancies, as presented in section 3.6. The final level of the process combines the final outlines to form the whole picture of a non-language-specific framework for the accounts of methodology.

The second procedure of the data analysis was to analyse the accounts of methodology by identifying the assumed shared knowledge using the perspective of tacit knowledge. This was accomplished by relying on the tellability principle of information which reveals whether the writers of RAs give information about what they tacitly know or not. In addition, the functional relation aspect of tacit knowledge was employed to help identify the referents of nouns by attending from the particulars in the proximal entity to the distal entity which shapes the meaning of these particulars. The distal entity represents the coherent entity that makes the particulars in

the proximal entity meaningful. In other words, it is a process of attending from the terms the RA writers provide to the comprehensive entity that represents these terms.

The technique ‘textual intervention’ designed by Pope (1995) was used to find out what effect on the participants (i.e. the author and those engaged in the text) a change in the text can create. Pope’s work can help show how such participants in the English and Arabic data are put in the steps using his classification of the ‘agent position: personal; interpersonal and depersonalised’ (Pope, 1995, p.49-50).

3.6 Coding reliability

3.6.1 Coding reliability in English RAs

After the rater had finished analysing the data, we found few disagreements at the step level. We then discussed the differences and reached an agreement. The following formula presents the percentage of agreement in the analysis of the English articles:

$$\frac{\text{Number of agreements}}{\text{Number of agreements} + \text{number of differences}} \times 100 = \text{percentage of agreement}$$

Number of agreements + number of differences

$$\frac{747}{747+9} \times 100 = 98.8\%$$

$$747+9$$

One area of disagreement occurred around the step, ‘identifying interventionists’. The rater considered that five articles identify interventionists by using the noun ‘experimenter’. As mentioned in section 5.1, this noun does not identify who the interventionist is and thus it cannot

be considered that these articles have this step. Another difference was in the step, 'identifying the apparatus'. The rater did not notice that one article mentions the apparatus indirectly, as in the example: 'Web-Based Inquiry Photosynthesis Unit'. Therefore, s/he agreed to add this article to those that identify the apparatus. Other differences occurred in identifying the steps, 'situation of study', 'recounting procedures' and 'analysis procedures'. The rater considered that three RAs do not include these steps as s/he did not recognise that these are represented in the articles. After discussion, we solved the discrepancy.

3.6.2 Coding reliability in Arabic RAs

The percentage of agreement in the analysis of the Arabic articles, based on the preceding formula, is as follows:

$$\frac{714}{714+6} \times 100 = 99.1\%$$

There were differences in identifying the following four steps: scoring procedures, setting and site of study, characteristics of sample and population of study. The rater reported that two articles include 'scoring procedures' because they mention that the writers followed standards to score the data, as seen in section 5.2. However, the writers of these articles claim that scoring is accomplished based on some standards which are not given in these articles, so these article were excluded from those having this step.

The step, 'setting and site of study' was initially excluded from my analysis in two RAs because they do not show the site of study. However, it can be known to many people which country the setting belongs to. Thus, the two articles were then added to those including this step.

The rater considered that one article does not have the step, 'characteristics of sample' because s/he did not notice that it appears immediately before the beginning of the methods section. S/he also thought that one article includes the step, 'population of study', but it appears that there is no clear identification of the study population in that article. Therefore, it was excluded from those containing this step.

Chapter four

Linguistic features

This chapter is at the first, ‘micro’ level of bottom-up processing and is divided into three sections. The first two sections describe the linguistic features which realise all of the steps in the RA accounts of methodology using transitivity analysis. They show what process type/s used in each step and how these features are put together. For each step, some examples from the RAs are provided to demonstrate how that step is realised. In addition, these sections describe the roles of the participants (i.e. the authors and the subjects of the RAs being reported) and their relation to the activity described. The third section summarises and discusses the linguistic features.

4.1 The English RAs

Move 1: sample of study

Step 1: size of sample

The size of sample is realised by a number, simple past tense (e.g. consisted, participated, completed, attended, included, volunteered, recruited) and noun phrase (e.g. our sample, a total of, complete data) or nouns (e.g. students, teachers). It is not enough to look only at the number to know the size of sample included in a study because the number can refer to those who did not participate in the study, as in example 6 below.

1- Our sample consisted of 1,163 seventh-grade students and their 15 teachers from 42 classrooms at six middle schools in the three school districts. (JREE 1)

2- In total, 48 kindergarten teachers and 162 students from 10 elementary schools participated. (JREE 2)

3- A- A total of 528 students were randomized prior to treatment onset;

B- 472 students completed the study, as indicated by a posttest score on the Gates–MacGinitie.

(JREE 3)

4- Three hundred thirty-two 7th-grade students from 11 classes participated in this study.

(JRST 2)

5- Nine teachers from eight schools in six U.S. states volunteered to participate in STaRRS.

(JRST 5)

6- A- Out of the 260 eligible teachers from the 64 schools, a total of 37 were not included in the study.

B- Therefore 227 teachers participated in the study, but 223 provided adequate data to be included in this analysis. (JRST 3)

7-Data were collected from 91 children, with complete data from 86 students. (EARLI 5)

It can be seen that there are different presentations of the roles of the subjects of these studies. To some extent, these can be placed on a cline from active to passive. Some sets of subjects are presented as active entities (with their own agency) in the study being reported in the RAs:

- 3 sets (2, 4, 6b above) ‘participated’ in the study.
- 1 other (3b) ‘completed’ it.

- 1 other (5) ‘volunteered to participate’.

Other sets are accorded no agency at all:

- In 1 above they are just members of a ‘sample’.
- In 3a, 6a and 7, they are the subjects of passive verb formations (i.e. they were acted upon).

Most of the examples above (2, 3, 4, 5, 6b, and 7) include a material process. In 2, 3b, 4, 5 and 6b, ‘participated’, ‘completed’, ‘volunteered’ denote a material process and the subjects of the studies are the actors. They are presented as co-creators of the results of the study and its analysis. In 3a and 7, the subjects ‘528 students’ and ‘91 children’ are the goal and the circumstance, respectively, of passive verbs. Another type of process is relational possessive as in 1: ‘our sample’ is possessor and the subjects of the study ‘1,163 seventh-grade students’ are possessed. This example is different from the others because it is presented by an overt ‘our’ and thus it is addresser-centred. It is primarily ‘personal’ and readers can imagine that it has absent agents referring to the researchers who selected the study sample. The other examples are ‘message-centred’. They have no overt addresser or addressee as they are all centred on the third person and are primarily ‘depersonalised’.

Step 2: Population of study

There is only one article which has a subsection entitled ‘population and participants’ wherein the writer describes clearly the study population. A few other articles indicate clearly to this step

within the circumstance (mainly after the preposition ‘from’) of a material process, as in 1 below or of a relational process as in 2:

1- Students were recruited from a large organic chemistry course at Texas A&M University (N = 225). (EARLI 14)

2- Participants in Experiment 1 were 56 students from Education courses of a large Australian university. (EARLI 3)

Step 3: Situation of study

This step is represented by a noun phrase describing a place such as a school or a university to show the setting of a study and a noun phrase revealing a year to show the time of a study. These elements are located as the circumstance of a sentence whose process type is either material or relational. The example below has active agency ‘we conducted’, whose process is material. The rest of the sentence ‘during...high school’ gives the time and place of the study in the circumstance.

1- We conducted this experiment during the 2010 summer academy at MATCH Charter Public Middle School and High School. (JREE 4)

The next example has passive verb formation and the setting of the study is in the circumstance:

2- This study was conducted in six middle schools located in three school districts (two near-urban and one urban) in two states. (JREE 3)

The setting of a study appears in a relational circumstantial process type, as in:

3- The site for this study is an urban research university in the Midwest. (JRST 4)

‘The site for this study’ is the token and ‘urban research university’ is the value.

Example 1 is different from 2 and 3 because it has an overt ‘we’ (speaking subject) and primarily personal. The use of ‘we’ means that the authors’ role is conflated with the interventionists’ role because the authors position themselves as actors engaging in the material process ‘conducted’. This sentence can have another effect on readers if it is rewritten as: ‘the researchers conducted...’. This can show that the researchers are the interventionists allowing for a separation of the roles. Example 2 and 3 are ‘depersonalised’ as they are centred on the third person ‘study’ and ‘site’. They separate between authorial role and the interventionist role. In 3, it can be said that there are absent agents who carried out the experiment in that university. It can be rewritten as: ‘two teachers implemented the experiment in an urban research university’, making the ‘teachers’ as active agents and the ‘university’ becomes in the circumstance.

Step 4: Characteristics of sample

This step includes information about gender, age, ethnicity, educational level and experience. Nouns such as characteristics and demographic are used to indicate this step. They are employed most often in a relational process type as in:

1-A- The mean age of the students was 12.83 (SD = 0.38).

1- B- The majority of the students were Caucasian (60%). (JREE 1)

In 1a, 'the mean age' is the token and '12.83' is the value. In 1b, 'the majority of the students' is a carrier and 'Caucasian' is attribute. In the example below, the characteristics of sample occur as attribute, 'advanced students' and circumstance, 'with an average age...'

2- They were all advanced students with an average age of 22.2 years. (EARLI 2)

The subjects in 1b and 2 are not doing anything and they are just assigned a quality. Characteristics appear also below in a relational possessive type where 'the nine teachers' is possessor and '5...experience' is possessed.

3- The nine treatment teachers had between 5 and 21 years of experience. (JRST 5)

A few sets of characteristics are represented by a combination of material and relational process type, as in:

4-A- 34% of students received free or reduced lunch,

4-B- 11% were special education students. (JREE 1)

5-A- All teachers earned a bachelor's degree,

5-B- and eight possessed a master's degree. (JREE 3)

In 4a, the sets 'free or reduced lunch' are the goal for a material process while in 4b and 5b they are ('special.../master's degree') in a relational process type. 5a presents an example of a problem with systemic functional classification: from a strict syntactic point of view, the process here is presented as a material one, but from the point of view of meaning relevant to this context, it is clearly a relational one because this sentence means that the teachers have a

bachelor's degree. The sets of characteristics, as well as the size of sample, appear also as existent in an existential process type in a few instances. This type of process introduces the subjects of the studies into discourse, as in the following:

6- There were 79 females (56%) and 61 males (44%). (EARLI 4).

All examples above show that the subjects of the studies being reported are 'spoken-about' as the focus is on the third person (they): 'students' or 'teachers'.

Step 5: Sampling technique/design

This step is realised by nouns describing sample (e.g. participants, students, classroom, and groups), noun phrases such as treatment condition and control condition, simple past tense such as assigned (most commonly used), allocated, randomised, nested and selected and adverbs such as randomly. Sampling technique is represented in a passive verb form, as in the examples below, and rarely in an active form.

1- First, 64 schools were randomly selected from a pool of 206 available schools '...' Second, the 64 schools were randomly assigned to 32 experimental and 32 control schools. (JRST 3).

2- The participants were recruited via web advertising and through university friends of those students '...'. The students were randomly allocated to one of the four conditions (EARLI 3).

These examples have no active agency. The sample ('schools'/ 'participants'/ 'students') is the goal of passive verb form and the sampling method (1- 'randomly'/ 2- 'via...students') is the circumstance of the material process: were selected/assigned/recruited/allocated. This way of

reporting sampling design is found in most of the English RAs. The actors in these examples are absent and they can be referred to as researchers who engaged in designing the sample. These examples can be rewritten as: the researcher selected, recruited or allocated students, showing how the actor ‘the researcher’ acted upon the students in his selection process.

A different case below shows that the technique is represented by the material process itself in the passive verb form:

3- A total of 528 students were randomized prior to treatment onset. (JREE 3)

4- Five groups were self-contained with one teacher instructing students in all subject areas. (JRST 5).

Moreover, sampling technique can be placed as the goal of a passive form, as in:

5- A two-phase process was used to identify children who were eligible to participate in the study. (JREE 2).

In all of these examples (1-5), the subjects of the studies are acted upon, but they are not passive subjects because they have a role in participating in the experiment. For instance, example 2 above can be followed by: they worked in groups in the experimental condition.

Sampling design is also represented in sentences with active agency:

6- We then randomly assigned seven of the 14 class-taking groups to either the treatment or control condition. (JREE 4).

7- Thirty students served in the enhanced group and 34 served in the control group. (EARLI 1).

8- Students from two schools participated in the experimental condition while students from the other two schools acted as the comparison group. (EARLI 5).

In 6, the method ‘randomly’ is the circumstance and the sample ‘seven...groups’ is the goal. It is the authors who are the active party. This example is centred on the addresser through the overt use of ‘we’, which shows that the writer role is conflated with designer role. In 7 and 8, the sample, ‘students’ are the immediate agents having the function of co-designer of the sampling method. These examples are message centred/depersonalised.

Step 6: Motivation

This step is realised by some nouns (e.g. payment, gift, stipend), numbers (e.g. \$ 10) and simple past tense (received, were given, was provided). In the examples below, there is no active agency. The subjects are the beneficiaries and the motivation (‘gift card’, ‘payment’ and ‘\$35’) is the goal of a material process type.

1- To finish the session, the participants received the gift card. (EARLI 3).

2- Payment was provided upon completion of the second session. (EARLI 14).

3- The top scorer on the test questions would receive an additional \$35 at the end of the study. (EARLI 4).

Move 2: Procedures of study

Step 1: Design

The most common verb and noun utilised in this step in the majority of the RAs is ‘design’; it is used in simple past tense form as a verb. Some other verbs as: used, utilised and employed also exist.

1- To isolate the causal effect of teacher–family communication on student engagement, we designed *a cluster randomized trial*. (JREE 4 –my italics)

2- We used *a randomized treatment-control, pretest–posttest design*. (JREE 1 –my italics)

The name of the design in 1 and 2 (in italics) occurs as a goal of a material process type. The examples above have active agency ‘we’ which means that the authors position themselves as actors involved in the material process. They made their trial in (1) and applied their design in (2). Therefore, the authorial role and the figure role are conflated, while using the ‘study’ in the following examples separates these roles:

3- The study used *a cluster randomized trial design*. (JRST 1 –my italics)

4- This study utilized *a within-subjects A–B–A–B research design* across four topics with lecture as a baseline condition (A1 and A2 phases) and case-based instruction as the treatment condition (B1 and B2 phases). (JRST 3 –my italics)

5- This study employed *a cross-over intervention design*. (EARLI 6 –my italics)

6- *A pre-test–post-test single group design* was used to assess impact on teachers’ science content knowledge, attitudes, and pedagogical strategies. (JRST 5 –my italics)

These examples have no personal agency and the design performs as the goal of a material process (see italics). In 6, it is placed in the subject position of passive verb construction.

Step 2: Identifying interventionists

The interventionists in the English RAs are almost teachers or the researchers themselves. The following examples show different roles of those who implement the experiments of the RAs:

1- Kindergarten classroom teachers served as interventionists in each classroom. (JREE 2).

2- A total of 11 peer leaders and both chemistry faculty members who taught the course participated in one-on-one interviews. (JRST 4).

3- The teachers of these students (11 female, 4 male) had a mean age of 31.27 years. (JREE 1)

4- The instructor was familiar with the case study method having previously implemented cases in the same course. (JRST 1)

5- We replicated a procedure ‘...’ and asked participants to rate their understanding. (EARLI 2)

6- Students were taught by two science teachers who had six years of experience. (JRST 2).

7- The Number Net classes were led by another member of the research team, who was also a former teacher. (EARLI 5).

The interventionists in the examples 1, 2, 5, 6 and 7 (‘classroom teachers’, ‘peer leaders and chemistry faculty members’, ‘we’, ‘science teachers’ and ‘another member...’) are active entities. They function as the actors of material processes (served, participated, replicated, were taught and were led). The only difference is that the active agents in 5 are the authors, who

implemented the procedure. The active entities here have an authorial role conflated with empirical role. It is also conflated with a speaker role indicated by the verbal process ‘asked’, which gives the authors an authoritative voice. In 6 and 7, the interventionists are placed in the subject position of passive voice. They have an active role represented by the material processes of teaching and leading the subjects and a non-active role given by the relational possessive process ‘had six...’ in 6 and by the identifying process ‘was also...’ in 7. Similar to this role, in 3 and 4, the interventionists are possessors and carrier, respectively in a relational process performing no action.

On the other hand, the interventionists (‘members of the research’ and ‘teachers’) in 8 and 9 below act as the goal for the material process ‘were assigned’/ ‘directed’. In 10, they ‘teachers’ act as receiver for the verbal process ‘were asked’:

8- Three members of the research team were each assigned to a group of treatment schools.
(JRST 3)

9- We directed teachers to focus their texts/notes on the third component of the phone call protocol. (JREE 4).

10- Teachers were asked to implement the intervention for 50 min a day. (JREE 3).

In 8 and 10, there is no active agency. The verbal process in 10 shows that there is an authoritative voice given by an external absent agent who has only a role of sayer. The ‘members...’ in (8) and the ‘teachers’ in (10) are acted upon, but they are not passive subjects as they are the interventionists. For example, the sentence in 8 can be changed to: Three members

of the research team worked with a group of treatment schools, confirming that they are actors having an active role in the implementation procedure. In 9, the active entities are the authors who have another role as instructors of the interventionist; thus, they can be considered as meta-interventionists.

This step shows also how to prepare the interventionists to be able to implement the intervention.

The examples below clarify how this sub-step is realised:

1- A- The professional development familiarized interventionists with lesson structure ‘...’.

B- Interventionists viewed publisher-developed video clips of lesson elements and participated in hands-on sessions with the curriculum materials ‘...’. (JREE 2)

2-A- All teachers in this project participated in 12 hours of professional development ‘...’.

B- The training consisted of (a) engaging teachers in a discussion of how their students would approach Ratio ‘...’. (JREE 1).

The noun phrases (‘professional development’ and ‘the training’) and the simple past tense (‘familiarized’, ‘viewed’, ‘participated’ and ‘consisted’) indicate that preparing interventionists occurs. These verbs in simple past tense create three process types. Firstly, in 1a, there is a mental process type ‘familiarized’ and the senser ‘interventionists’ is placed in the object position. They were prepared by taking part in ‘the professional development’, which acts as the phenomenon. In 1b, it represents again a mental process ‘viewed’ but with its participants put in order different from 1a. The senser ‘interventionists’ appears at the subject position and ‘publisher-developed...elements’ is the phenomenon in the object position. Secondly, in 2a, there is a material process established by ‘participated’, whose actor is ‘all teachers’ (the

interventionists) and the ‘professional development’, in which the teachers took part, is in the circumstance. Thirdly, in 2b, ‘the training’ is possessor and ‘engaging teachers in a discussion...’ is possessed. They are joined together by a relational possessive process ‘consisted of’.

Step 3: designing and implementing an intervention or a material

One of the sub-steps within this step is the components of an intervention/material and implementation procedures. Some writers, see below, announce explicitly the beginning of this sub-step by nouns like components or parts and simple present tense of ‘comprise’, ‘consist of’ and ‘be’, or simple past tense of ‘consist of’ and ‘include’.

1- The experimental treatment consisted of two components of increased teacher communication. (JREE 4).

2-A The first lesson of the intervention introduced the idea that the way we spell words is not just about writing how, ‘...’. B- The children were told. (EARLI 6)

3-A- Three scientific fieldwork components at Yellowstone National Park (YNP) were developed for STaRRS. B- These included the use of (a) whole group photographic data collection. (JRST 5)

4- The learning materials for this study consisted of four different computer-based presentations on the organization and function of the human nervous system. (EARLI 4).

5- The CSR intervention comprises four comprehension strategies that students learn to use before reading (i.e., preview). (JREE 3).

6-A- It consists of 15 units and covers all topics ‘...’. B- There are three parts in each unit: (i) A Self-Test. (JRST 4)

Most sets of components occur in a relational possessive process as in 1, 3b, 4, 5 and 6a (i.e. consisted/consists of, included, comprises and covers). The grammatical subjects of these examples are possessors (intervention) and the objects are the possessed components. In 2a, there is a verbal process 'introduced' and the components being introduced 'the idea...' are the verbiage. In the context where example 2 occurs, there is an interventionist (a teacher) who introduced that idea of the intervention to the students. The role of the interventionist as a sayer is confirmed in 2b by the second verbal process 'were told'. The inanimate item 'the first lesson' in 2a functions as the source of communication and replaces the interventionist's role. Another set in 3a appears as the goal in the subject position of a material process in passive formation 'were developed'. In 6b, the components 'three parts' are existent coming after existential process 'there are'.

The examples given above include procedures followed in implementing the intervention with its components. For example, number 2 above adds:

2- B-The children were told that parts of words have meaning '...'. They were shown examples of words on the whiteboard '...'. The children were encouraged to identify the base words '...'. Examples were given orally.

The sets of procedures are given here in the passive voice of simple past tense. They are realised by different process types: 1- Verbal processes represented by 'were told', 'were encouraged' and 'were given'. The verbiage: 'that parts ...meaning' and 'examples', and the circumstance 'orally' complete the description of the procedures. 2- Mental process 'were shown' which is

followed by a description of the procedures in the phenomenon ‘examples of words’ and in the circumstance ‘on the whiteboard’.

Other sets of procedures are introduced in sentences with active agency as in 5b below:

5-B- The preview practice encompasses four activities: (a) the teacher introduced the passage topic and preteaches any proper nouns ‘...’, (b) students discussed what they already knew about the topic.

The first procedure has a sayer ‘the teacher’, a verbal process ‘introduced’ and verbiage ‘the passage’. The source of communication is the teacher who introduced the passage because he has an authoritative voice. There is also a material process ‘preteaches’ and the goal is ‘any proper nouns’. The second procedure shows that the ‘students’ have a role of sayer and senser because there is a verbal process ‘discussed’ and the projected clause ‘what they...’ includes a mental process ‘knew’. It should be noted that the existence of different process types here depends on what intervention is used by the researchers and these processes may change accordingly.

The usages of active/passive in 2b and 5b can be swapped as: ‘They saw examples of words on the whiteboard’. ‘The children proceeded to identify the base words’ and (5b) ‘They were introduced to the passage topic by the teacher’. Therefore, the usages of active/passive are not dictated and there is a choice between them. The swap from passive to active in 2b confirms that the subjects ‘children’ are not passive subjects (in the passive form of the sentence), but they are the active party who cooperated in carrying out the experiment.

It is found that the implementation procedures are joined together using sequential words such as first, second, third, after, then, once and finally and linking words such as in addition, when, during, and furthermore.

Step 3 introduces the apparatus used to implement an intervention. The way by which an apparatus is described in an RA is demonstrated below:

1- The apparatus consisted of 5 iMac computers with 21-inch screens. (EARLI 1)

2- The participants watched and performed all tasks on a laptop color LCD monitor of 1500 at a resolution of 1440 _ 900 pixels. (EARLI 3)

3- All materials were presented on Microsoft Windows XP personal computers equipped with monitors and headphones. (EARLI 4).

4- All cPLTL sessions included the various online classroom components: spoken dialog, chat pods, the white board, and camera. (JRST 4).

The apparatus in 1 and 4 ('5 iMac computers' and 'the various...') is possessed in a relational possessive process (consisted of and included). The possessor is the grammatical subject, 'the apparatus' in 1 and 'all cPLTL sessions' in 4. The apparatus in 2 is the circumstance for the mental (watched) and material (performed) processes whose subject 'the participants' are immediate agents presented as creators of data. Example 3 has no active agency and the apparatus 'Microsoft Windows...' is in the circumstance for material process of passive formation (were presented).

Step 4: Recounting procedures

The procedures within this step include what was done in the whole study: before, during and after the experiment. The first phase is an opening one signalled by phrases as those in the italics in the following examples:

1- *At the beginning of* the experimental session. (EARLI 3 -my italics).

2- *At the start of* each session. (EARLI 4- my italics).

3- *First,* the experimenter described the study. (EARLI 1- my italics).

4- Participants in both conditions received an individual paper based *pre-test* in their classroom one week *before the intervention*. (EARLI 5- my italics).

The italicised elements are the circumstances in all of the examples except for ‘pre-test’ in 4, which is identified as the goal of the material process ‘received’.

The first phase also tackles ethical principles. The writers use some noun phrases (‘consent form’, ‘informed consent’ and ‘ethical approval’) with simple past tense most often in passive formation as in:

1- Teachers from the treatment schools were provided with informed consent and then asked to complete the background information form. (JRST 3)

2- Full ethical approval from the Human Research Ethics Advisory of the university was granted for the experiment (Approval No. 11035). (EARLI 3)

3- Written consent was required and obtained from each participant prior to administering the background information questionnaire. (EARLI 4)

4- Informed consent was collected from the students' parents or guardians. (EARLI 5)

It can be seen that ethical principles have the role of goal for the passive form in all examples above. The passive voice in these examples can be swapped to active and shows that the subjects of studies are active party in realising the ethical principles. For example, (4) can be swapped to: the students' parents or guardians provided informed consent. The parents or guardians here function as actors who granted their approval. The ethical principles can also appear as the goal within active formation as in:

5- We obtained active written consent from the parents of 140 of 145 students. (JREE 4)

The second phase describes procedures associated with the conditions of study (i.e. treatment condition with intervention and control group without intervention). The linking words used at this phase are: after the pretest, second, third, and then. The italicised elements below are significant for identifying step 4:

1- *In treatment classrooms*, SBI was implemented in five 45- to 50-min mathematics classes a week over 6 weeks. In the same period (6 weeks), students in the *control condition* were taught the same topics as in SBI classrooms but using instructional practices specified in their textbook. (JREE 1- my italics).

2- *The traditional lecture method*, on the other hand, involved the instructor teaching the topic via lecture. (JRST 1- my italics).

3- Participants viewed the multimedia lesson corresponding to their *treatment group-enhanced or control*-for 5 min. (EARLI 1)

The passive voice in 1 can be swapped to active form such as: ‘students attended traditional classrooms to learn the same topics’. This reveals that ‘students’ are present agents in implementing the experiment.

The last phase is realised by connectors like ‘finally’, ‘to finish the session’ and ‘upon completion of’. For example:

1- Finally, the students completed the individual post-test on paper. (EARLI 5)

2- Posttest data on the same variables were collected. (JREE 1)

It is noticed that by administering a post-test, writers come to the end of step 4. The material processes in 1 and 2, completed and collected, point to the end of a task. In addition, the goal in 1 and 2 (post-test) refers to the test administered after implementing the whole experiment. However, there is a stark contrast between 1 and 2. In (1) the step itself and how it was taken are both described, while in (2) it is just a noun phrase denoting the result of this step. Moreover, the ‘students’ in 1 are the immediate agents having the role of creators of data. In 2, the agents are absent, but they can be inferred as the researchers who have already administered the test. (Absent agents in the sense that they have done something relevant, such as administered the test, at some other time).

Step 5: Fidelity of implementing an intervention or material

This step is realised by the nouns ‘fidelity’ and ‘adherence’ and the way in which fidelity is measured, as in:

1-A: We videotaped 39 observations of classroom instruction ‘...’ to ensure fidelity of treatment.

B: Two observation instruments were used to describe and measure teachers’ adherence to the implemented intervention or curriculum. (JREE 1)

2- Procedural fidelity and adherence of the ERI intervention was assessed by direct observations using a checklist. (JREE 2)

3- Correspondence between the intended and enacted program in treatment classes was the basis for conceptualizing fidelity. (JREE 3)

4- Although systems were in place to monitor and support teachers in the implementation of the treatment. (JREE 4)

The above RAs try to make sure of fidelity of implementation by monitoring the participants (teachers) of study. In 1a, there is a material process ‘videotaped’ in an active form and a goal ‘39 observations’. They are all available to achieve the purpose ‘to ensure fidelity’ given in the circumstance. This example, unlike the remaining examples, has an overt ‘we’ (speaking subject) which allows conflating the writer’s role with observer’s role. 1b is similar to 1a except that it has no personal agents (depersonalised) and it is centred on the message. In 2, ‘fidelity’ is the goal in the subject position of passive construction of material process ‘was assessed’. Examples

3 and 4 carry a relational process, in which ‘correspondence’ and ‘systems’ are the token and carrier, respectively, shaping the way to make sure of fidelity.

Move 3: Measure

Step1: Identify a measure of variables.

Writers of the English RAs present the measure they used in both active and passive forms of different process types. The first one is material process with active agency in the examples below from 1-4 and with passive form in 5:

1- We also used two tests of spatial ability from the kit of cognitive tests by Ekstrom, French, and Harman (1976): Card Rotations Test, and Paper Folding Test. (EARLI 3)

2- We administered the Writing Beliefs Inventory (White & Bruning, 2005) to measure. (EARLI 2).

3- We utilized Mazur's paired problem task (Mazur, 1998). (JRST 1).

4- The experimenter designed 23 item mathematical problem-solving test.

5-A 30-item multiple choice knowledge test was designed to measure. (EARLI 4).

The verbs ‘used’, ‘administered’, ‘utilized’, ‘designed’ and ‘was designed’ in simple past tense express material process type. They are put with the goal ‘test/s’ and ‘task’ in 1, 3, 4 and 5 and with the infinitive clause ‘to measure’ in 2 and 5 to successfully identify the measure. Only 4 and 5 imply or allow for a separation between writer and empirical worker.

The following example shows the realisation of this step through a relational process:

6- *The Gates–MacGinitie Reading Test* is a timed, group-administered assessment of reading comprehension. (JREE 3-my italics)

The measure in italics is the carrier followed by the attribute ‘a timed...assessment’ and the variable ‘reading comprehension’ intended to be measured is in the circumstance. The last process type found to identify a measure is a verbal process in passive voice ‘was assessed’:

7- Vocabulary was assessed at pretest only, using the Peabody Picture Vocabulary Test–Third Edition (PPVT III; Dunn & Dunn, 1997), an individually administered oral test of receptive vocabulary. (JREE 2)

This process is considered verbal because the assessment was carried out orally by the ‘vocabulary test’, which is given in the circumstance, while example two under step five above is interpreted as having a material process ‘was assessed’ because it includes written assessment.

Step 2: Items of measure

The English RAs show items of a measure in the text, as in 1, 2 and 3 below or define their source only, as in 4:

1- The retention sheet contained *the following item: ‘Based on the lesson you just read, please describe how a cold virus attacks the body’*. (EARLI 1 –my italics)

2- The following is *an example of a transfer question*. (EARLI 4 –my italics)

3- Table 3 includes *sample questions* from each of the scales used. (JRST 5 –my italics)

4- The problem-solving test consists of *multiple choice items* derived from the Trends in International Mathematics and Science Study (TIMSS). (JREE 1 –my italics)

The items of the measure in italics in all of these examples are put in a relational process. They are possessed as in 1, 3 and 4 and a value as in 2.

Steps 3 and 4: validity and reliability of a measure

Writers of the English RAs either imply that their measure is valid and reliable by appealing to another source, as in 1 below or they test the validity and/or reliability of their measure, as in 2 and 3:

1- Detailed validity and reliability information for each measure can be found in Maerten Rivera, Adamson, and Ahn (2012). (JRST 3).

2- Two scientists, two middle level science teachers, E:Y! Rangers, and the researchers established the content validity of the instrument by matching the items to NSES earth science content standards and state standards for Idaho, Wyoming, and Montana. (JRST 5)

3- The high positive correlations between the Schonell test and the Study test demonstrate the construct validity and the reliability. (EARLI 6)

4-A- A test–retest reliability rating was achieved by using assessments from a group of 36 E:Y! Students who took the measure right before and after their expedition.

B- The Spearman coefficient reliability for the instrument was 0.69. (JRST 5).

5-The internal consistency coefficient (Cronbach's alpha) is .88 for the age 5 sample. (JREE 2).

The verbs in 1, 2 and 4a denote material process. In 1, the steps ‘validity and reliability’ occur as the subject of passive construction and their source ‘in Maerten...’ is the circumstance. Example 2 has active formation in which the ‘scientists, the teachers and the researchers’ are the actors; ‘content validity’ is the goal and the way of establishing validity ‘by matching...’ is the circumstance. However, if the way of establishing the validity was conducted by matching the items orally, the example can be considered as having a verbal process. Example 4a shows a way of establishing reliability by ‘a test-retest’, which is the goal for the material process ‘was achieved’. The circumstance in this sentence ‘by using...’ gives further information about how reliability was achieved.

In 3, there is a relational process: the way of testing validity and reliability by the ‘positive correlations’ is the token and ‘construct validity and reliability’ is the value. A report about reliability is provided in 4b and 5 by a relational process. The measures of reliability in 4b (the spearman) and (Cronbach’s alpha) in 5 are the token and the results of these measures (0.69 and .88, respectively) are the value.

Step 5: data collection

The process of data collection is achieved by administering a measure as presented above under step 1 and 2 or by implementing some other tools such as interviews and observation, as seen below:

1- After the observation was completed, there was no discussion between the observer and teacher, as the observations were conducted to collect data on classroom instruction, not to offer PD. (JRST 3)

2- Formal interviews were conducted with selected peer leaders and university faculty '...'. Interviews were audiotaped and transcribed verbatim. (JRST 4 – my italics)

The procedures of implementing the tools (observation and interviews) in 1 and 2 are realised by material processes in passive formation: was completed, were conducted and were audiotaped/transcribed. The tools are the goals introduced as the grammatical subject in the sentences above. The second clause in 1 includes existential process and it has a delayed agent 'the observer' who worked with the observed 'teacher' as creators of data.

Step 6: scoring procedures

It is found that different derivations of 'score' are employed in representing step 6. It is a noun (a score, scoring) in 1a, 1b and 2 below, a simple past in passive voice in 3a and a simple past with active agency in 4.

1 A- For every correctly spelled word in both the Schonell (Schonell & Goodacre, 1971) and study spelling tests a score of one was given.

B- This is the standard scoring for the Schonell test. (EARLI 6)

2- Responses from the free recall test were assessed with a conventional proposition scoring method (Nesbit & Adesope, 2011; Rewey, Dansereau, Skaggs, Hall, & Pitre, 1989). (EARLI 4)

3 A- TEST was scored out of 38 possible points.

B- For each multiple-choice question, one point was awarded for each correct answer. (JRST 3)

4- The primary researcher scored the teachers' GCI, and ToSRA items using keys provided by the instrument developers (Fraser & Butts, 1982; Libarkin & Anderson, 2008).

Scoring procedures are represented in all of the examples except 1b by a material process type. In 1a and 3b, scoring method is assigned the role of recipient (every correctly spelled word, each correct answer) and goal (a score of one, one point) linked by simple past passive 'was given/awarded'. Examples 2 and 3a denotes the scoring process by the passive constructions 'were assessed'/ 'was scored' and by the circumstance 'a conventional...'/ 'out of 38...' while 4 has an active agency: 'researcher scored', the goal: 'the teachers' GCI...' and a reference to accomplish scoring in the circumstance. The 'researcher' in this example is not the only agent who could make scoring happen. There are also delayed agents 'instrument developers' without whom the scoring process was not completed. Example 1b shows a relational process in which the scoring method is the value.

Move 4: Data Analysis Procedures

Step1: Statistical analysis model

The analysis model is introduced within both active and passive formations, as noted in the examples below. Both 2a and 5 have the authors as active agency 'we fitted' and 'we adopt' followed by a model of analysis which has the role of goal. Being a goal is also found in 1 and 3 but as the grammatical subject of passive voice. The statistical model occurs also in the circumstance 'using factor models' preceded by the material process 'was estimated' in 4. In 2b,

‘the first model’ is in a relational process having the role of a token, whose value is ‘unconditional’, and of a possessor of ‘no covariates’.

1- Cross-sectional multilevel modeling (MLM) using HLM 6 software (Raudenbush, Bryk, & Congdon, 2005) was conducted. (JRST 3)

2 A- For the mathematical problem-solving posttest, delayed posttest, and transfer test, we fitted three different models.

B- The first model was an unconditional model and contained no covariates at either level. (JREE 1).

3- Because of the nested structure of our data ‘...’ multilevel modeling (Hox, 2002) was chosen to analyze the data. (JREE 2)

4- Treatment fidelity and spillover effects were estimated using confirmatory factor models. (JREE 3)

5- We adopt a parsimonious multilevel modeling framework across all three outcomes following Raudenbush (1997, 2007). (JREE 4)

Step 2: Statistical test

The statistical tests that appeared in the RAs include: ‘maximum likelihood estimation’, ‘descriptive statistics’, ‘ANOVA’, ‘ANCOVA’, ‘MANOVA’, ‘t-test’ and ‘Chi-squared’, as given below:

1- We initially conducted two-way (Presentation _ Hands) ANOVAs to examine. (EARLI 3)

2- A 2 x 2 between-subjects multivariate analysis of variance (MANOVA) was conducted.

(EARLI 4)

3- Analysis of covariance (ANCOVA) was used to analyze. (JRST 5)

4-The two questions were analyzed separately using a one-way repeated measures univariate analysis of variance (ANOVA) '...' to examine. (JRST 1)

5- Descriptive statistics were generated for student course grades '...' independent t-tests were conducted to compare '...'. Chi-squared tests were performed to examine. (JRST4).

6- Because of the small number of Level 2 units (J = 42 classrooms), restricted maximum likelihood estimation was used for all analyses reported. (JREE 1).

In 1, the statistical test 'ANOVA' is the goal that comes after the material process 'conducted' in active construction. All other examples have no active agency. The statistical tests in 2, 3, 5, and 6 are placed in the subject position of the passive construction performing the role of goal. In 4, however, the test (ANOVA) occurs in the circumstance after the material process 'were analyzed'. Most of the examples include the rationale of using the test (e.g. to examine), as in 1, 3, 4 and 5. It is given in an infinitive form in the circumstance.

Step 3: Preliminary analysis

This step is realised by the noun phrase 'preliminary analyses', as in 1 and 2 below, which has the role of sayer for the verbal process (indicated/confirmed). The verbiage (no significant.../no difference...) is the result of the analysis. The preliminary analysis is also realised in the examples 3 and 4 by checking the assumption of a statistical test. In 3, the 'null hypothesis' and

‘assumptions’ have the role of phenomenon in the subject position and the results of testing them are realised by the mental processes themselves ‘was accepted’/ ‘were not violated’. In 4a, the ‘assumptions’ were tested and the result of analysis ‘satisfactory’ is given in a relational attributive process in 4b.

1- Preliminary analyses indicated no significant interaction between the treatment variable and pretest scores for any of the outcome variables. (JREE 1)

2- Preliminary analyses confirmed no differences in groups’ covariance structures. (JREE 3)

3- For each outcome the null hypothesis of equal variances was accepted, and thus the assumptions of the ANOVA were not violated. (JRST 3)

4 A- All models were checked for compliance with assumptions of normally distributed and homoscedastic residuals. B- Distributions were satisfactory. (EARLI 2)

Step 4: Analysis procedures

This step describes what statistical tests and models used in the analysis, as mentioned above under step 1 and 2, and some other steps followed in the analysis, as given below:

1- Critical incidents of student dialog *were identified and transcribed ‘...’*. The critical incidents identified for this portion of the study *were coded* with an analytic framework. (JRST 4 -my italics)

2- The proportion of within-teacher variance accounted for (PVAF) in science achievement by the set of background predictors *was computed*. (JRST 3 -my italics)

3- For each analysis, we *began* by entering variables in sets ‘...’. We *carried out* simple slopes analysis using the SPSS package. (EARLI 2 -my italics)

It can be noted that there is no active agency in 1 and 2 and data is acted upon because it is the subject of passive formation of simple past tense. In 3, the authors are the analysts because they consider themselves as actors engaging in the material process of conducting the analysis. The analysis procedures are identified by material process type in all of the examples (see the italics).

4.2 The Arabic RAs

Move 1: Sample and Population

Step 1: Size of sample

The size of sample is identified by giving the number of subjects and using simple past tense such as: 'consisted of' and 'became'. Some examples are given below:

'أصبح العدد بعد استبعاد الغياب 50 طالبا في المجموعة الضابطة، 48 طالبا في المجموعة التجريبية'.

1- After excluding for absence, the number became 50 male students in the control group and 48 male students in the experimental group. (JJES 2)

'بلغ العدد النهائي لمجموعتي الدراسه (٤٤) أربع وأربعين طالبة'.

2- The final number of the two study groups reached 44 female students. (JEPS 5)

'أما عينة الدراسه فتكونت من 141 طالبا وطالبه'.

3- The study sample consisted of 141 male and female students. (JJES 5)

'بلغ عدد الطلبة الحاضرين في الصف 23 طالبا، تسرب منهم طالب واحد'.

4- The number of students present in the class reached 23 male students; one of them dropped out. (JJES 4)

‘أصبح العدد الكلي للطلبة المشمولين بالتجربة (٢٩) طالبا وطالبة.’

5- The total number of students included in the experiment became 29 male and female students. (JEPS 2)

‘وقد قام الباحثان باختيار عينة الدارسه المكونه من (٦٢) طالبا من طلاب الصف الخامس الأساسي.’

6- The two researchers selected the study sample composed of 62 male students from the fifth elementary grade. (JEPS 1)

These examples show no active agency at all (except for the dropping out in 4 and ‘researchers selected’ in 6). All of them present subjects as members of a study population, as ‘the number became’ (1 and 5), ‘the number reached’ (2 and 4) or ‘the sample consisted/composed of’ (3, 6). In (5 and 6) they are acted upon (‘included’ and ‘selected’).

The size of sample is put in all examples in a relational process. There is an identifying relational process in 1, 2 4, and 5; ‘the number’ is the token and the size of sample is the value. 3 and 6 have possessive relational process; the ‘sample’ is possessor and the size of sample is possessed. Examples 4 and 6 have also material processes ‘dropped out’ and ‘selected’. In 4, the ‘student’ is the actor playing an active role in leaving the study and changing the sample size. In 6, it is the ‘two researchers’ who engage in the process of selection and decide on the sample size.

An interesting feature entirely absent from the English RAs but found in 1,2 ,4 and 5 is the use of ‘أصبح: became’ and ‘بلغ: reached’, highlighting the establishment of sample size as a developing process and thus drawing attention to the researchers’ process. The use of these verbs presents the data collection process as narrative.

Step 2: Characteristics of sample

The characteristics of the participants in the Arabic RAs are represented by only ‘male’ and/or ‘female’, as shown in the examples under step 1 above. The type of processes discussed there also applies to this step.

Step 3: Sampling technique/design

This step is represented by using the adverbs ‘randomly’ or ‘deliberately’ joined with simple past tense, as in:

‘وقد اختيرت المجموعتان بطريقة عشوائية.’

1- The two groups were randomly selected. (IJRE 3)

‘أما عينة الدراسة فتكونت من (141) طالبا وطالبة، تم اختيارهم بطريقة قصدية.’

2- 'amma 9ayyinat aldiraasati fatakawanat min 141 Taaliban wa Taalibah,

2- As for sample the study consisted it from 141 male student and female student,

tamma 'ikhtiyaaruhum bi Tariiqatin qaSdiyatin.

done selecting them by a method deliberately.

2- The study sample consisted of 141 male and female students. They were deliberately selected. (JJES 5)

These examples have no active agency at all and they are centred on the message because they focus on the third person 'it or they'. The subjects of the studies being reported here are the goal for the material process 'were selected' and the sampling technique is the circumstance. The Arabic version of the second example includes an alternative way for expressing the passive form by using the verb 'تم' 'tamma' which has the meaning of 'done'. It is in active form, but it functions as passive showing that the process of selection was accomplished. This verb is followed by the gerund 'اختيار' 'selecting' which expresses the action and has the role of grammatical subject, but it does not function as an actor. The actor is absent supporting the passive form of the sentence.

Sampling technique is also realised by a noun phrase as in italics in 3 below with the verb 'tamma' and the gerund 'تطبيق: taTbiiqu' (applying). The actor is absent and the sampling method is the goal for the material process (done applying):

'وقد تم تطبيق أسلوب طريقة العينه المتاحة.'

3-wa qad tamma taTbiiqu 'usluubi Tariiqat al9ayyinah almutaaHah.

3- And done applying style method the sample available.

3- *Available sampling method* was applied. (JEPS 3-my italics)

Step 4: Time of study

The time of conducting a study is given within sentences having no active agency. The time in the examples below is the circumstance for material process (1 and 2) and relational process (3). The material process is represented by the construction of 'tamma' and a gerund (selecting and implementing), as seen in 1 and 2 below:

'تم اختيار أفراد الدراسة من طلبة الصف الثالث الأساسي، من المدارس التابعة لمديرية التربية والتعليم في محافظة إربد، للعام الدراسي ٢٠١١/٢٠١٢.'

1- tamma 'ikhtiyaaru 'afraadi aldiraasati min Talabati alSafi althaalith '...'. .

1- Done selecting members the study from students the grade the third '...'. .

1- The study members were selected from third elementary grade students from the schools in the Irbid Directorate of Education in the academic year 2011/2012. (JEPS 4)

'تم تطبيق تجربة البحث في الفصل الدراسي الثاني من العام الدراسي ٢٠١٠/٢٠١١.'

2- tamma taTbiiqu tajrubati albaHthi fii alfaSli aldiraasii althaanii '...'. .

2- Done implementing experiment the research in the semester the second '...'. .

2- The research experiment was implemented in the second semester of the academic year 2010/2011. (JEPS 3)

'تكون مجتمع الدراسة من جميع طلبة الصف السادس الأساسي الملتحقين في المدارس الحكومية في مديرية تربية الزرقاء الأولى في العام الدراسي 2011/2012.'

3- takawana mujtama9u aldiraasati min jamii9 Talabati '...'. .

3- Consisted population the study from all students '...'. .

3- The study population consisted of all sixth elementary grade students enrolled in the public schools of Alzarqa Aloula Directorate of Education in the academic year 2011/2012. (JJES 5)

Step 5: Place of study

Similar to the preceding step, the place where a study was conducted is given within the circumstance, as in 1 and 3 above ‘from the schools...’ /‘in the public schools...’. It is also represented in the circumstance for a material process of passive voice, as in the example below:

‘اختيرت عينة الدراسة من طالبات كلية التربية في جامعة الأميرة نورة بنت عبدالرحمن’.

1- 'ukhtiirat 9ayyinatu aldiraasati min Taalibaati kuliyyati altarbiyati ‘...’.

1- Was selected sample the study from female students faculty the Education ‘...’.

1- The study sample was selected from the female students of the Faculty of Education at Princess Noura University. (IJRE 4)

This example has no active agency as it carries the passive voice of simple past tense ‘was selected’.

Step 6: Population of study

This step is most often introduced using the noun phrase ‘study population’ as a possessor and the members of which (the possessed) are preceded by the prepositional phrase ‘min jamii9: from all’, as in example 3 under step 4 above. In another example below, ‘the population’ appears as the token and the members of which ‘the female students’ are the value:

‘يتمثل مجتمع الدراسة بجميع طالبات الصف الحادي عشر في المدارس الحكومية بدولة الإمارات’.

- 1- yatamathalu mujtama9u aldiraasati bi jamii9 Taalibaati alSafi
 1- Is represented population the study by all female students the grade
 alHaadii 9ashar ‘...’.
 the eleventh ‘...’.
- 1- The study population is represented by all eleventh grade female students in the public schools in the United Arab Emirates. (IJRE 5)

The Arabic version of this example starts with the active form of the verb (يتمثل : yatamathalu) but it has the same meaning of the passive verb: is represented. It is followed by the prepositional phrase (by all...) which includes ‘female students’ and makes the sentence form similar to the agentive passive in English.

The population is also given within the circumstance for a material process type, as in example 1 under step 5 above. The population in this example is: ‘the female students’ preceded by the preposition ‘from’ which signals the source from which the sample was selected.

Move 2: Procedures of study

Step 1: Design of study

The name of design is reported in sentences using both active and passive forms. The design in the following examples is acted upon because it is the goal of passive formation:

‘استخدم المنهج شبه التجريبي’.

- 1- The quasi-experimental design was used. (IJRE 1)

'اعتمد في هذه الدراسة المنهج النوعي والمنهج شبه التجريبي'.

2- The qualitative and the quasi-experimental design were adopted in this study. (JJES 2)

'تم استخدام المنهج شبه التجريبي في هذه الدراسة'.

3- tamma 'istkhdaamu almanhaji shbhi altajriibii fii hadhihi aldiraasati.

3- Done using the design quasi the experimental in this the study.

3- The quasi-experimental design was used in this study. (JJES 3)

In 2, the writer used the material process (اعتمد: 'u9tumida: were adopted) which means that s/he selected and approved the design. In 3, the passive formation is the combination of 'tamma' and the gerund 'using', which serves as the grammatical subject. The difference between these examples is that the 'design' in 1 and 2 is the grammatical subject (substitute of the doer) while in 3, 'design' is an annexe (muDaaf 'ilyh) and 'using' (the gerund) serves as the grammatical subject. In both cases of a substitute or annexe, the 'design' functions as the goal.

The design of study appears also in sentences having no active agency:

'تتبع الدراسة الحالية في إجراءاتها المنهج شبه التجريبي'.

4-The current study follows the quasi-experimental design. (JEPS 5)

'تستخدم الدراسة المنهج التجريبي'.

5- The study uses the experimental design. (IJRE 5)

'استخدمت الدراسة المنهج شبه التجريبي'.

6- The study used the quasi-experimental design. (JJES 1)

'The study' acts in 4, 5 and 6 as actor for the material processes: 'follows', 'uses' and 'used', and the 'design' functions as the goal. 4 and 5 can be considered marked cases of using the tense in simple present as the other writers use simple past tense. A few other sets of Arabic articles present the design in sentences that have active agency as in:

'استخدم الباحث في هذه الدراسة منهج البحث الكمي'.

7- The researcher used the quantitative research design in this study. (IJRE 2)

'اعتمد الباحثان في هذه الدراسة على المنهج شبه التجريبي'.

8- The two researchers drew on the quasi-experimental design. (JEPS 4).

These two examples (7 and 8) have human actors ('researcher' and 'two researchers') who acted upon the design, which is put as the goal. The actors here have the same role as the nonhuman actors in 4, 5 and 6 in functioning as designers. All of the examples are message centred because they are depersonalised. They use the third personal pronoun: it (study/design) and they (researchers).

Step 2: Introducing an intervention

This step is realised by providing a definition, features and/or aims of the intervention, as in the examples:

'استراتيجية توليد الأسئلة الذاتية: ...' وقد عرفها عبدالرحمن (2009 169) بأنها'.

1- 'Istraatiijiyat tawliid al'as'ilatu aldhaatiyatu: wa qad 9arafahaa 9abdualraHmaan '...'.
1- Strategy generating the questions the self:... and defind it Abedruhman '...'.
1- Self-generating questions strategy: Abedruhman (2009) defined it as. (IJRE 3)

'الهدف من الاستراتيجية هو تنمية قدرة الطلبة على التفكير من خلال تحليل المشكلة وتجريدها وحلها'.

2- alhadafu min al'istraatiijiyati huwa tanmiyatu '...'.
2- The aim of the strategy is developing '...'.
2- The aim of the strategy is to develop students' thinking ability by analysing, illustrating and solving the problem. (JJES 2)

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'كان الهدف العام من البرنامج: تنمية مهارات الكتابة الإقناعية'.

3- The general aim of the programme was: to develop persuasive writing skills. (IJRE 5)

'يتميز البرنامج بأنه يعمل على تطوير المهارات اللغوية جميعها'.

4- yatamayyazu albarnaamaju bi 'annahu ya9malu 9ala taTwiiri almahaaraati
4- Is characterised the program by its ability in developing the skills
allaghawiyati jamii9ihaa.
the language all.

4- Is characterised the program by its ability in developing the skills
allaghawiyati jamii9ihaa.
the language all.

allaghawiyati jamii9ihaa.

the language all.

4- The programme is characterised by its ability in developing all language skills. (IJRE 4)

'لتأكيد أهمية هذه الإستراتيجية يمكن إجمال خصائصها ومميزاتها فيما يلي:'.
5- lita'kiidi 'ahamiyati hadhihi all'istratiijiyah yumkinu 'ijmaalu
5- To confirm importance this the strategy can be summarising
khaSaa'iSiha wa mumayzatiha fiimaa yalii:.

5- lita'kiidi 'ahamiyati hadhihi all'istratiijiyah yumkinu 'ijmaalu
5- To confirm importance this the strategy can be summarising
khaSaa'iSiha wa mumayzatiha fiimaa yalii:.

5- To confirm importance this the strategy can be summarising
khaSaa'iSiha wa mumayzatiha fiimaa yalii:.

khaSaa'iSiha wa mumayzatiha fiimaa yalii:.

characteristics its and features its in the following:.

5- To confirm the importance of this strategy, its characteristics and features can be summarised as follows: . (IJRE 3).

Although example 1 has an active agency, the order in which the words of the sentence appear in the Arabic version displays a passive formation. The example in the Arabic version starts with the strategy, which is the object, followed by the verb 'defined' and then the agent 'Abedlruhman'. This object-verb-subject order is similar to the passive construction in English: the strategy was defined by Abedlruhman.

Examples 2 and 3 present 'the aim of the strategy' and 'the aim of programme' as the token for the relational process followed by the value, which is the aim: 'to develop...'. Example 4 in Arabic has an equivalent passive form in English. The verb in the Arabic version (يتميز: yatamayyazu) is in an active form but has the meaning of passive: is characterised. The programme, which is the subject, cannot perform as an actor because it does not characterise something else; it is acted upon because the prepositional phrase (by its ability...) works as the subject that characterises the programme.

Example 5 includes a similar case to 'tamma' and gerund; it has the active form of the verb (yumkinu) which functions as hedging and followed by the gerund (summarising) which is the grammatical subject. The process of summarising forms the action whose actor is absent and whose goal is 'characteristics and features'. Therefore, the construction of 'yumkinu' and 'summarising' works as a passive formation and this means that the summary can be done.

Step 3: Designing and implementing an intervention or a material

The first sub-step within this step begins either with providing citation about previous studies, which tackled an intervention or a teaching material, or with stating that researchers have already reviewed the literature. The noun phrases and nouns found to signal this sub-step are: ‘previous studies’, ‘previous research’ and ‘literature’, as in the examples below:

‘تم الاطلاع والرجوع إلى الأبحاث والدراسات السابقة التي تناولت موضوع هذه الدراسة كدراسة الختاتنة (2012) ودراسة ابو العنين(2012) للاستفادة من تطوير وتصميم وسائل التعليم باستخدام السبورة الإلكترونية.’

1- tamma al'iTilaa9u wa alrujuu9u 'ilaa al'abHaathi wa aldiraasaati alsaabiqati ka ‘...’.

1- Done the seeing and the referring to the research and the studies the previous as ‘...’.

1- Relevant previous research and studies such as *Alkhatatneh’s (2012) study and Abu Alenein’s (2012)* were reviewed to benefit from designing and developing teaching aids using the electronic board. (JEPS 1-my italics)

‘وقد تم اختيار هذه الكلمات الإنجليزية (24) من كتاب ماکملان للقراءه

.(Flood, Hasbbrouck, Hoffman, Lapp Lubcker, Medearis, Paris, Stahl, Tinajero, & Wood, 2005)

2- wa qad tamma 'ikhtiyaaru hadhihi alkalimaati al'injiliiziyah 24 min ‘...’ .

2- And done selecting these the words the English 24 from ‘...’.

2- These 24 English words were selected from *Macmillan’s reading book (Flood, Hasbbrouck, Hoffman, Lapp Lubcker, Medearis, Paris, Stahl, Tinajero, & Wood,2005)*. (IJRE 1-my italics)

‘وقد صمم الباحثون هذه البرمجية وفق الخطوات الاتية : 1. الإطلاع على الأدب التربوي المتوافر ‘...’ (علاونة، 2005؛

.(Trawick-Smith, 2002)

3- The researchers designed this software according to the following steps: 1- reviewing the available literature '...'. (علونة، 2005 ; Trawick-Smith, 2002). (JJES 1)

The first two examples above present the reviewed studies (in italics) as the circumstance for the mental process 'were reviewed' in 1 and for the material process 'were selected' in 2. The passive voice in these examples is formed by combining the verb 'tamma' with the gerunds 'الإطلاع والرجوع: reviewing' and 'اختيار: selecting'; this formation means that reviewing literature in (1) and selecting the words in (2) were accomplished. The last example (3) uses active agency 'researchers designed' and puts the reviewed literature in the circumstance. The researchers here engage in the material process of establishing and designing the intervention.

The second sub-step is about using a tool to design or to implement an intervention or a material. The example below shows a procedure for preparing and implementing a teaching material using the publisher programme as a tool:

'توزيع المادة على قسمين: الأول عملي ليتم عرضه من خلال برنامج البوربوينت والآخر نظري ويتم عرضه من خلال برنامج الناشر (Publisher)'.
.

1- tawzii9u almaadati 9alaa qismayni: al'awalu 9amalii liyatimu 9arDuhu

1- Dividing the material into two parts: the first practical to be done displaying it

min khilaali barnaamaji albarbuuynt wa alakharu naZarii wa yatimu 9arDuhu.

by programme the powerpoint and the second theoretical and is done displaying.

1- Dividing the material into two parts: the first is practical to be displayed by PowerPoint programme. The second is theoretical and is displayed by the Publisher programme. (JJES 5)

The Arabic version of the example shows a case of infinitive form in passive using 'liyatimu' and the gerund 'displaying'. This form is preceded by the goal and followed by the actor (by Power Point programme). This construction is similar to the passive voice in English that includes a subject in the prepositional phrase: object+ passive verb+ by+subject. However, the use of 'liyatimu' in this example makes it look as if the authors are writing instructions for readers to implement (instead of reporting what was done). Alternatively, the use of simple past passive of تم: tamma can report the procedure mentioned in the example.

The apparatus was found to occur in the circumstance in other examples having senser, as in 2 below 'students', and an actor as in 3 'they operate':

تتضمن هذه الإستراتيجية'...' ثم استماع الطلبة إلى الأنشودة أو الأغنية من خلال جهاز التسجيل'.

2- tataDaman hadhihi al'istraatiijiyatu '...' thuma 'stimaa9u alTalabati '...'.
2- Includes this strategy '...' then listening students '...'.
2- This strategy includes '...'. Then, the students listen to the chant or to the song using an audio recorder. (JEPS 4)

'ضمت القطع التعليمية الإلكترونية'...' ، تعمل في أي مشغل فلاش'.

3- The electronic educational pieces included '...', they operate in any Flash player.

Example 2 includes a mental process represented by the gerund 'listening' as a result of nominalisation process which changed the verb 'listen' to the noun 'listening'.

The third sub-step is to provide the components of an intervention or a material and describe how they are implemented. The content of an intervention or a teaching material is presented in a relational process type using the verbs ‘consist of’, ‘include’ and ‘be’, as in:

‘تكونت البرمجية التعليمية من (47) شريحة منها (3) شرائح تتضمن عنوان البرمجية’.

1- The educational software consisted of 47 chipsets. Three chipsets include the title of the software. (JJES 1).

‘قام الباحث باختيار عدد من الموضوعات البلاغية...’ وهذه الموضوعات هي: المجاز، والاستعارة التصريحية’.

2- The male researcher selected a number of rhetorical topics ‘...’. The topics are allegory, declarative metaphor. (JEPS 5).

In 2, the ‘researcher’ is the actor who engages himself in designing the teaching material and he refers to himself in the third person (he) making the example depersonalised.

The procedures of implementing an intervention are given within sentences having active forms and different process types due to different interventions used in the studies, as in 1, 2 and 3 below:

‘تشاهد الطالبات مقطع فيديو’.

1- The female students watch a video clip. (IJRE 4).

‘يقوم المعلم بمساعدة الطلاب على تذكر العناصر الأساسية للقصة’.

2- The teacher helps students remember the key elements of the story. (JEPS 4).

'تبدأ القطعة الأولى بتحديد مسمى كل شكل هندسي'.

3- The first piece begins with specifying the name of each geometric shape. (JJES 4)

'ثم يتم مناقشة وإضافة تفاصيل الى القصة وتوسيعها'.

4- thuma yatimu munaaqashatu wa 'iDaafatu tafaSiil 'ilaa alqiSati wa tawsii9iha.

4- Then is done discussing and adding detail to the story and elaborating it.

4- Then, the story is elaborated by discussing and adding detail to it. (JEPS 4)

The first two examples above have active agency ('students watch' and teacher helps') while 3 and 4 have not. In 1 and 2, the 'female students' and the 'teacher' are the senser of the mental processes 'watch'/'help...remember'. In 3, there is a material process 'begins' whose actor is non-human 'the first piece'. Example 4 has the active form of the verb 'yatimu' (i.e. present tense of tamma) and the gerunds 'discussing'/'adding'; they have the function of passive voice. There are two different processes which appeared in this example; they are verbal 'discussing' and material 'adding'. It can be noticed that the examples above (1, 2, 3 and 4) have simple present tense leaving an open question whether the procedures are implemented. Some writers used the past tense in demonstrating how they implement their intervention, as in:

'تم عرض الكلمات ومعانيها'.

5- tamma 9arDu alkalimaati wa ma9aanihaa.

5- Done displaying the words and meaning their.

5- The words and their meanings were displayed. (IJRE 1)

‘كانت المعلمة تقدم المشكلة العلمية للطالبات‘.

6- kaanat almu9alimatu tuqadimu almushkilata al9ilmiyata lilTaalibaati.

6- Was the teacher present the problem the scientific to the female students.

6- The teacher was presenting the scientific problem to the female students. (JJES 3).

Example 6 shows that the procedure is carried out in a continuous manner using the past continuous tense (kaanat tuqadimu). Unlike 5, example 6 identifies the agents who implemented the intervention.

The last sub-step is to test the validity of an intervention or a teaching material and this was conducted by consulting referees or experts. Most of the RAs use the construction of ‘tamma’ with the gerund ‘presenting’ to act as passive, as in 1 below, and a few articles include the passive voice, as in 2. The intervention in 1 ‘educational programme’ and the ‘objectives’ of a teaching material in 2 are put as the goal for the material process ‘was/were presented’:

‘تم عرض البرنامج التعليمي على مجموعة من المحكمين‘.

1- tamma 9arDu albarnaamaji alta9liimiya 9alaa majmuu9tin min almuHakimiin.

1- Done presenting the programme the educational to group of the referees.

1- The educational programme was presented to a group of referees. (JEPS 4).

‘عرضت الأهداف التعليمية التي تم اعدادها على بعض الخبراء والمحكمين‘.

2- 9uriDat al'ahdafa alta9liimiyati ‘...‘.

2- Were presented the objectives the learning ‘...‘.

2- The learning objectives were presented to some experts and referees. (JEPS 1)

A few authors present this sub-step in sentences with active agency, as in 3 below. It is the ‘researchers’, functioning as agent, who presented the intervention to specialists to test its validity. The gerund ‘presenting’ is a result of turning the verb ‘present’ into a noun, which realises the material process:

’وقد صمم الباحثون هذه البرمجية وفق الخطوات التالية: ‘...’ عرض البرمجية على اثنين من المختصين‘.

3- The researchers designed this software according to the following steps: ‘...’ presenting the software to two specialists. (JJES 1)

These examples 1, 2 and 3 can be rewritten as: ‘a group of referees/specialists tested the validity of the programme’ showing that the referees play an active role as co-designers of the intervention and not just acted upon.

Step 4: Identifying interventionists

The writers of RAs introduce interventionists within sentences having active agency, as in:

’قام أحد الباحثين (الباحثة) بتدريس المجموعات‘.

1- qaama 'aHadu albaaHithayni (albaHithah) bitadriisi

1- Performed one the two researchers (the female researcher) in teaching

almajmuu9aati.

the groups.

1- The female researcher taught the groups. (JEPS 2)

’يقوم معلم الفصلين بالتدريس لهاتين المجموعتين‘.

2- yaquumu mu9alimu alfaSlayni bi altadriisi ‘...’.

2- Perform teacher the two classes in the teaching ‘...’.

2- The teacher of the two classes teaches the two groups. (IJRE 3)

In the two examples above, there is a material process. The Arabic version of these examples consists of the verb: qaama in 1 and its simple present tense: yaquumu in 2. These verbs are followed by the actors and then the prepositional phrase: bitadriisi. This construction means in Arabic that the researcher/teacher performed/performs the action of teaching. These two examples show the use of an alternative way to express the same meaning of the verbs ‘taught/teach’. They rely on delaying the action to the prepositional phrase resulting in a longer sentence with apparently redundant words. The verb ‘qaama’ carries no significant meaning in the sentence. In addition, the use of the simple present tense (يقوم: yaquumu: perform) sounds unacceptable as the teacher already performed the action and it occurs that other writers use the simple past tense ‘qaama’.

Other examples below show another way in which interventionists are introduced using active agency:

’تم اتباع الإجراءات الآتية: ...‘ تدریس المجموعة التجريبية وفق استراتيجية حل المشكلات’...‘ ، ومن قبل الباحث‘.

3- The following procedures were followed: ‘...’ teaching the experimental group according to the problem solving strategy ‘...’ by the researcher. (JJES 2)

’تعاون الباحثان مع معلمة من مدرسة البنات‘.

4- The two researchers co-operated with a female teacher from the girls’ school. (JEPS 4)

The interventionists are given within a prepositional phrase in both 3 and 4 above. In 3, ‘the researcher’ is a delayed actor for the material process ‘teaching’ and he plays the role of a teacher who implemented the intervention by using the ‘problem solving strategy’. In 4, the ‘female teacher’, with whom the researchers worked to implement their intervention, is a co-interventionist positioned in the circumstance for the material process ‘co-operated’.

On the other hand, the interventionists are introduced in other examples using passive construction of ‘tamma’ and a gerund, which indicate that the interventionists were prepared to implement the intervention, as in:

’وقد تم تدريب المعلمة على تدريس البرنامج.’

5- wa qad tamma tadriibu almu9alimati 9alaa tatriisi albarnaamaj.

5-And done training the female teacher to teaching the programme.

5- The female teacher was trained to teach the programme. (IJRE 5)

‘The female teacher’ is put as the goal for the material process ‘was trained’ indicating that the teacher was prepared to implement the intervention. In this example, readers are invited to imagine the researchers as the active hidden agency (as opposed to the active constructions above).

Step 5: Recounting procedures

It was noted earlier that some steps, which are part of moves 1, 2 and 3, reoccur within this step ‘recounting procedures’; therefore, they are discussed under these moves and only two sub-steps

are addressed here as they are not discussed under other steps. One of them is considering ethical principles. This step is represented using nouns like ‘approval’ and verbs as ‘address’ and ‘obtain’, as in:

’تم رسميا مخاطبة جميع المدارس’...‘ وأخذ الموافقة بذلك‘.

1- tamma rasmiyan mukhaaTabatu jamii9i almadaarisi ‘...’ wa 'akhdhu almuwaafaqati.

1- Done officially addressing all the schools ‘...’ and obtaining the approval.

1- A- All schools were officially addressed ‘...’ B- and approval was obtained. (IJRE 2)

’تم أخذ موافقة المدارس المعنية‘.

2- tamma 'akhdhu muwaafaqati almadaarisi alma9niyati.

2- Done obtaining approval the schools targeted.

2- Approval of the targeted schools was obtained. (JEPS 1)

’حصل الباحثان على الموافقات الرسمية‘.

3- The two researchers obtained official approvals. (JJES 4)

The first two examples use the passive formation of the verb ‘tamma’ and the gerunds ‘addressing’/ ‘obtaining’ representing material processes. In 3, there is also a material process signalled by the verb ‘obtained’, but it is in an active form and it has immediate agents ‘the two researchers’, who already engaged in a process of communication with concerned parties to realise the ethical principles.

Another sub-step is to conduct an experiment by applying an intervention to an experimental group and using a traditional method to teach a control group. This sub-step is represented using material process ‘teach’/ ‘apply’ in passive formation. For example:

‘تم تدريس المجموعة التجريبية باستخدام حقيبة انتل التعليمية المحوسبة، في حين درست المجموعة الضابطة نفس الموضوعات الدراسية بالطريقة التقليدية.’

1A- tamma tadriisu almajmuu9ati altajriibiyati ‘...’.

1A- Done teaching the group the experimental ‘...’.

1A- The experimental group was taught using computerised instructional package (Intel) while

B- durrisat almajmuu9atu alDaabiTau nafsi almawDuu9aati ‘...’.

B- Was taught the group the control same the lessons ‘...’.

B- the control group was taught the same lessons by the traditional method. (JJES 5)

‘تدرس المجموعة التجريبية باستخدام السبورة الإلكترونية.’

2- The experimental group is taught using smart board. (JEPS 1)

The Arabic RAs follow the same formation given in example 1 by using ‘tamma’ with the gerund ‘teaching’ (1a) and the passive voice (1b). One article (2) uses the passive voice of the simple present tense (is taught), while other writers use the simple past tense. The use of simple present tense in 2 raises a question whether the experiment was conducted or not. Another article represents this sub-step using active agency:

‘استمر معلم الأحياء في تدريس موضوع البناء الضوئي لطلاب المجموعة الضابطة للبنين بالأسلوب التقليدي السائد.’

3- The biology teacher continued teaching the photosynthesis lesson to the male students of the control group using the prevalent traditional method. (JEPS 3)

There is a material process in this example 'continued' meaning that the actor 'the teacher' kept following the same traditional method in teaching the control group.

Move 3: Measure

Step 1: construction of a measure

The writers begin this step by presenting the name of a measure and showing how they establish or develop it. This step is realised by the nouns: مقياس: miqyaas: measure: or اختبار:'ikhtibaar: test and gerunds such as بناء: binaa': constructing and اعداد : '9daad: preparing, as in the examples below:

إختبار التفكير الإبداعي الرياضي

أعد الباحث اختبارا لقياس مهارات طلبة معلم الصف على التفكير الإبداعي الرياضي.

1- A- Mathematical creative thinking test

B- The researcher prepared a test to measure the class teacher-students' skills in mathematical creative thinking. (JJES 2)

استخدم الباحثان طريقة القياس النفسي في بناء الإختبار.

2- The two researchers used the psychometric method in constructing the test. (JJES 5)

تم اعداد الإختبار من قبل الباحث بطريقة موضوعية (الإختيار من متعدد).

3- tamma 'i9daadu al'ikhtibaari min qibali albaaHithi biTariiqatin mawDuu9iyatin '...'.
3- Done preparing the test by the researcher by method objective '...'.
3- The test was prepared objectively by the researcher (multiple choice). (IJRE 1)

Example 1a gives the name of the measure and 1b states the purpose of the test, which is to measure the dependent variable: the 'students' skills...'. The writer of this example specifies the variable based on which he prepared the measure. Determining the purpose or the aim is the first step in constructing a measure. The purpose of the test in 1b is the circumstance for the material process 'prepared' whose actor is 'the researcher'. Example 2 includes also a formation similar to 1b; it has a material process 'used' followed by the actor and then by the method by which the test was constructed. Example 3 shows the use of agentive passive because it has its agent in the prepositional phrase 'min qibali' which occurs after the passive construction. The circumstance in this example describes how the test was prepared. In all of these examples, the researchers have the role of creators of data collection instrument.

The step 'constructing a measure' is realised also by agentless passive formation, as in the examples below:

فقد أعد اختبار الأداء البلاغي، وتم اعداده وفق الخطوات التالية: أ- تحديد هدف الإختبار: يهدف هذا الإختبار إلى قياس مستوى أداء الطالبات للموضوعات البلاغية.

4- The rhetorical performance test was prepared according to the following steps: a- determining the aim of the test: This test aims at measuring the female students' performance level in the rhetorical topics. (JEPS 5)

’أما الخطوات والإجراءات التنفيذية التي اتبعت في اعداد الإختبار، فتمثلت في ما يأتي: أولا- حددت مهارات التعبير الكتابي التي تسعى الدراسة لقياسها‘.

5- The steps and implementing procedures which were followed in constructing the test are: first, the writing skills the study intends to measure were identified. (JEPS 4)

The measure in example 4 is labelled as the goal for the passive voice ‘was prepared’. In 5, the dependent variable ‘the writing skill’ is put as the grammatical subject of the passive voice ‘were identified’. These two examples are similar to 1b above in terms of considering the aim and the dependent variable as the first step to construct a measure. Another step used in constructing a measure is achieved by making reference to literature, as in:

’تم بناء الإختبار في ضوء الدراسات السابقة، وبخاصة تلك التي قدمت اختبارات لقياس مهارات الكتابة الإقناعية، مثل: (Udell, &Wadiya, 2007)‘.

6- tamma binaa'u al'ikhtibaari fii Duu' aldiraasaati alsaabiqati ‘...’.

6- Done constructing the test in light the studies previous ‘...’.

6- The test was constructed in the light of previous studies, especially those provided tests to measure persuasive writing skills *such as (Udell & Wadiya, 2007)*. (IJRE 5-my italics)

’وقد أخذت بعض بنود الإختبار من الإختبار الذي أعدته الحضرمية (2011)‘.

7- wa qad 'ukhidhat ba9Du bunuudi al'ikhtibaar min al'ikhtibaar alldhii 'a9adathu

7- And were taken some items the test from *the test which prepared it*

alHaDramiyah (2011).

Alhadramiah (2011).

7- Some of test items were taken *from the test prepared by Alhadramia (2011)*. (JJES 3-my italics)

In example 6, reference to previous studies is given in the circumstance (in italics) within the clause that has a material process ‘provided’ and an actor ‘those’. Example 7 in the Arabic version has a word order similar to the passive voice in English (object-verb-subject) and this is put in the circumstance (in italics).

Constructing a measure involves describing the type of test items and providing their number. Most of the articles use relational process to present the number and type of test items, as in:

‘كانت أسئلة الإختبار من نوع الإختيار من متعدد ذي الشقين’.

8- The test questions were two-tier multiple choice. (JJES 3)

‘تكون الإختبار في صورته الأولية من (٢٤) سؤالا من نوع الإختيار من متعدد ’...‘ وأصبح الإختبار في صورته النهائية مكونا من (٢٠) سؤالا’.

9- A-The test in its initial form consisted of 24 multiple choice questions ‘...’

B- The test became 20 questions in its final form. (JEPS 1)

‘يتكون الإختبار من سؤال مقالي واحد، يطلب فيه من الطالبة الكتابة في موضوع’.

10- The test consists of one essay question in which the female student is asked to write on a subject. (IJRE 5)

There is a relational identifying process in 8 above where ‘the test questions’ are labelled as the token and their type is the value. In 9a, the number of items and the test type are possessed in a

relational possessive process. The number of items declined to '20' in 9b showing that it went in a procedure expressed by the verb 'became'. This example can draw readers' attention to the way in which the measure was constructed as a developing process presented as narrative. Example 10 provides another type of test 'essay question' labelled as possessed and followed by clarification in the embedded clause. This clause has a mental process whose senser 'the female student' is not only acted upon, but plays an active role in providing the data to complete the study.

The type of test items appears as the circumstance with material process type in a few articles using the verb 'tamma' and the gerund: صياغة: Siyaaghatu: formulating. An example is:

'تم صياغة الأسئلة بطريقة الإختيار من متعدد.'

11- tamma Siyaaghatu al'as'ilati biTariiqati al'ikhtiyaari min muta9adid.

11- Done formulating the questions in form the choice from multiple.

11- The questions were formulated in a form of multiple choice. (JJES 4)

Step 2: Validity of the measure

Information about this step is most often prefaced by using noun phrases such as 'صدق الأداة': Sdqu al'adaah: validity of the tool and 'صدق الاختبار': sdqu al'ikhtibaar: validity of the test, as headings or as introductory phrases within texts. The verbs used to realise this step are of material process type, as seen in:

'تحقق الباحثون من الصدق الظاهري للمقياس بعرضه على ثمانية محكمين.'

1- The researchers checked the face validity of the measure by presenting it to eight referees. (JJES 1)

’الصدق الظاهري للمقياس: حيث قام الباحث بعرض المقياس في صورته الأولية على مجموعة من المحكمين‘.

2- alSdqu alZaahiriyyu lImiqyaas: qaama albaaHithu bi9arDi ‘...’.

2-Validity face of the measure: performed the researcher in presenting ‘...’.

2- Face validity of the measure: the researcher presented the measure in its initial form to a group of referees. (IJRE 3)

’عرض الاختبار على ثلاثة محكمين من أعضاء هيئة التدريس ‘...’، وقد تم الأخذ بالملاحظات التي أوردوها‘.

3- The test was presented to three referees from the faculty members ‘...’, their comments were considered. (IJRE 1)

’للتحقق من صدق الاختبار تم عرضه بصورته الأولية على 12 محكما‘.

4- To check the validity of the test, it was presented in its initial form to 12 referees. (JJES 2)

’وقد تم التحقق من صدق الاختبار بعرضه على خمسة محكمين‘.

5- The validity of the test was checked by presenting it to five referees. (JEPS 4)

’تم حساب صدق المحتوى عن طريق معاملات الارتباط‘.

6- Content validity was calculated by correlation coefficients. (JEPS 3)

The first two examples above include active agency; ‘researchers checked’ in 1 and ‘the researcher presented’ in 2. The first example can be rewritten as ‘Eight referees confirmed the face validity of the measure’. This change results in moving the referees from the circumstance

to act as the actors who tested the measure validity. The Arabic version in 2 realises the material process by the verb 'qaama' and the prepositional phrase 'bi9arDi'; they have the same meaning of '9araDa: presented'. The remaining examples have no active agency as they use the passive formations. In 3, 'the test' is the goal for the passive voice 'was presented' and the 'referees' are the recipients, who checked the validity of the test. Examples 4, 5 and 6 use the verb 'tamma' and the gerunds: presenting (4), checking (5) calculating (6) to function as passive voice. Examples 1-5 are similar in that they include 'referees' as the recipients to validate the measure while 6 uses another way to check the validity of the measure by using 'correlation coefficients' labelled as circumstance. It is found that another article follows a similar way to 6 in validating a measure, but it uses simple present tense instead of simple past tense.

Step 3: Reliability of the measure

This step is introduced by either using direct headings such as 'ثبات الأداة': thabaatu al'adaah: reliability of the tool, or explicit introductory items such as 'للتحقق من ثبات الإختبار': liltaHaquqi min thabaati al'ikhtibaar: to check the reliability of the test. The researchers check reliability by administering the test on a pilot sample, calculating reliability coefficient and reporting reliability values. The examples below show how this step is realised:

'حسب معامل الثبات بطريقة الإختبار وإعادة تطبيق الإختبار (Test-Retest) على العينة الاستطلاعية.'

1- Reliability coefficient was calculated by testing and retesting the pilot sample. (JJES 5)

'تم حساب معامل الثبات باستخدام "معامل الارتباط لبيرسون".'

2- tamma Hisaabu mu9aamili althabaati ‘...’.

2- Done calculating coefficient reliability ‘...’.

2- Reliability coefficient was calculated by using ‘Pearson correlation coefficient’. (IJRE 5)

’للتحقق من ثبات الأداة تم تطبيق معادلة ألفا كرونباخ على استجابات عينة استطلاعية’.

3- liltaHaquqi min thabaati al’adaati tamma taTbiiqu mu9aadalati ‘...’.

3- To check from reliability the tool done applying equation ‘...’.

3- To check the reliability of the tool, Cronbach’s alpha equation was applied to the responses of a pilot sample. (JEPS 3)

’قامت الباحثتان باستخدام طريقة حساب معامل ثبات ألفا كرونباخ وذلك للتأكد من ثبات الأداة’.

4- qaamat albaaHithataan bi’istikhdaami ‘...’.

4- Performed the two female researchers in using ‘...’.

4- The two female researchers used Cronbach’s alpha coefficient to check the reliability of the tool. (IJRE 4).

The first three examples demonstrate how most of the Arabic RAs confirm reliability of a measure. These examples include material processes in passive formations. In 1, there is a material process ‘حسب: Husiba: was calculated’, goal ‘Reliability coefficient’ and the way in which reliability is calculated is in the circumstance. Example 2 is similar to 1 except that it uses the passive construction of ‘tamma’ with the gerund ‘calculating’. In 3, the writer begins with the circumstance to introduce what s/he intended to do ‘to check the reliability...’. S/he uses the material process ‘tamma’ with the gerund ‘applying’ followed by the goal ‘Cronbach’s alpha’ to achieve his intention. On the other hand, a few Arabic RAs check measure reliability within sentences having active agency, as in example 4. This example has the actor ‘female

researchers', a material process 'qaamat' with the prepositional phrase 'in using', the goal 'Cronbach's alpha' and the circumstance 'to check reliability'.

Values of reliability of a measure are reported in the Arabic articles using relational process, as in:

'بلغت قيمة معامل الثبات (0.87)'. .

5- The value of the reliability coefficient reached 0.87. (JJES 5)

'الجدول الاتي يوضح معاملات ثبات الاختبار'.

6- The following table demonstrates test reliability coefficients. (JJES 4)

Most articles do the same as example 5 in using the verb: 'بلغ: balagha: reached' highlighting the establishment of measure reliability as a narrative process. This example reports the value of reliability using identifying relational process 'reached'. The token is 'the value...' and the value is '0.87'. A few other articles report reliability results using the verb 'يوضح: yuwaDiHu: demonstrate', as in example 6, wherein 'The following table' is token and the 'coefficients' are the value.

Step 4: Scoring procedures

The noun phrases used to realise this step include 'معايير تصحيح': ma9aayiir taSHiiH: scoring criteria, 'نظام التصحيح': niZaamu altaSHiiH: scoring method, 'تصحيح المقياس': taSHiiH almiqyaas:

scoring the measure, or a noun such as 'درجة': daraja: a score. The examples below clarify how scoring procedures are realised:

'تم اعداد معايير تصحيح هذا الاختبار.'

1- tamma 'i9daadu ma9aayiiri taSHiiHi hadhaa al'ikhtibaar.

1- Done preparing criteria scoring this the test.

1- Scoring criteria of this test were prepared. (JJES 2)

'اتبع نظام التصحيح الذي يمنح درجة (1) واحد للإجابة الصحيحة.'

2- The scoring method which gives one score for the correct answer was followed. (IJRE 1)

'صمم المقياس على طريقة ليكرت 'Likert' ذات الإستجابات الثلاثية دائما، أحيانا، نادراً... ' وقد حددت الدرجات من (3-1) لكل عبارة يجيب عنها التلميذ.'

3 A- The scale was designed based on 'Likert's' method of the three answers 'always, sometimes and rarely '...'.
B- The marks were set from 1-3 for each question that the student answers. (IJRE 3).

'وقد أعطيت درجة واحدة لكل اختيار صحيح.'

4- One score was given for each correct choice. (JJES 4)

All of the examples above have no agency and they use material process in passive voice to represent scoring method. In 1, 2 and 3, 'scoring criteria/ method, scale' are acted upon in the passive formations of: 'done preparing' in 1, 'was followed' in 2 and 'was designed' in 3. In 3b and 4, scoring process is represented by assigning scores to correct answers. These examples (3b

and 4) represent the ‘marks’ and ‘one score’ as the goal for the passive voice ‘were set’/‘was given’. On the other hand, scoring process is represented using active agency and agentive passive, as in 5 and 6, respectively, below:

‘حدد الباحثان معايير تصحيح المهمات الكتابية على النحو الآتي.’

5- The two researchers specified scoring criteria for the writing tasks, as in the following.

(JEPS 4).

‘تم وضع مقياس من قبل الباحثين استنادا الى الأدب النظري على النحو الآتي: ١. ١ - ٢,٥ ضعيف.’

6- tamma waD9u miqyaas min qibali albaaHithayni

6- Done setting scale by the two researchers....

6- A scale was set by the two researchers based on the literature, as in the following: 1.

1- 2.5 is weak. (JEPS 1)

In these examples, there is a material process (‘specified’ in 5 and ‘done setting’ in 6), an actor ‘the two researchers’ and the circumstance ‘as in the following...’ which details the scoring process.

Move 4: variables of study

The noun phrase used to realise this move is ‘متغيرات الدراسة/البحث’: mutaghayyraat aldiraasah/albaHth: variables of study/research. This move is represented using relational process type, as in:

‘أما متغيرات الدراسة فهي: أ- المتغير المستقل: ‘...’ ب- أما المتغيران التابعان فهما.’

1- The variables of the study are: a- the independent variable ‘...’ b- the two dependent variables are. (JEPS 1)

‘المتغير المستقل: هو التدريس باستخدام الفريق‘.

2- The independent variable is the team teaching method. (JEPS 5)

‘اشتملت الدراسة على متغير مستقل هو استراتيجية التدريس‘.

3- The study consisted of an independent variable which is the teaching strategy. (JJES 2)

There is an identifying relational process in and 1 and 2 above. In 1, ‘the variables’ are the token and the independent variable is the value. In 2, the variable is the token and the teaching method is the value. Example 3 has possessive relational process and identifying relational process: the ‘independent variable’ is possessed and it is the token whose value is ‘the teaching strategy’. On the other hand, one example has active agency as seen below and it presents the variable ‘enriching programme’ as the goal for the material process ‘used’:

‘استخدمت الباحثان في هذه الدراسة البرنامج الإثرائي كمتغير مستقل‘.

4- The two researchers used the enriching programme as an independent variable. (IJRE 4)

Another example below shows also the use of material process ‘tackled’ to represent the variables:

‘تناولت الدراسة المتغيرات الاتية‘.

5- The study tackled the following variables. (JJES 9)

4- The data were statistically processed by using the *independent samples t-test*. (JEPS 5- my italics)

All these examples have material processes either in the passive voice of ‘calculate’, ‘use’ and ‘conduct’ in 1 and 2 or in the construction of ‘tamma’ with the gerunds ‘extracting’/ ‘processing’ in 3 and 4. The statistical tests (in italics) in 1 and 3 are set as the goal for the material process while in 2 and 4 they are put in the circumstance. Most articles follow the construction of ‘tamma’ with a gerund representing passive voice as in 3 and 4 whereas a few of them have active agency as in:

‘استخدم الباحث اختبار (ت) لتحديد الدلالة الإحصائية للفروق بين متوسطات درجات الطلبة.’

5- The researcher used the t-test to determine the statistical significance of mean differences between the students’ marks. (JEPS 3)

The statistical test ‘t-test’ appears in (5) above as the goal for the material process ‘used’ whose actor is ‘the researcher’ functioning as the analyst of data.

Step 2: Preliminary analysis

This step is realised by using the noun phrase ‘group’s equivalence’ and by the writers’ confirmation that the groups, to which an experiment is applied, are equivalent based on the results of a statistical analysis. The examples below show how these results are presented:

‘تبين نتائج جدول 1 أنه لا توجد فروق داله احصائيا’...، مما يعني تكافؤ المجموعتين الضابطه والتجريبية على اختبار التفكير الإبداعي.’

1- '...', mimaa yu9nii takaafu'u almajmuu9atayn alDaabiTah wa altajriibiyah '...'.
1- '...', which means *equivalence the two groups the control and the experimental '...'*.

1- Results of table 1 demonstrate that there are no statistically significant differences '...', which means *that both the experimental and the control groups are equivalent in the creative thinking test.* (JJES 2-my italics)

'يتضح من الجدول 1 أنه لا توجد فروق ذات دلالة إحصائية '...'، وبالتالي يمكن القول: إن طالبات المجموعتين التجريبية والضابطة متكافئتان قبل البدء في تطبيق المعالجة التجريبية'.

2- It is clear from table 1 that there are no statistically significant differences '...'; therefore, it can be said *that the female students of both the experimental and the control groups are equivalent before implementing the experiment.* (JJES 3- my italics).

The two examples include existential processes to display the results of the analysis. The results (in italics) stating that the groups are equivalent are put as a value for the relational process 'means' in 1 while in 2 they are the verbiage for the verbal process 'can be said'. There is an authoritative voice whose sayer is absent, but it can be recovered if this sentence is rewritten as: we can say... . This swap will result in conflating the authorial role with the sayer role.

4.3 Summary and discussion

It appears that the methodological steps of English and Arabic RAs are represented using all process types except the behavioural one. The existential process appears in the methodology of Arabic RAs in a few cases and it is associated with presenting results of preliminary analysis. Verbal and mental processes realise a few steps in both English and Arabic RAs. They mainly

appear within the step, 'implementing of an intervention' because the nature of the intervention used in a study helps such processes to exist. There can be an intervention which relies on viewing material or giving the subjects of a study some information.

These findings are similar to Paltridge's (1997), who found that all process types, except the existential and behavioural processes, occur in the 'background information' element in the introduction sections of the RAs he analysed. He affirmed that the existential process occur in other parts of the introduction sections and predicted that the behavioural process would occur if the subject matter of the RAs is different from the ones he dealt with. However, Paltridge (1997, p.81) pointed out that 'no particular process type would always occur at specific points in the texts'. This is different from what this thesis reveals as there can be one process type that represents one step. For example, the steps 'sampling design' and 'design of study' are represented in both English and Arabic RAs using the material process type.

The prevalent processes used to realise the steps are either material or relational ones. In some steps in different articles, both processes are used to realise one same step. The identifying relational process is realised in the methodology of Arabic RAs within the steps 'size of sample', 'number of measure items' and 'values of reliability' using the verbs 'became' and 'reached'. These verbs make the numbers and values in these steps as passing through a developing process connected to time lines. This is different from the observation about timeless truth discussed under the step 'time of study' in the English RAs (see section 5.3).

The material processes in the methodology of Arabic RAs are realised not only by verbs, but also by constructions which consist of the verb ‘tamma: done’ and a gerund or the verb ‘qamma: performed’ and a prepositional phrase. The material processes are also represented most often by using passive formations or by having words order similar to passive construction in English. Most of the passive formations are constructed as a consequence of having verbs in active form functioning in passive. The writers of the Arabic RAs have employed such verbs as an alternative to replace forms of active agency and passive voice and to avoid the use of personal pronouns. There is no single case of personal pronoun which refers to the researcher(s) in the Arabic data. The researchers only ever refer to themselves in the third person resulting in message-centred texts. The methodology of English RAs is either message-centred or addresser centred as the researchers refer to themselves using the personal pronoun ‘we’.

The dominant construction appears in the Arabic RAs is the use of the active form of the verb ‘tamma: done’ with a gerund performing passive voice. This construction has the meaning that an action was accomplished with no actor appearing in it. This formation results in more representations of passive voice than forms of active agency. Another feature which characterises the passive in a few Arabic RAs is the occurrence of agentive passive which is similar to the middle voice in English as it includes the active form of verbs indicating passive. The difference between them is that the agentive passive accepts the prepositional phrase ‘by’ followed by an agent while the middle voice does not. This finding cannot give full support to Najjar (1990), who asserts that agentive passive occurs in his data, because this feature is found in only a few articles in the current study. The occurrence of this kind of agentive passive and the

construction of ‘tamma’ with a gerund can be due to the effect of the Arabic language system that allows such formations to appear in the Arabic RAs.

It is found also that the steps in the English and Arabic articles are presented using simple past tense. However, some steps in the Arabic RAs use simple present tense making the procedures read like instructions and leaving an open question whether these procedures are implemented.

The analysis of the Arabic RAs shows that there are some steps which are realised using similar linguistic choices across different articles. These steps/sub-steps, as demonstrated above in section 4.2, are: ‘population of study’, ‘citing literature to help design the intervention or the material’, ‘conducting the experiment’ (as part of the step ‘recounting procedures’), ‘validity of the measure’, ‘reliability of the measure’ and ‘preliminary analysis’. It can be said that many researchers involved in the Arabic RAs follow each other in using a set of conventional established procedures which are represented using similar linguistic exponents. For example, most of the researchers test the validity of the intervention or the measure by presenting it to a group of referees and they represent this in texts by using the construction of ‘tamma’ with the gerunds ‘presenting’ and ‘checking’. The similarity of the linguistic choices can indicate the uniformity of some text segments across different Arabic RAs. Therefore, readers can expect what the methodology of an Arabic Educational article may include and what researchers do by having read a few articles in the field.

This finding indicates that there are cross-cultural differences between English and Arabic RAs. The Arabic RAs display what Hua (2011) calls ‘interpersonal harmony’ which characterises the

culture to which the authors of the Arabic RAs belong as collectivistic. These authors tend to belong to collective societies as they trust their in-groups' decisions and formulas and prioritise the groups' goals over the individual's goals (Samovar, Porter and Stefani, 2011). On the other hand, the authors of the English RAs tend to belong to individualistic culture which emphasises individuals' goals and decisions over the groups' and motivates individuals' thoughts, opinions and competition (Samovar et al., 2011). This finding supports Hofstede (1980), whose sociometric research suggests that western countries such as the United States, Australia and the United Kingdom have the highest values on individualism.

Chapter five

Moves and steps

The second level of bottom-up analysis comprises the rhetorical analysis which reveals the moves and steps that occur in the RA accounts of methodology. This analysis introduces the function of a text segment (a phrase, a clause or a sentence) that can realise a step or a sub-step. Then, in a higher level, a move type is assigned for a group of steps relying on the overall shared purpose that represents these steps. These moves and steps are identified in two sections below: The first shows those in the English RAs and the second presents those of the Arabic RAs. Each step is explained with examples from the texts. The examples are followed by the name of the journal coded with a number to identify which RA the examples were selected from. The items in the examples that exemplify a certain step are in italics. In addition, the assumed shared knowledge is identified under each move or step using the perspective of tacit knowledge.

5.1 The English RAs

The analysis of the English articles shows all of the moves with their constituent steps, as presented in table 5.1. A description of the presence and absence of the steps in each English article is given in appendix 1, which includes descriptive statistics of the frequency of step occurrences.

Table 5. 1 The moves and steps of the accounts of methodology in the English RAs

Moves	Steps
1- Sample and population of study	<ol style="list-style-type: none"> 1- Size of sample. 2- Population of study. 3- Situation of study. 4- Characteristics of sample. 5- Sampling technique/design. 6- Motivation.
2- Procedures of study	<ol style="list-style-type: none"> 1- Design. 2- Identifying interventionists. 3- Designing and implementing an intervention or a material. 4- Recounting procedures. 5- Fidelity of implementing an intervention or a material.
3- Measure	<ol style="list-style-type: none"> 1- Identify a measure of variables. 2- Items of a measure. 3- Validity of a measure. 4- Reliability of a measure. 5- Data collection. 6- Scoring procedures.
4- Data analysis procedures	<ol style="list-style-type: none"> 1- Statistical analysis model. 2- Statistical tests. 3- Preliminary analysis. 4- Analysis procedures.

Move 1: Sample and population of study

There are 25 articles that start this move with the heading ‘participants’ and two RAs begin with ‘sample’. The move is called sample so it can refer not only to people, but also to institutions such as schools or classes.

Step 1

The first step, ‘size of sample’ gives the number of participants, classes or schools. This step includes also a description of those included and excluded as well as a direct reason for excluding them. An example of this step is:

Three hundred thirty-two 7th-grade students from 11 classes participated in this study. (JRST 2
– my italics)

According to the tellability principle of tacit knowledge, it can be said that the writers here know more than what they tell about the participants. They do not give all information to make the description of participants clear to readers not familiar with the working of the particular education system in which the sample is located. They assume that readers can understand what 7th-grade refers to in that education system. Still, the referent of this noun is not identified because the information about the classification of students in this system is absent. Attending to the distal entity which represents the ‘7th –grade’ can better identify it as group of students who can be classified based on age or ability, as in the two examples below:

All the children in two Year 1 classes and two Year 2 classes participated. (EARLI 6)

The writers of this article do not presuppose that readers know what is referred to by ‘Year 1 and Year 2’. The text goes on to explain that this division of children is not based on ability, as in the following sentence:

The age range of the children in Year 1 was 5 years 1 month-5 years 11 months, while for those in Year 2 it was 6 years 1 month-6 years 11 months.

The number of participants might be followed by the duration of participation, as in:

A total of 395 students participated in the study over *the course of six academic semesters*.
(JRST 4 – my italics).

It seems that the phrase ‘academic semesters’ is an interesting example of what we might call ‘over-telling’. Assuming that the reader knows the referent of ‘semester’ as a period of six months which is most usually applied in an educational context, it might seem that the word ‘academic’ is redundant. But it is probably there to alert the reader to the fact that each semester was not necessarily precisely six months. It therefore relies on the presumed tacit knowledge that, although ‘semester’ literally denotes a period of six months, it is often used in academic contexts to denote one of two periods in the year of teaching and assessment, each of which may last significantly less than six months. In this respect, it is also under-telling, in that only a reader familiar with the precise institutional context would be able to know exactly how long each period was.

Step 2

This step includes a description of the study population. The writers of almost all the articles focus briefly on whom the sample is selected from in their description of study population. The writer of only one RA describes the target and accessible population in detail. The example below describes the study population and its size:

Students were recruited *from a large organic chemistry course at Texas A&M University (N = 225)*. (EARLI 14– my italics)

Step 3

The third step, ‘situation of study’ points to the location and time of study. There are ten RAs which add more elaboration to the setting than the remaining articles. The details about the setting contain a rationale for selecting the location, the teaching materials used in the location and the characteristics of people involved in the setting. This kind of information is not only about place or time of study; this is why the term ‘situation of study’ is used. The following example shows this step:

We conducted this experiment during the 2010 summer academy [time] *at MATCH Charter Public Middle School and High School* [setting]. Like many *Boston* [site] public schools, MATCH serves *a largely low-income, minority student population; 78% of students are eligible for free or reduced-priced lunch, and 93% of students are Hispanic or African American* [characteristics of population]. (JREE 4 – my italics)

Before establishing the setting and site of the study in this example, the writers announce the time of implementing the experiment ‘during the 2010 summer academy’. The existence of this prepositional phrase at the beginning of the paragraph assumes a lot of knowledge on the part of the readers. The writers do not give here explicit information on what they tacitly know about this academy. Instead, they provide background information about it at the end of the paragraph (as seen below) using the relative clause ‘in which...’ as post-modification:

Students at MATCH *are admitted through a lottery, with students entering in Grades 6 and 9, the first grades in their middle and high schools. Incoming sixth- and ninth-grade students are required to attend a 4-week summer academy in which they take a mathematics class, two*

English (fiction and nonfiction) classes, and a class about the norms of the schools
[identifying setting].

The writers do not presuppose that readers are familiar with what summer academy refers to. On the other hand, the writers assume shared knowledge with readers about the referent of ‘free or reduced-priced lunch’. It can be said that, by attending to the distal entity covering ‘free or reduced-priced lunch’, the referent is recoverable to any reader without it being spelt out. It can refer to lunch provided by schools for their students in that part of the world and this is provided free or at a reduced price.

As mentioned early, step 3 can include a description of teaching materials used in a setting, as in:

The three districts included in our sample used *MathThematics* (Billstein & Williamson, 2008), *Math Course* (Larson, Boswell, Kanold, & Stiff, 2007), and *Math Connects Course* (Day, Frey, & Howard, 2009) at the middle-school level. (JREE 1)

Introducing these materials assumes that readers can recognise the titles (indicated by the italicised words) as textbooks. It does not assume that readers have any acquaintance with them. The writer was able to tell what s/he knows about these material by providing references for more information and giving a few definitions about them under the procedures of his/her study.

Unlike the example of 7th-grade, one writer provides explicit information about ‘penultimate year’ when s/he describes the setting in his study, as seen below, without assuming that readers can understand what it refers to:

Data were collected from 91 children, with complete data from 86 students, in the *penultimate year in primary school from four schools in England* (Mean Age=10 years, 2 months, SD=4 months). (EARLI 5 – my italics)

Step 4

The fourth step, ‘characteristics of sample’ describes mainly the participants’ demographics. The writers provide the characteristics in texts and/or by tables. An example of this feature is:

The course included *26 juniors and 44 seniors, with 14 females and 56 males*, which is similar to the gender balance shown in the data on engineering courses (Loftus, 2007). (JRCT 1 – my italics)

This example shows indirectly that this sample is representative and does not assume that readers know that the ratio of ‘14 females and 56 males’ is typical.

The following example does not realise step 4 because it shows that the characteristics of sample are only labelled and not defined:

Students’ gender, ethnicity, and Pell Grant eligibility status were obtained from the university. (JRST 4 – my italics)

The writers of this article do not identify the gender and ethnicity of students in the body of their research. Moreover, they do not define what ‘Pell Grant eligibility’ refers to or what criteria must one have to apply for this programme. They have knowledge about it and they can articulate it, but they do not tell what they know. It presupposes that readers have knowledge about it, but the

given information may not be considered as part of shared knowledge. A different example shows how the ambiguity of the referent is partially resolved:

Eighty-four participants from the Faculty of Arts at the University of Groningen were recruited to take part in the experiment. They were *all advanced students (no first year students)* with an average age of 22.2 years (SD = 3.8). (EARLI 2 –my italics)

The noun phrase in brackets can be considered as the distal entity to attend to. It explains that the referent of advanced students is those who are in any other year.

Step 5

The fifth step, ‘Sampling technique/design’ introduces the method by which a sample is selected and how the subjects of a study are assigned to treatment and control groups. An example of this step is:

We began by *randomly assigning students to their class-taking groups*. We then *randomly assigned seven of the 14 class-taking groups to either the treatment or control condition* so that students in the treatment group would only attend classes with their treatment-group peers. (JREE 4 – my italics)

The writer assumes that readers are researchers who know what treatment and control conditions refer to based on their knowledge about research designs. Attending to the distal entity which represents these conditions shows that the treatment condition may refer to an intervention being applied to an experimental group while the control one may refer to the absence of that intervention. This suggests that the writer can articulate more information than what s/he did.

Step five also involves inclusion criteria for the sample because it states the conditions based on which the sample is selected. Ten RAs state criteria/criterion for sample inclusion either explicitly or implicitly. A reader can directly understand that what is mentioned is a criterion by finding explicit linguistic items, as in the following example:

Students were determined to be at risk and qualified to participate in the study if they met either of the following criteria: (a) a score at or below the 33rd percentile on the DIBELS LNF measure (i.e., fewer than six letters correctly named in 1 min) or (b) a score below the 37th percentile on the CTOPP Sound-Matching subtest. (JREE 2 – my italics)

It is obvious here that the selection of sample is determined by the measure score. The measure name (DIBELS LNF) is given and identified. More information about this measure is discussed in a recycle under the measure administered in the study. Three RAs introduce a measure within the sample move to decide who can participate in the study and be part of data to be analysed.

The researchers in the example below assign a criterion for participating in the study although it is not directly stated as a criterion:

Volunteering to be in the treatment group *required the ability to participate in an initial summer workshop and be scheduled to participate in E: Y! during the 2008–2009 school year.* (JRST 5 – my italics)

It is found that seven RAs do not mention how the subjects were selected and they only show how they were assigned to the groups. This causes lack of detail for this step.

Step 6

The last step, ‘motivation’ means that researchers motivate participants by compensating them for their participation in their studies. This is clarified in the example:

Students who volunteered to participate in the experiment signed a consent form and *were paid a \$15 participation fee* upon completing the session. (EARLI 4 – my italics)

To sum up, one higher level in bottom-up processing is to reveal the move type within which the above steps fall. It can be seen that the preceding steps provide information relevant to the sample of a study so they all share one overall purpose, which is to detail the participants of a study and how they are selected. Therefore, they all are assigned under the move, ‘sample and population of study’.

Move 2: Procedures of study

Step 1

The first step within this move is the design. This means that a researcher creates a framework by which he tries to find answers to his research questions. In the data under analysis, the writers of 18 RAs directly name the design and then give more information about it. This is clearly shown in the example below where compound nouns are used to name the design:

We used *a randomized treatment-control, pretest–posttest design*. Blocking by teacher at each school, the 42 classrooms were randomly assigned to the SBI (n = 594 students) or control (n = 569 students) condition. (JREE 1 – my italics)

The information about a design reveals what knowledge is expected to be produced by a design to answer research questions, as in the italics below:

Impact of the STaRRS partnership on participant students' science content knowledge and attitude toward science and scientists [expected knowledge] was assessed using a pre-test–post-test, non-randomized, comparison group design. (JRST 5- my italics)

Information about a design includes the rationale of adopting a design supported by a link to literature, as in the example:

A pretest-posttest control group design was used [name of design], as it is the most appropriate when the independent variable is manipulated by the researcher and randomization of participants is not possible [rationale] (Campbell & Stanley, 1963) [link to literature]. (JRST 6)

Other 16 articles also provide direct explanation of procedures which represent a certain design but without naming it. An example on this is:

Students in each class were randomly assigned to either *a generating* (N=165) *or a reading* (N=167) *condition. Before and after the study, all students individually completed an identical, online pretest and posttest* within one class period (50 minutes) [design]. After the pretest, students worked on one of two Photosynthesis inquiry units in pairs for 6 days. Except for the reading and generating guidance in the visualization activity, everything was identical in the two versions. (JRST 2 – my italics)

The writers imply here that they control other variables (everything was identical). They also point to the materials used ‘Photosynthesis inquiry units’ without detailing them because these have already been defined in the introduction section of the RA.

Step 2

Step two, ‘identifying interventionists’ shows who implements an intervention. The information under this step identifies interventionists, their number, their characteristics and criteria for inclusion, as in:

During Year 2 of the study, 12 [number of interventionists] *teachers* [interventionists] (*3 male, 9 female*) [characteristics] *who taught English/Language Arts or Reading to seventh and eighth graders and who participated in the CSR study the previous year (Vaughn et al., 2011) were included* [criteria for inclusion]. All teachers earned a *bachelor’s degree*, and eight possessed a *master’s degree*. *Teaching experience ranged from 2 to 36 year*. *Teacher demographic information is provided in Table 1.* [characteristics]. (JREE 3 – my italics)

Three articles present the interventionists by using only first plural pronoun ‘we’ assuming that readers will identify the referent as the research team. In this case, attending to the distal entity can help identify the referent as the research team and make sense of it. However, in five articles information about interventionists is absent as they only use the noun ‘experimenter’ without identifying its referent. The writers of these articles must know who they refer to by ‘experimenter’, but they do not tell. Therefore, these articles are not considered having this step. In the example below, the referent of the noun ‘experimenter’ is not identified in the whole article:

An experimenter was present all the time. (EARLI 3)

This step also reveals information about how to prepare an interventionist before implementing an intervention. Eight RAs describe how they were prepared and four articles announce that they were already prepared or qualified. The example below shows how the interventionists were prepared by participating in a professional development session. The example presents the rationale, duration, goals, content of this professional development as well as steps of training the interventionist:

Professional development was designed to approximate the type of training that is typical when schools adopt published programs [rationale]; it was limited to 2 days [duration]. The goals of this professional development session were to develop ‘...’ [goals]. The professional development familiarized interventionists with lesson structure ‘...’ [content]. Interventionists viewed publisher-developed video clips of lesson elements and participated ‘...’. They were also shown how to set up. [steps of training]. (JREE 2 – my italics)

Step 3

The third step is designing and implementing an intervention or a material. Four RAs have introduced this step before the beginning of the methods section. Therefore, readers should not ignore the introduction section in order to understand the intervention and the procedures of implementing it. This step in addition to step 1 and 4 of move 2 are the core of any RA of this kind. They describe what was done and how it was done. Step 3 is realised by a number of sub-steps: introducing an intervention or a material, duration needed to implement the intervention or the material, size and source of materials, components of interventions/material and the procedures followed in implementing them and identification of the apparatus.

The first sub-step includes a description of an intervention and provides a reference based on which researchers design or develop their intervention or material, as in the example:

All schools in this Florida school district implemented a consistent core reading program (Harcourt Trophies; Beck, Farr, & Strickland, 2007). *Harcourt Trophies is a comprehensive reading/language arts program that uses explicit phonics instruction, guided reading strategies, phonemic awareness instruction.* (JREE 2 – my italics)

The writer does not assume shared knowledge with readers of the referent of ‘Harcourt Trophies’ as s/he clearly describes the programme and provides a reference for it. S/he articulates what s/he knows by introducing the programme as a comprehensive entity. Researchers cite literature to show what reference or framework they rely on to create their intervention or material, as in:

Our work adopts Wilson’s framework (2009) [framework] for building LPs from a set of inter-linked construct maps [intervention] (Plummer, 2012). (JRST 7)

Other six RAs introduce also the aim of an intervention or a material, as seen below:

The cases presented students with real life scenarios and were designed *to help them understand complex dynamic models, develop/test hypotheses, and mitigation strategies for component failure in complex systems.* (JRST 1-my italics)

The duration needed to implement the intervention is described in the example below using compound nouns:

In treatment classrooms, SBI was implemented in *five 45- to 50-min mathematics classes a week over 6 weeks.* (JREE 1 – my italics)

The following example shows the size and source of a teaching material:

The control lesson consisted of *8 slides, with a total of 442 words and 6 graphics* [size], and was adapted from a lesson used by Mayer et al. (2008) [source]. (EARLI 1 – my italics)

Components of an intervention with procedures of implementing it are described below:

The instructional content consisted of ratio, proportion, and percent topics [components]. Within SBI and as described next, teachers used four instructional practices. *First, teachers primed the mathematical structure of problems by focusing ‘...’. Finally, teachers worked to develop students’ procedural flexibility, including explicit teaching of multiple solution methods for solving proportion problems ‘...’.* (For further details of the SBI instructional approach, see Jitendra et al., 2009). [Procedures]. (JREE 1 – my italics)

This is an example where the writers provide explicitly a lot of information about what they tacitly know. The procedures are explained in clear detail by providing examples and a table for more information and they are joined using sequential words. The information given in the text can be enough for readers to understand the components of materials and the implementation procedures. Moreover, the writers establish a reference for more details about the procedures of implementing the intervention. In other 13 articles, writers provide a reference that supports or justifies following a certain procedure, as in:

The tutor provided students with reflection questions ‘...’. In a prior classroom experiment, we found these prompts to be effective when students learn with multiple graphical representations of fractions (Rau et al., 2009) [supporting reference]. (EARLI 17)

The last sub-step is identifying the apparatus. It refers to which equipment used to accomplish a task in an experiment. One of the articles does not directly mention the apparatus and readers need to draw inferences about it. An example of this is the heading of a subsection about materials used in a study:

Web-Based Inquiry Photosynthesis Unit. (JRST 2)

The phrase ‘Web-Based’ presupposes that the researcher used electronic equipment such as computers to implement his intervention. Although this can be considered as part of shared knowledge, detailed characteristics of the device and its type are absent. Other RAs inform readers at least about the type of apparatus, as in the example:

All materials were presented on Microsoft Windows XP personal computers equipped with monitors and headphones. Each monitor had a resolution of 1280 _ 1024 pixels. Times spent by each participant viewing each slide of the animated presentations were logged by an HTML JavaScript computer program and used for further analyses. (EARLI 4 – my italics)

The writer does not only identify the apparatus but he also explains its characteristics.

Step 4

The fourth step is recounting the procedures of the whole study or experiment wherein a researcher narrates what steps s/he follows to conduct his/her study. This step is different from step 3 mentioned above because it describes what was done before and after conducting the experiment or the intervention. A good example on this is:

Up to 3 participants were tested in a session, with each participant seated in an individual cubicle out of sight from other participants. First, the experimenter described the study and participants read and signed an informed consent form. Second, participants completed the participant questionnaire at their own pace. Third, participants viewed the multimedia lesson corresponding to their treatment group-enhanced or control-for 5 min ‘...’. Finally, students completed the post-questionnaire at their own rate. The entire session lasted approximately 30 min. (EARLI 1 – my italics)

The previous example includes clear and arranged steps which are described in detail using sequential words (first, second, etc.). They also show researchers what they need to do in conducting a similar experiment. One of the steps which occurs prior to the experiment is considering ethical issues and it refers to the importance of obtaining consent from participants to take part in a study or from a certain institution to conduct an experiment. Also, it takes into consideration any possible negative effects on participants as a result of taking part in the procedure. The examples below illustrate the function of this step:

1- At the start of each session, *written consent was required and obtained from each participant prior to administering the background information questionnaire, pretest, studying activity, and posttest. (EARLI 4 – my italics)*

2- *Full ethical approval from the Human Research Ethics Advisory of the university was granted for the experiment (Approval No. 11035). (EARLI 4 – my italics)*

The remaining steps under recounting procedures include a description of what researchers do to conduct their experiment and the duration spent on completing a task or a test.

Step 5

The fifth step is the fidelity of implementing the intervention or material. The main purpose of it is to make sure that participants adhered to the implementation of the intervention and to the material. This step consists of 1- aspects of the study experiment to which fidelity was measured, 2- a measure of fidelity with its items and 3- a summary of findings. An example of the first sub-step is:

Our approach to documenting and measuring fidelity of implementation addressed four distinct dimensions of treatment integrity (Dane & Schneider, 1998; Gersten et al., 2005): *(a) procedural fidelity and adherence to the ERI program, (b) quality of the instructional delivery of both the ERI and SDI interventions, (c) dosage of the ERI and SDI interventions, and (d) documentation of the content focus of the SDI intervention to evaluate program differentiation compared to ERI.*

(JREE 2 – my italics)

The writers of this study give then more information about the aspects of study experiment and how to measure them. The second sub-step shows what instrument was used to measure fidelity, as in the example below:

Two observation instruments were used to describe and measure teachers' adherence to the implemented intervention or curriculum (SBI or control). (JREE 1 – my italics)

The writers here just label the instruments without describing them. However, they make this clearer by adding examples on the items of the measure, as in the text below, and giving all items in a table:

The fidelity measure for the treatment condition consisted of *five items measuring general teacher behaviors (e.g., provides positive feedback)* and *15 items corresponding to critical elements of the treatment (e.g., solving the problem using the DISC four-step strategy)*. Examples of items associated with Step 1 of the DISC strategy *are identifying the problem type by focusing on the key problem features and discussing whether the problem is similar to/different from previously solved problems.* (JREE 1 – my italics)

The last sub-step is to reveal the findings of fidelity measure. An example of this is:

More generally, *Table 3 shows that fidelity scores for teacher behaviors were relatively stable across the three observations for both treatment and control classes. These data suggest that teachers in control classes consistently adhered to their curriculum and teachers in treatment classes consistently implemented SBI at a moderately high level over time* to allow us to attribute group differences to the implementation of SBI. (JREE 1 – my italics)

The researcher presupposes here that there are group differences which are due to the implementation of the intervention (SBI) itself and are not caused by other variables because the teachers adhered to the intervention and to the curriculum.

It can be noted from the above steps that the writers of the RAs describe the procedures to allow replications for future studies. This overall purpose can justify the move type assigned to these steps as ‘procedures of study’.

Move 3: Measure

Step1

The first step is to identify a measure of variables. The following example describes the measure, its source and content, the variable measured, how to administer the measure and the duration needed to complete it.

Gates–MacGinitie Reading Test (*4th ed.; MacGinitie, MacGinitie, Maria, & Dreyer, 2000*) [source]. *The Gates–MacGinitie Reading Test* [measure] is a timed, group-administered assessment of *reading comprehension* [variable]. The assessment consists of *narrative and expository passages ranging in length from three to 15 sentences* [content]. *Students read each passage silently and then answer three to six multiple-choice questions related to the most recently read passage* [how to administer the measure]. Items increase in difficulty as the student progresses through the assessment during *the 35-min time limit* [duration]. (JREE 3 – my italics)

It can be seen that the name and content of the measure are given as an indication that it can be replicable. In addition, the writer does not directly state that ‘reading comprehension’ is the dependent variable in his study as it may be a part of knowledge shared with readers. On the other hand, in 16 RAs, the variables are introduced using explicit lexical items without assuming that readers know them, suggesting that the writers do not consider them to be a part of the shared knowledge. In these 16 RAs, the writers know what counts as dependent variables in their studies and they provide such information to identify the given variables as dependent ones, as seen in the example:

2.1.4. Dependent variables:

We measured three *dependent variables, accuracy score, time on task, and efficiency measure.*

(EARLI 3 – my italics)

In this example, readers still need prior knowledge about the concept of dependent variables.

Step 2

The second step is items of measure and it refers to questions used to collect data from participants. The first example below shows the number, name, source, examples and purpose of the items:

The pretest and posttest assessments included *five items* [number of items] aligned with instruction. Three items were *typical knowledge integration items* [name of items] (*Liu, Lee, Hofstetter, & Linn, 2008*) [source] that *asked students to make connections between the concept of energy transformation ‘...’* [purpose]. (*see Table 1 for an example*) [example]. ‘...’. *Energy Stories* [name of items] extend typical knowledge integration items ‘...’, *asking students to explain a series of connections between energy concepts in a coherent way* [purpose]. (JRST 2 – my italics)

The writers do not give the name of the measure itself and indicate that it is a pretest and posttest measure only. However, they name the items and give examples in a table to point that the measure can be replicable. In addition, there is a recycle pattern of the items’ names followed by the purpose of the items in the example above. Therefore, the writers do not assume that readers know the items and their purpose as they make them explicit and give elaboration by examples and description.

The second example below does not mention examples or descriptions of the items of measure, yet the source and the name of the measure are provided to indicate that it can be replicable:

Teacher Science Knowledge Test (TEST) [name of the measure]. The teacher science knowledge test consists of *24 multiple-choice and six short response items* [number and type of items]. Of the 30 items, 24 were taken from *Trends in International Mathematics and Science Study (TIMSS) or National Assessment of Educational Programs (NAEP)* [source]. (JRST 3 – my italics)

Step 3

Step 3, ‘validity of a measure’ occurs in nine RAs. Implying that the measure is valid occurs in five RAs wherein researchers use already designed measures. The writers in the following example imply that the measures are valid and reliable and they give reference for more information:

Detailed validity and reliability information for each measure can be found in Maerten Rivera, Adamson, and Ahn (2012) and Maerten-Rivera, Huggins, and Adamson (2013). (JRST 3 – my italics)

In four RAs, the researchers either create or develop the measure, so they test its validity. They explain briefly how validity is established. For example:

Two scientists, two middle level science teachers, E: Y! rangers, and the researchers *established the content validity of the instrument by matching the items to NSES earth science content standards and state standards for Idaho, Wyoming, and Montana.* (JRST 5 – my italics)

Step 4

This step is concerned with providing a report about reliability of a measure. Detailed information about how reliability is established appears in three RAs, as in the example:

The CGI-MLS reliability was established in two ways. First, *a test-retest reliability rating was achieved by using assessments from a group of 36 E: Y! students '...'. The Spearman coefficient reliability for the instrument was 0.69. Due to the non-linearity of the questions, the GCI-MLS was also subjected to a RASCH analysis using students' pre-tests (n=187).* This analysis indicated that the test was well matched to the sample. (JRST 5 – my italics)

Step 5

The fifth step is data collection. It might be used to replace move 3, 'Measure' because it describes how data were collected using a measure. In three RAs, the section about measure is entitled with 'data collection'. However, because all RAs focus within move 3 on what instrument was used to measure a variable, this move is named as 'measure'. Since all RAs describe a measure, they all discuss either directly or indirectly how data were collected. This step points to who collect the data, as in the following example:

All assessments were administered by *trained data collectors* individually to students in quiet locations outside of the classroom. *Data collectors included graduate students* who had participated in training that consisted of a review of general assessment procedures. (JREE 2 – my italics)

This example explains who collected the data and justifies the selection of those data collectors. Another function under this step presents the tool that was used to collect the data, as in the example:

After the observation [tool] was completed, there was no discussion between the observer and teacher. (JRST 3 – my italics)

Finally, step 5 shows procedures which were followed in implementing a tool to collect the data:

Formal interviews [tool] were conducted with selected peer leaders and university faculty involved in creating the course and workshop materials. Interviews lasted 30–45 minutes. Each interview followed a semi-structured protocol ‘...’. Interviews were audiotaped and transcribed verbatim [procedures]. (JRST 4 – my italics)

Step 6

The last step is scoring procedures and it takes place after collecting the data. It describes the method or criteria used to score the items of a measure. An example of scoring process is:

The pretest was scored out of 20 points, a point for each part of the human nervous system listed and another point for proper description of the function(s) of each listed part. (EARLI 4 – my italics)

The same article from which the example above is taken recycles scoring with another measure and with more detailed steps, as mentioned below:

Responses from the free recall test were assessed with a conventional proposition scoring method (Nesbit & Adesope, 2011; Rewey, Dansereau, Skaggs, Hall, & Pitre, 1989). We analyzed

the original passage into 72 propositional statements ‘...’. We classified the 72 propositional statements into two major categories: 25 central idea statements and 47 detail idea statements. (EARLI 4 – my italics)

The writers here both make reference to the literature on this particular ‘scoring method’ and proceed to imply what it entails by saying exactly how they employed it. Moreover, they illustrate the rubric of scoring in detail:

A researcher who was blind to the experimental conditions assigned a score from 0 to 2 for each proposition recalled by the participants: 0 points if the proposition was absent or completely inaccurate; 1 point if the proposition was partially present or partially accurate; and 2 points if ‘...’. Each participant’s free recall score was the sum of the proposition scores. The maximum score was 144. (EARLI 4 – my italics)

In order to make sure that this scoring is reliable, data were scored by another rater and then a report about the results of coding reliability was provided:

Another trained researcher scored 51 randomly selected free recall responses, and the interrater reliability for the two raters was high, $r = .94$. (EARLI 4 –my italics)

The steps above share one purpose which is to detail the assessment method of measuring variables. Therefore, the move type, ‘measure’ is used to represent these steps.

Move 4: Data Analysis Procedures

This move appears in 17 RAs under the method section and in 19 RAs under the results section. It is accomplished by the following steps:

Step 1

The first step describes the statistical analysis model used for analysing the data and what variables are included in the model. An example of this description shows the use of compound nouns to label the model without explaining or providing information about it, thereby assuming a lot of shared knowledge with readers. The writer tacitly knows the model but s/he does not articulate his knowledge:

Student data were analyzed using *multilevel, multigroup models with sampling- and assignment-related clustering adjusted according to the TYPE = COMPLEX and TYPE = TWOLEVEL defaults in MPLUS 6 [Model] (i.e., teacher was specified as a stratification variable and class was the cluster variable) [variables]. (JREE 3 – my italics)*

Step 2

Step two involves the application of a statistical test. All RAs name the statistical test utilised, as in the example below which also shows the rationale for using the test:

The resulting factor scores were analyzed using *Wilcoxon Signed Rank Test [test] to check if student perceptions were significantly different between lecture and case-based instruction [rationale]. (JRST 1 – my italics)*

Step 3

The third step is preliminary analysis wherein results of applying a statistical test are presented. This step is realised in seven RAs within the methods section. The next examples state that the assumptions of the statistical tests were met:

1- The Q–Q plot was examined and a Levene’s test of homogeneity was conducted for TEST, SKS, and OBS. *For each outcome the null hypothesis of equal variances was accepted, and thus the assumptions of the ANOVA were not violated* [preliminary analysis]. (JRST 3 – my italics)

2- All models were checked for compliance with assumptions of normally distributed and homoscedastic residuals. *Distributions were satisfactory* [preliminary analysis]. (EARLI 2–my italics)

Providing results of analysis can also be realised using explicit lexical items, as in the examples:

3- *Preliminary analyses* indicated no significant interaction between the treatment variable and pretest scores for any of the outcome variables. (JREE 1 – my italics)

4- *Preliminary analyses* confirmed no differences in groups’ covariance structures. (JREE 3– my italics)

It can be seen that the writers only mention ‘the Q–Q plot’, ‘equal variances’, ‘homoscedastic residuals’, ‘outcome variables’ and ‘groups’ covariance structure’ without giving post-modifications. They assume a lot of shared knowledge with readers; they do not spell out enough information for a reader unfamiliar with these concepts to identify or understand them. Readers still need prior knowledge to identify the referent of these noun phrases.

Step 4

The last step is to state the analysis procedures. It involves the steps which were followed to analyse the data including an indication to what statistical tests and/or models utilised in the

analysis. In the following example, the writers start with establishing a model and then they describe the procedures of analysis:

A model-building approach was generally employed as suggested by Raudenbush and Bryk (2002). First, the student background predictors (e.g., GEN, BLK, HSP, LUNCH, ESOL, and ESE) were entered into the model; then, the reading achievement predictor was added. ‘...’. Only the final model is presented here for parsimony, but details of the model building can be found in the online Supporting Information. (JRST 3 – my italics)

Like the example of the ‘scoring method’ within move 3 step 6, ‘scoring procedures’, the writers, while not assuming readers are familiar with the ‘model-building approach’, avoid ‘talking down’ to them; that is, the explanation does not read like a textbook (e.g. the model-building approach is ...). No definition is given. This way, readers to whom this approach is new can infer what it entails and refer to the citations if they want to know more, while readers who are familiar with it will not feel insulted. The writers are in a way hedging their bets about the reader’s knowledge here. In other words, the writers assume neither that readers know this approach nor that they don’t. Then, they complete their description of the procedures that were followed in the analysis:

Once the final model for student background predictors was established, the proportion of within-teacher variance accounted for (PVAF) in science achievement by the set of background predictors was computed ‘...’. In addition, the proportion of ‘...’ was computed by comparing a baseline model without a predictor of interest to the fitted model with the predictor of interest and examining the change in σ^2 . (JRST 3 – my italics)

Replacing a noun by a symbol like ' σ^2 ' without explaining its referent assumes that there is a knowledge shared with only specific group of readers. More information about this symbol is needed to help readers understand it. Attending from ' σ^2 ' to its distal entity can make it meaningful by clarifying and introducing its referent as the variance of a set of values from the mean, instead of just mentioning it as ' σ^2 '.

In summary, the above steps fall under the move 'data analysis procedures' because they all share one purpose- to explain what was done to analyse the data.

5.2 The Arabic RAs

The analysis of the Arabic articles presents the same moves found in the English ones. However, there are differences in terms of addition of a new move called 'variables', as can be seen in table 5.2 below. There are also differences in terms of absence of some steps, which are 'motivation', 'analysis model' and 'analysis procedures'. All similarities and differences are discussed under section 5.3. A description of the presence and absence of the steps as well as descriptive statistics of the occurrence frequency of these steps in all of the Arabic articles are given in appendix 2. All steps are represented by examples from the RAs and translations are given immediately below each example.

Table 5. 2 The moves and steps of the accounts of methodology in the Arabic RAs

Moves	Steps
1- Sample and Population	1- Size of sample. 2- Characteristics of sample. 3- Sampling technique/design 4- Time of study. 5- Setting and site of study. 6- Population of study.
2- Procedures of study	1- Design. 2- Introducing an intervention or a material. 3- Designing and implementing an intervention or a material. 4- Identifying interventionists. 5- Recounting procedures.
3- Measure	1- Construction of measure. 2- Validity of the measure. 3- Reliability of the measure. 4- Scoring procedures.
4- Variables of study	
5- Data Analysis Procedures	1- Statistical tests 2- Preliminary analysis

Move 1: Sample and population

The analysis of all of the Arabic RAs shows a description about the participants of the studies. This description does not always completely identify the referent of some nouns in this move, for example:

’واشتملت عينة الدراسة على مجموعتين متكافئتين من طالبات الصف الأول الثانوي‘.

The study sample comprised two equivalent groups from the first secondary female students.
(JEPS 5)

Introducing the noun phrase ‘two equivalent groups’ without clarifications under the sample assumes a lot of knowledge on the part of readers. A reader can identify who these groups are because the information about them has already been given in the abstract of the research. The writer knows what types of groups s/he employed in the study and s/he tells about them. Yet, s/he does not say what equivalence means here. The distal entity of ‘equivalence’ could refer to groups that are equal in terms of social background and/or age and/or achievement. The reader will not be able to understand until s/he reaches the results section where the missing information satisfies his/her question.

The writer of this article must know what the ‘first secondary’ refers to, but he does not clarify its referent assuming that readers can identify what it refers to. The writer’s study was conducted in Saudi Arabia where students enter their first school year at the age of six and are not distributed in classes according to their achievement in a test. This procedure for accepting students applies throughout the Arab World. Therefore, only Arab readers of this article can know that students in the grade ‘first secondary’ are classified according to their age. This means that this article has no aspirations to an international (extra-Arab) readership. In addition, more information is needed here to explain what school year is meant by ‘first secondary’ and to know the approximate age of students. A reader from Jordan may interpret the distal entity of ‘first secondary’ as those students who are about 17 years old and they are in the year before the last school year as it is in Jordan, but this grade in Saudi Arabia refers to tenth grade which is the first year in secondary schools and students still have two remaining years to finish their study at schools. This implies that the obligatory grades in Saudi Arabia are nine because the tenth grade

is the first grade in the secondary schools whereas the obligatory grades in Jordan are ten and the eleventh grade is the first secondary. In other words, this article can cause confusion even among Arab-world readers. Such differences in the education systems in the Arab countries require adding definitions for the grades mentioned under the sample.

Another ambiguity occurs in four Arabic RAs conducted in Saudi Arabia. The writers of these articles use the terms 'alSaf al'awal almutawasiT': 'first intermediate grade' and 'alSaf althaanii almutawasiT': 'second intermediate grade' to describe the participants in their studies. Readers may need identification for the term 'almutawasiT' because they might understand that the first or second grades are classified into different levels, so they might think of the existence of first advance grade. Readers need more modifications because a different term is used in another article to refer to this grade: 'alSaf al'awal al'i9daadii'. Readers who are familiar with this term may not know that the term 'alSaf al'awal almutawasiT' refers to the same grade. Indeed, the distal entity of both terms refers to those students who are in the same grade, seventh grade with an average age of 12 years.

On the other hand, four Arabic RAs give explanation or a definition about the sample at the end of the introduction. Two of them state that the sample consists of the eleventh grade students. Readers can easily understand after reading the introduction that these students are in the year before the last school year. The other two articles present a definition of the fifth and seventh grade in the introduction under the subsection 'Key terms'. For example:

‘الصف الخامس الأساسي: يعد احدى المراحل التعليمية في الأردن يقسم الى مرحلتين الأولى هي الأساسية والثانية هي المرحلة الثانوية، وتمتد المرحلة الأساسية إلى عشر سنوات، والصف الخامس هو السنة الخامسة من المرحلة الأساسية.’

Fifth elementary grade is one of the educational grades in Jordan and are divided into two stages, the first is the elementary and the second is the secondary. The elementary stage lasts for ten years and the fifth grade is the fifth year of the elementary stage. (JEPS 1)

The case of unidentified referent which describes the sample is not limited to school year only. It can be found in a description of a sample of students enrolled in a university, as in the example below:

‘يتكون مجتمع الدراسة من جميع طالبات كلية التربية والبالغ عددهن (1668) طالبة؛ منهن (120) طالبة في المستوى السابع بقسم المناهج وطرق التدريس حسب إحصائيات مكتب شؤون الطالبات بكلية التربية بجامعة الأميرة نورة.’

The study population consists of all the female students of the Faculty of Education whose number is 1668. 120 of them are students in the seventh level in the department of Curricula and Methods of Instruction according to the statistics of the Student Affairs Office in the Faculty of Education at Princess Noura University. (IJRE 4)

The writer assumes that readers are Saudi and can understand what the noun phrase ‘seventh level’ means. The writer assumes that all readers are familiar with the education system in the country where the study was conducted. Attending to the distal entity of ‘seventh level’ can reveal that it refers to a year in a university, but there is no information given to clarify the referent of this noun phrase or to show what year it is. Readers who can understand this might misunderstand the same concept when it is used in another country. They might think that ‘level

two' in the following example has the same referent as 'a year in a university'. The example describes a sample from another country:

'تضم هاتان الشعبتان (102) طالب وطالبة من طلبة تخصص معلم الصف في كلية التربية في جامعة اليرموك، والمسجلين في مساق الرياضيات لمعلمي المرحلة الابتدائية المستوى الثاني'.

The two sections include 102 male and female students whose major is classroom teacher in the Faculty of Education at Yarmouk University, and who are registered in the mathematics course for teachers of elementary stage level two. (JJES 2)

The writer of this article needs to provide more information to help identifying the referent of such ambiguous noun phrase. This sentence can be rewritten in a clearer way to resolve the ambiguity because 'level two' in this sentence of the Arabic version might refer to the students themselves registered in the course so this might mean that they are in a year at the university. In Saudi Arabia, they use level instead of year to refer to students in a certain year at a university. For example, they know that 'level two' refers to students in a university in their second semester of the first year. Thus, they might be confused when they read 'level two' in this example. In this case, it would be clearer if 'the second year' is used instead of level two and is moved to an earlier position of the sentence. 'Level two' can refer also to grade two of the elementary stage. If so, it would be clearer if the noun 'grade' (alSaf) used here instead of 'level' (almustawaa). On the contrary, one article refers to the students in a university by using the noun phrase 'fourth group' (alfrqah alraabi9ah). The writer makes it clear in the introduction of his research that those students are at their final stage in their relation with the university. It can be

understood that ‘group’ here means a year in that university and those students are in their fourth year.

The previous example (JJES 2) and its complement below show the most frequent steps (within move 1 and as explained below) that occur in the Arabic RAs:

’تكونت عينة الدراسة من شعبتين تم اختيارهما عشوائيا من الشعب التي يدرسها الباحث في الفصل الأول من العام(2013-2014)، وتضم هاتان الشعبتان (102) طالب وطالبة من طلبة تخصص معلم الصف في كلية التربية في جامعة اليرموك، والمسجلين في مساق الرياضيات لمعلمي المرحلة الابتدائية المستوى الثاني؛.

The study sample consisted of two sections *which were randomly selected* [sampling technique] *from the sections* [population] *that the researcher teaches in the first semester of the year (2013-2014)* [time of study]. The two sections *include 102* [size of sample] *male and female* [characteristics] students whose major is classroom teacher *in the Faculty of Education at Yarmouk University* [Setting and site], and who are registered in the mathematics course for teachers of elementary stage level two. (JJES 2-my italics)

Step 1

The first step is the size of sample. The writer of the article reported above does not only give the number of participants included in the study, but also those excluded from participating in the study. S/he adds information about this at the end of his/her paragraph:

’أصبح العدد بعد استبعاد الغياب 50 طالبا في المجموعة الضابطة، 48 طالبا في المجموعة التجريبية؛.

After excluding for absence, the number became 50 male students in the control group and 48 male students in the experimental group. (JJES 2)

A reader can infer that the number excluded is four. Such information about the excluded number is available in four RAs. One of these four articles states directly the rationale for excluding some participants without assuming shared knowledge with readers, as in the example:

’وبعد أن تم استبعاد الراسبين للعام الدراسي ٢٠١٠-٢٠١١ للمجموعات الثلاث، كي لا تؤثر خبراتهم السابقة على نتائج الإختبار، أصبح العدد الكلي للطلبة المشمولين بالتجربة (٢٩) طالبا وطالبة في المجموعات التجريبية والضابطة.’

After excluding for repeaters from the three groups in the academic year 2010-2011, so *their previous experiences do not affect the test results* [rationale for exclusion], the total number of students included in the experiment became 29 male and female students in both the experimental and control groups. (JEPS 2-my italics)

Step 2

The second step found in the same example (JJES 2) is the characteristics of sample. The characteristics in the Arabic articles inform readers only about the gender of participants, as stated in the example (JJES 2). It is found that one article directs readers to the beginning of this step using a heading ‘خصائص العينة: characteristics of sample’, but the information presented under it is irrelevant to the characteristics and realises the ‘sampling technique’ step, as seen below:

’توزيع أفراد العينة حسب مستواهن في اللغة الإنجليزية.’

Distributing the members of the sample according to their level in English. (IJRE 4).

Step 3

The third step, ‘sampling technique/design’ tells how the sample is selected. In the example already given under step 1 (JJES 2), the writer adds more information about the procedures used to design and select the sample:

’اختيرت اقدمها عشوائيا (50 طالبا وطالبة) لتمثل المجموعة التجريبي، وقد درست المساق وفق استراتيجيية تدريسيية قائمة على حل المشكلات، واختيرت الأخرى (52 طالبا وطالبة) كمجموعة ضابطة درست المساق نفسه وفق الطريقة الاعتيادية‘.

One of them was randomly selected (50 male and female students) [sampling design] to represent the experimental group which studied the course according to a teaching strategy based on problem solving. The second group (52 male and female students) was selected as a control group that studied the same course according to the traditional method [sampling design].
(JJES 2-my italics).

The writer here, like all of the RAs, assumes that readers are researchers who can understand what experimental and control groups are as this is part of their knowledge about research methods. S/he must also know what ‘the traditional method’ is, but s/he does not explain it presupposing that it is a well-known method which is connected with control groups and the readers are familiar with it. (There are three Arabic RAs which define this method within the methods section and seven RAs define it in the introduction section under the subsection ‘key terms’ without assuming that readers know it). On the other hand, the writer does not assume that readers know the non-traditional method, ‘the teaching strategy’ in this example, as s/he defines it in the introduction and later under the intervention.

Sampling technique is followed by a rationale of selecting the sample in 14 articles because they include purposive samples. An example of this is:

‘أما عينة الدراسة فتكونت من (141) طالبا وطالبة، تم اختيارهم بطريقة قصدية من مدرستي الكرامة الأساسية للبنات ومدرسة الخوارزمي الأساسية للذكور نظرا لقربهما من موقع عمل أحد الباحثين وسهولة إشرافه ومتابعته لتنفيذ الدراسة، وتوافر مختبرات حاسوب حديث، وبسبب حصول كل من المعلمين في المدرستين السابقتين على شهادة إنتل؛ .

The study sample consisted of 141 male and female students. *They were deliberately selected [Sampling technique] from Alkaramah Elementary School for girls and Alkharzmi Elementary school for boys because of the following: the schools are near one of the researchers' work place; the researcher can easily supervise and follow implementing the study; the availability of modern computer labs; and all teachers in both schools have Intel certificates [rationale for selecting].*
(JJES 5-my italics)

There are five RAs which report how the sample was selected, but they do not mention how the subjects of study are assigned to the experimental and control conditions. This results in lack of detail for sampling design.

Step 4 and 5

Step 4 and 5 show the time and place of study respectively, as mentioned in the example (JJES 2). Step 4 is to announce the time of selecting the sample or the time of implementing the experiment. It is found in eight RAs within the methods section, but it occurs in 20 RAs under both the introduction and the sample move as a repetition and in nine articles only in the introduction under the subsection ‘limitations of the study’. Step 5, ‘the setting and site of study’

gives information about the place from which the sample was selected and where the experiment was conducted. This can be followed by the rationale for selecting the location, as mentioned in the example (JJES 5) above. The writers of two articles provide information only about the setting making it difficult to know the exact location. One example is:

’تكون أفراد الدراسة من طلبة الصف الثاني الأساسي في مدرسة المزار الأساسية المختلطة‘.

The study sample consisted of the second elementary grade students in Almazar Elementary Co-education School. (JJES 1)

The selected school is in a village in the north of Jordan. The writers assume that readers are Jordanians; they assume that readers would know which country or city the selected school belongs to. Adding information about the site or population is necessary to make the location clearer for readers from other different countries.

Step 6

The sixth step, ‘population of study’ tells whom the sample is selected from. It can be understood from the example (JJES 2) that the population is the sections that the researcher taught in the Faculty of Education at Yarmouk University that year. A more direct description of the population exists in most of the Arabic RAs. An example of this is:

’مجتمع الدراسة وعينتها

تكون مجتمع الدراسة من جميع طلبة الصف السادس الأساسي الملتحقين في المدارس الحكومية في مديرية تربية الزرقاء الأولى في العام الدراسي 2012/2011 والبالغ عددهم (8471) طالبا وطالبة‘.

Population and study sample

The population of study consisted of all sixth elementary grade students [population] in the public schools of Alzarqa Aloula Directorate of Education [setting and site] in the academic year 2010/2011 [time] and whose number is 8471 [size] male and female students [characteristics]. (JJES 5-my italics)

This example shows the same steps found within the sample move: 1- the setting and site containing the population, 2- time of selecting the population, 3- size of population and 4- characteristics of population. As can be noticed from the above example, the writers provide a direct description of the population using an explicit lexical item ‘population’ (مجتمع) which is used also as a heading for this paragraph. Guiding readers in such a way is found in 34 RAs where the writers use ‘population and sample of study’, ‘sample of study’ or ‘members of study’ as headings indicating the first move. However, it is noted that one article includes some information under this move that realises another step which is ‘designing an intervention’. Such case can misguide the readers of this article.

It is obvious that reading the introduction section is important to help identify nouns or noun phrases given in the accounts of methodology. It is the subsection ‘key terms’ of the introductions that gives definitions for key words employed in the methodology.

Move 2: Procedures of study

All of the Arabic RAs explain how the experiment is implemented. This is achieved by six steps explained below.

Step 1

The first step is the design and it is realised by giving the name of the design under a direct heading called 'design of the study' or by presenting procedures that explain the design. Only three RAs just describe the procedures without giving the design name. In addition, more illustrations are added to the design by giving abbreviations in English and this is found in eight RAs. An example of this is:

و عليه فإن تصميم الدراسة على النحو الآتي:

G1	O1	X	O2
G2	O3	-	O4

G1: المجموعة التجريبية G2: المجموعة الضابطة O1, O3: اختبار دافعية التعلم القبلي O2, O4: اختبار دافعية التعلم البعدي X: التعليم باستخدام البرمجية التعليمية -: التعليم بالطريقة الاعتيادية.

The design of the study is as follows: G1: The experimental group, G2: The control group, O1, O3: Pre-test of learning motivation, O2, O4: Post-test of learning motivation, X: Teaching by using the instructional software and - : Teaching by the traditional method. (JJES 1-my italics)

The writer here adds clarification to his description of the design, but with some ambiguous bits. The referents of the abbreviations in the example above are defined only in Arabic. The writer does not mention what they refer to in English assuming that readers can know that. However, this may not be considered as part of the shared knowledge and readers may ask what such abbreviations stand for in English. To make more sense of them, we attend from them to their distal entity to reveal what they represent, as in attending from G1 to its distal entity which is group one.

There are four RAs which give a definition of the design or the purpose of using it. The writers of these articles articulate what they know without assuming that readers have background information about research designs. The writer in the following example gives the purpose for adopting the design (expected knowledge to be produced):

تتبع الدراسة الحالية في إجراءاتها المنهج شبه التجريبي؛ لمعرفة أثر تدريس البلاغة بالفريق على مستوى الأداء البلاغي لدى طالبات الصف الأول الثانوي. ويعد هذا المنهج أحد أساليب البحث العلمي الذي يتم تطبيقه من أجل إحداث تغيير ما في الواقع وملاحظة نتائج واثار هذا التغيير.

The current study follows the quasi-experimental design to investigate the effects of team teaching method on the level of the rhetorical performance of the first secondary female students. *This design is considered one of the scientific research methods that is applied to make a change in the reality and to observe the results and effects of this change* [description of design]. (JEPS 5- my italics)

Introducing a design includes the rationale of using certain design and provides a supporting reference, as seen in:

’حيث لم يتحقق التوزيع العشوائي...‘ ولذلك فأنسب التصميمات لهذه الدراسة هو التصميم شبه التجريبي الذي يوفر ضبطا مناسباً لمهددات الصدق الداخلي والصدق الخارجي (Gay & Airasian, 2000; 2003).

Random assignment is not possible ‘...’; therefore, the most appropriate design for this study is the quasi-experimental which controls threats of the internal and external validity [rationale of design] (Gay & Airasian, 2000; 2003) [supporting reference]. (JEPS 13)

Step 2

The second step is introducing an intervention or a material. This step is realised by defining the intervention and/or stating its aims. Aim/s of the intervention is stated in 23 RAs, as in the example below:

’تم بناء المادة التعليمية’...‘ وفق استراتيجية حل المشكلات والهدف من الاستراتيجية هو تنمية قدرة الطلبة على التفكير من خلال تحليل المشكلة وتجريدها وحلها‘.

The educational material was constructed ‘...’ according to the problem solving strategy which *aims to develop students’ thinking ability by analysing, illustrating and solving the problem* [aim].
(JJES 2-my italics)

One RA gives two definitions taken from previous studies for the intervention although it has already been defined in the introduction under the ‘key terms’. The example is:

’استراتيجية توليد الأسئلة الذاتية: عرفها عبدالرحمن (2009، 169) بأنها: "توجيه وإرشاد المعلم للطلاب لصياغة بعض الأسئلة وتوجيهها إلى نفسه وزملائه داخل الفصل حول المقرر الدراسي، ويكون الهدف منها انتباه الطالب إلى الموضوعات المهمة في المحتوى ووعيه بها ومشاركته في داخل الفصل في القضايا المتضمنة داخل المحتوى".‘

Self-generating questions strategy: Abedlruhman (2009, 169) defined it as: *The teacher guides a student to raise some questions about the textbook and direct them to himself and his colleagues inside the classroom. The aim of these questions is to attract the student’s attention to the important topics in the course content and to promote his participation in the issues contained in the content in the class.* (IJRE 3- my italics)

There are 38 RAs, including the above article, which define the intervention implemented within the introduction under ‘key terms’, so there is no need to provide the definitions within the methods section.

Step 3

The third step is designing and implementing the intervention or the material and it shows that the researchers in all of the articles create an intervention or a material. This step is realised by the following sub-steps: 1- reviewing available literature and sources about the intervention or material, 2- using a tool to design them, 3- establishing the components of the intervention or material and describing the procedures for implementing them and 4- checking the validity and reliability of the intervention or material.

The researchers make reference to the literature and sources to help them design the intervention, to select the material that suit the sample of their study and to find out how the intervention is used. The example below shows that the researchers cited the literature they have already reviewed in their introduction to help them design their intervention:

’تم الاطلاع والرجوع إلى الأبحاث والدراسات السابقة التي تناولت موضوع هذه الدراسة كدراسة الختاتنة (2012) ودراسة ابو العنين (2012) للاستفادة من تطوير وتصميم وسائل التعليم باستخدام السبورة الإلكترونية‘.

Relevant previous research and studies such as Alkhataatneh’s (2012) study and Abu Alenein’s (2012) were reviewed to benefit from designing and developing teaching aids using the electronic board. (JEPS 1-my italics)

The second sub-step mentions a tool or the apparatus by which the intervention or the material is designed or implemented. In the following example, the writers mention what tool they used to design and to implement the software:

’تم تصميم البرمجية عن طريق برنامج Microsoft Power Point ويمكن تطبيق هذه البرمجية على الطلبة بشكل فردي على طالب واحد أو جميع طلبة الصف سويا شريطة توافر أجهزة كافية كما يمكن تطبيقها جماعيا من معلمة الصف من خلال جهاز Data Show‘.

The software was designed using *Microsoft Power Point* [tool]. It can be applied individually to one student or to all students together provided that there are enough devices. The software can be applied collectively by the class teacher using *Data Show* [apparatus]. (JJES 1-my italics)

The apparatus (data show) is identified only in English as readers are more familiar with it in English. This could be a reason why a writer is code-switching into English as a way to identify the referent of some nouns.

The third sub-step is to provide the components of an intervention or the content of a material and procedures of implementing them. Most of the articles illustrate the components and the procedures either in the body of the methods section or by making reference to teachers’ guide books. Four articles indicate to these procedures or components under ‘key terms’ in the introduction. One article presents the components of intervention within the methods section and makes a reference to an unattached appendix resulting in lack of detail about the intervention. The following example shows one of the components of an intervention and how to implement it:

'الاستراتيجية الأولى- إيجاد القصة في الأنشودة أو الأغنية (Finding Stories in Song):

تتضمن هذه الاستراتيجية أولاً إيجاد أنشودة أو أغنية تحكي قصة ثم استماع الطلبة إلى الأنشودة أو الأغنية من خلال جهاز التسجيل أو قراءة المعلم، وتكليف الطلبة براوية القصة التي تضمنتها الأنشودة أو الأغنية التي تم الإستماع اليه، ثم يتم مناقشة وإضافة تفاصيل إلى القصة وتوسيعها، واقتراح بعض البدائل للقصة مستوحاة من مفردات الأنشودة أو الأغنية.

The first strategy- Identifying stories in a chant or a song [a component]: This strategy includes, firstly, finding a chant or a song that tells a story. Then, the students listen to the chant or to the song using an audio recorder or the teacher's reading and they are asked to narrate the story included in the chant or in the song. Then, the story is elaborated by discussing and adding details to it, and then proposing some alternatives to the story inspired by the vocabularies of the song or the chant [implementing procedures]. (JEPS 4- my italics)

The writers here use sequence words like first (أولاً) and then (ثم) to organise the procedures in a step by step description. Another example below introduces the elements of a teacher's guide book:

'احتوى على خمسة دروس وهي : المجاز، والاستعارة التصريحية، والاستعارة المكنية، والاستعارة الجيدة والاستعارة الرديئة، والكناية'.

It consisted of five lessons which are: *allegory, explicit metaphor, implicit metaphor, good and bad metaphor and metonymy.* (JEPS 5- my italics)

The writer here must know what these lessons mean, but s/he does not articulate this knowledge, assuming specific linguistic knowledge on the part of readers as s/he introduces these lessons for the first time in the methods section without any clarifications given before.

It is found that the writer of one article code-switches to English to list the components of an intervention assuming that readers know them in English and they can better understand them this way. However, the writer does not identify how these components work and these need more information to be given for readers who are unfamiliar with. The components are in the example below:

‘يتضمن البرنامج عددا من أدوات التفاعل المختلفة’...، مثل: (List, Form, Design, Agents, Question) (Navigation).’

The programme includes a number of different interaction tools ‘...’ such as: list, form, design, agents and navigation. (JJES 11)

The third sub-step might also include the rationale of selecting the content of the material or the intervention, as in:

‘تم اختيار أربع استراتيجيات من استراتيجيات نموذج فورست لرواية القصة لبناء البرنامج التعليمي باعتبارها أكثر ملائمة لخصائص الطلبة أفراد الدراسة وقدرتها على تنمية مهارات التعبير الكتابي.’

Four strategies were selected from Forest’s story telling model to build the educational programme *as they are more appropriate to the characteristics of the study members and they are able to develop the writing skills* [rationale]. (JEPS 4- my italics)

As part of the procedures followed in implementing the intervention, the same sub-step indicates very briefly to the fidelity of implementation in eight RAs. An example of this is:

'لغرض التحكم بمسيرة الإستراتيجية بشكل موضوعي ومتتابع، فقد تم استخدام التقويم بأشكاله المختلفة (التمهيدي، البنائي، الختامي) وذلك بهدف ضبط الإستراتيجية وتحسين عملية التعليم والتعلم، والتحقق من تحقيق الأهداف المرجوة من هذه الإستراتيجية'.

In order to control the strategy objectively and sequentially, different forms of evaluation (introductory, formative and summative) were used. This aims at adjusting the strategy, improving the teaching and learning process and achieving the desired goals of the strategy.
(JJES 2- my italics)

The writer assumes that readers know that controlling the implementation of the intervention was conducted by the evaluation methods and s/he assumes that readers know these methods. It may be advisable to articulate more information about the meaning of these terms because readers not familiar with them may struggle here.

The researchers in the last sub-step try to make sure that the intervention or the material are appropriate for the sample, valid and can achieve the objectives of their studies. The researchers have consulted referees to make sure of the validity of the materials and interventions. This is explained in the following example:

'بعد الانتهاء من تصميم البرنامج التعليمي بصورته النهائية، تم عرض البرنامج التعليمي على مجموعة من المحكمين المختصين في مجال مناهج اللغة العربية وأساليب تدريسها، وفي ضوء آراء ومقترحات وملاحظات المحكمين، قام الباحثان بإجراء التعديلات المناسبة التي اجمع عليها ٨٠% من المحكمين'.

Having designed the educational programme in its final form, *it was presented to a group of referees specialists in Arabic Curricula and Methods of Instruction. In the light of the referees'*

suggestions and comments, the two researchers made the appropriate amendments which are unanimously approved by 80% of the referees [validity of the intervention]. (JEPS 4- my italics)

In order to find that the participants can deal with the intervention, seven researchers applied it to a pilot sample. They wanted to check if the intervention suits the participants or if the duration is enough to implement the components of the intervention.

Step 4

Step four is identifying interventionist. The researchers point to who implement the intervention or the experiment and only announce that they prepared the interventionist to be able to implement the intervention. The preparation was accomplished by training the interventionist on how to implement the intervention and on some tasks and instructions but without informing what these instructions or tasks are. Preparation process is mentioned also as a sub-step of step 5 below. Below is an example of the step:

’وقد تم تدريب المعلمة على تدريس البرنامج، وتزويدها بملف خاص للبرنامج بكل عناصره ومكوناته ومحتواه. وهي من المعلمات ذوات الخبرة والكفاءة والتميز في مجال تعليم مناهج اللغة العربية للمرحلة الثانوية، حيث انها حاصلة على درجة البكالوريوس في تعليم اللغة، والماجستير في الأدب العربي‘.

The female teacher [interventionist] was trained to teach the programme and provided with a special file including all elements, components and content of the programme [preparing the interventionist]. The teacher has experience and competence in the field of teaching Arabic curricula for the secondary grade. She has a bachelor degree in teaching the language and a master degree in Arabic Literature [rationale for selecting]. (IJRE 5- my italics)

This example includes the rationale for selecting the interventionist. Giving such information can guide researchers to build their selection of interventionists on a rationale and to inform their readers that the selection is not random.

Step 5

Step 5 is recounting the procedures of the study. It mentions the steps followed in conducting the whole experiment. This step occurs in the RAs after the third move, 'Measures', but it is presented here because it includes procedures and thus it is considered as part of the second move. This step is realised by a number of sub-steps which explain what is done in the pre-experiment phase, during the experiment and post-experiment phase. These sub-steps are summarised as they appear in the RAs in the following order 1- considering ethical principles, 2- selecting the sample, 3- selecting and designing the material or the intervention, 4- establishing the measure, 5- preparing the interventionist, 6- administering the measure (pre-test), 7- conducting the experiment, 8- administering the measure (post-test) and 9- collecting data. By announcing these steps, the writers follow a writer responsibility approach as they guide their readers in a step by step description. The writers have already discussed the sub-steps: 2, 3, 4, 6, 7 and 8 in previous texts (under the sample, intervention and measure) and they repeat them under this step.

In sub-step 1, the researchers obtain consent from the sample or from certain institutions to conduct their study. The following is an example:

’تم أخذ موافقة المدارس المعنية من أجل التعاون في إجراء الدراسة، حيث أبدى مدير المدرسة ومدرس مادة العلوم استعدادهما لتطبيق الدراسة في المدرسة‘.

Approval of the targeted schools was obtained to cooperate in conducting the study. The school head teacher and the science teacher agreed to implement the study in the school. (JEPS 1- my italics)

Sub-step two announces again that the sample was selected. Selection of sample has been previously explained under the sample. An example is:

’اختيار شعبتان من شعب الصف الخامس الأساسي‘.

Selecting two sections from the fifth elementary grade students. (JEPS 1- my italics)

Sub-step 3 mentions that the researchers selected or prepared the material and they designed the intervention although they demonstrate this before. The example is:

’تم اجراء الدراسة وفق الخطوات التالية:

أولاً: تصميم البرمجية التعليمية من قبل الباحثين، بحيث تغطي جميع دروس وحدة الضرب للصف الثاني الأساسي‘.

The study was conducted according to the following steps:

First: *designing the educational software [intervention] by the two researchers to include all the lessons of the multiplication unit [material] for the second elementary grade. (JJES 1- my italics)*

The measures used are presented in the RAs prior to the step, ‘recounting procedures’. Therefore, the sub-steps 4, 6 and 8 have already been introduced under the measure or the design. Presenting sub-steps 6 and 8 here can just indicate to when the measures were

administered in the study as before and after implementing the intervention. In the following example, the writer repeats information about the name of the measure, its validity and reliability, but he adds information only about the duration needed to administer the measure:

’بناء اختبار التفكير الابداعي والتحقق من صدقة من خلال مجموعة من المحكمين، وتطبيقه على عينة استطلاعية والتحقق من ثباته، ووضوح تعليماته وتحديد 70 دقيقة زمتنا للإختبار‘.

Constructing the creative thinking test, checking its validity by consulting a group of referees, administering it on a pilot sample to check its reliability and clarity of instructions and deciding that the test duration is 70 minutes. (JJES2)

Conducting the experiment in sub-step 7 refers to applying the intervention to the experimental group and the traditional method to the control group. Thus, this procedure is introduced under the sample design and repeated here under step 5 in 15 RAs. The writers add here who the interventionist is or the duration required to conduct the experiment. The example below explains carefully the duration needed to complete the experiment:

’استغرقت فترة التدريس فصلا دراسيا، الفصل الأول من العام 2013-2014، وبواقع ثلاث ساعات أسبوعيا لكل مجموعة‘.

The teaching period lasted for *one semester; the first one of the year 2013-2014. Each session lasted for three hours a week for each group* [duration]. (JJES 2- my italics)

On the contrary, the writers in some articles do not give enough information to identify the exact duration, as in ‘six weeks’ or ‘one semester’, ‘4 classes’ and ‘3 classes a week for three weeks’. They assume that readers know how long one class is and that is a part of knowledge shared with them.

The last sub-step, ‘data collection’ refers to the data collected from the pre-test and post-test. The writers inform readers that scoring and/or statistical procedures have been conducted on the data. The scoring procedures are considered as a step within the move, ‘Measure’ and are explained later. The statistical analysis is also given within the move, ‘Data analysis’. The examples (JJES 5) and (JJES 4) summarise this sub-step:

‘تم تصحيح أوراق الإختبار من قبل الباحثين ومعالجتها احصائياً.’

The test papers [data] were marked [scoring] by the two researchers and statistically processed. (JJES 5- my italics)

‘أجري التحليل الإحصائي للبيانات التي تم جمعها من الإختبارين.’

The data collected from the two tests [data] were *statistically analysed* [statistical analysis].
(JJES 4- my italics)

Move 3: Measure

This move identifies the tool used to measure variables of a study. It is realised by a number of steps:

Step 1

The first step is construction of a measure. Firstly, the writers identify the measure used by displaying its name, as in the example:

‘إختبار التفكير الإبداعي الرياضي.’

Mathematical creative thinking test [name of measure]. (JJES 2- my italics)

Secondly, the process of construction starts with determining the aim of the measure. This reveals the rationale of establishing the measure, as in the example:

‘يهدف هذا الإختبار إلى قياس مستوى أداء الطالبات للموضوعات البلاغية وذلك قبل وبعد التدريس باستخدام الفريق’.

This test aims at measuring *the female students' performance level in the rhetorical topics* [variable] before and after teaching, using the team teaching method. (JEPS 5- my italics)

Thirdly, the process of measure preparation in 18 RAs is based on referring to other relevant studies as a source to help the researchers themselves establish or develop the measure. In six RAs, the researchers design their measure according to some available standards but not identified to readers, as in the example:

‘لقد تم اتباع قواعد إعداد وبناء الإختبار التحصيلي المتعارف عليها من حيث الهدف’.

The familiar rules for preparing and constructing the achievement test were followed in terms of the goal. (JEPS 1)

The writer presupposes that certain rules exist and that readers know them. It seems that the writer has tacit knowledge about these rules, but s/he does not put what he knows into words. In fact, there is a need for more information explaining what these rules are.

Fourthly, establishing the measure contains determining the number of items, their type and which topics the items measure. An example of this is:

’وقد بلغ عدد الفقرات الاختبارية في البداية 25 فقرة من نوع الإختيار من متعدد حسب مستويات الأهداف المختلفة (التذكر، الفهم والإستيعاب، العمليات العقلية العليا‘.

The number of the test items reached 25 [number of items] multiple choice questions [type of test] set according to the levels of different objectives: recalling, understanding and comprehension and higher thinking processes [topics]. (JJES 5- my italics)

In this example, the writer provides the topics according to which the items are assigned. Examples on these items are not given. It is found that only two articles show examples of items and other five make a reference to appendices of items without attaching them. Another article draws readers’ attention to a measure in its final form without showing what this form is. The writers of this article mention:

’ليبقى المقياس بصورته النهائيه كما في ‘.

The measure in its final form remains as in. (JJES 1)

Finally, the construction process ends with including instructions about how to complete the test.

Below is one example of four RAs which have this function:

’وضعت تعليمات الإختبار بلغة سهلة ومناسبة لمستوى الطالبات، توضح لهن الهدف من الإختبار، وقد وضحت هذه التعليمات كتابة البيانات على ورقة الإجابة، وضرورة قراءة كل سؤال قراءة جيدة قبل اجابته، والإجابة عن جميع الأسئلة‘.

The test instructions were set in a simple language suitable for the female students’ level. The instructions demonstrate the aim of the test for the students. These instructions include *illustrations about writing the data on the answer sheet, reading every question carefully before answering it and answering all questions.* [Instructions]. (JEPS 5- my italics)

Step 2

The second step, ‘validity of the measure’ is achieved by consulting referees or specialists in the field and considering their comments or suggestions to make amendments on the measure if needed. This is explained in the following example:

‘قام الباحثين بإعداد الإختبار في صيغته الأولية’...‘ وتم عرضه على هيئة تحكيم مكونة من (٧) أعضاء هيئة تدريس في كلية العلوم التربوية وبعض المشرفين التربويين زيادة على بعض مدرسي مادة العلوم للصف الخامس الأساسي. وفي ضوء ملاحظات المحكمين، فقد تم تعديل بعض الفقرات من حيث الإضافة والتعديل وإعادة الصياغة.’

The two researchers prepared the test in its initial form ‘...’. It was *presented to a refereeing commission consisting of 7 faculty members in the Faculty of Educational Sciences, to some supervisors and to some science teachers of fifth elementary grade. In the light of the referees’ comments, some items were amended in terms of addition, modification and paraphrasing* [validity]. (JEPS 1- my italics)

In addition, three RAs start this step by defining the validity or by giving an overview about it without assuming that readers are familiar with this concept and what it means. Such information may be considered as part of shared knowledge that readers may already recognise. An example of this is:

‘صدق الإتساق الداخلي: يعد الصدق من الشروط التي ينبغي توافرها في الأداة التي تعتمدها أي دراسة، وتكون أداة البحث صادقة إذا كان بمقدورها أن تقيس فعلا ما وضعت لقياسه.’

Internal consistency: validity is considered one of the conditions that the tool adopted in any study should meet. The tool is considered valid if it can really measure what it is supposed to measure. (IJRE 4)

Step 3

The third step is testing the reliability of the measure and it is confirmed by administering the measure on a pilot sample and then showing a report about the measure reliability. The example below demonstrates this step:

تم تطبيق الإختبار على عينة استطلاعية تألفت من (25) طالباً من طلبة الصف السادس الأساسي من مجتمع الدراسة ومن خارج عينتها، ثم استخرجت معاملات الصعوبة والتمييز لكل فقرة، بحيث كانت معاملات الصعوبة بين (0.20-0.80)، ولم يقل معامل التمييز عن (0.20). كما حسب معامل الثبات بطريقة الإختبار وإعادة تطبيق الإختبار (Test-Retest) على العينة الاستطلاعية.

The test was administered on a pilot sample consisting of 25 male students from the sixth elementary grade from the study population outside the sample [to check reliability]. Then, the difficulty and discrimination coefficients were calculated for each item. The difficulty coefficients were between (0.20-0.80) and the discrimination coefficient was not less than (0.20). Reliability coefficient was also calculated by testing and retesting the pilot sample. (JJES 5-my italics)

The writers here describe the sample of this pilot study and calculate the difficulty and discrimination coefficients of the test items. They also indicate to the method used to calculate reliability coefficient using English nouns 'Test-Retest'. They add the report confirming reliability:

’وبعد ثلاثة أسابيع من تاريخ التطبيق الأول تم إعادة تطبيقه، ثم حسب معامل ارتباط بيرسون (Pearson) بين التطبيقين. وبلغت قيمة معامل الثبات (0.87) وهذه القيمة مقبولة لأغراض الدراسة الحالية.’

The test was administered again three weeks after the first test. “Pearson” correlation coefficient was then calculated. *The value of the reliability coefficient reached (0.87), which is acceptable for the purpose of the current study [report of reliability].*

Based on a pilot study, researchers calculate also the duration required to take a test, as in the example:

’حسب الزمن المناسب للإجابة عن أسئلة الإختبار بإيجاد متوسط الوقت الذي استغرقه اول طالبة و اخر طالبة حيث تراوح بين (٣٩-٤٣) دقيقة، وبهذا يكون زمن الاختبار (٤٢) دقيقة.’

The time required to answer the test questions was calculated by finding the average time that the first and the last female student took. It ranged between 39-43 minutes. Therefore, *the test duration is 42 minutes [duration].* (JEPS 5- my italics)

Step 4

Step 4, ‘scoring procedures’ is represented by assigning values to the items of the measure. This step is also found within the step ‘recounting procedures’ in two RAs. There are 12 articles which guide the readers to the beginning of this step using direct headings. This last step is explained in the following example:

’صمم المقياس على طريقة ليكرت “Likert” ذات الإستجابات الثلاثية "دائما، أحيانا، نادراً" وبذلك تتراوح درجات المقياس من (40) درجة إلى (120) درجة، وقد حددت الدرجات من (1-3) لكل عبارة يجيب عنها التلميذ، فأعطيت العبارات الإيجابية ثلاث درجات (دائما)، ودرجتين أحيانا، ودرجة واحدة (نادرا).’

The scale was designed based on “Likert’s” method of the three answers ‘always, sometimes and rarely’ so the marks range from 40 to 120. The marks were set as 1-3 for each question that the student answers. In the positive statements, three marks were given if the answer is ‘always’, two marks for ‘sometimes’ and one for ‘rarely’ [scoring procedures]. (IJRE 3-my italics)

A writer of one RA details the criteria used to mark a test, but some information about one criterion is not given, as seen below:

’تحليل وتصحيح جميع الاستجابات على كل فقرة، وفقا لما يلي:‘.

Analysing and marking all answers for each question according to:. (JJES 2)

Another article is not considered having this step because the researcher just states that s/he sets standards and an answer key to mark the test, which includes one writing question. As the researcher sets the standards and the answer key, s/he must know how s/he uses them in marking the test and he can put that in words. However, there is no information given that helps illustrate the ‘standards’ or ‘answer key’, so readers do not know how the test was marked.

For scoring reliability, data were scored by the researcher and by another rater. Then, the researcher calculates scoring reliability and provides a report on reliability, as in the example:

’وتم حساب ثبات المصحح باستخدام معادلة كوبر ‘...’ وبلغت نسبة التوافق ٨٦ % وهذه نسبة كافية لثبات المصحح.‘

Inter-rater reliability was calculated using Coper’s equation ‘...’ and the agreement percentage reached 86% which is adequate for reliability. (JEPS 12)

Move 4: Variables of study

Writers of the Arabic RAs specify which variable is the force and described as independent and which is the result of that force and called as dependent. In this move, the writers know and articulate which independent variable is manipulated as an intervention and which dependent variables may be affected by this intervention. They give direct information using explicit headings about these variables without assuming that readers know them although readers can draw their inferences and find what these variables are when they read the titles of the articles. This move appears in 24 RAs indicated by explicit lexical items and 16 of them include a separate subsection entitled with ‘variables of study’. The following is an example of how the variables are displayed:

’تتمثل متغيرات الدراسة في الآتي:

-المتغير المستقل: هو التدريس باستخدام الفريق

-المتغير التابع: وهو النواتج المعرفية المترتبة على المتغير المستقل، ويتمثل في مستوى الأداء البلاغي لطالبات المجموعة التجريبية ‘.

The variables of the study are:

-*The independent variable* is the team teaching method.

-*The dependent variable* is the knowledge outcomes which draws on the independent variable. This variable is represented in the level of the female students’ rhetorical performance in the experimental group. (JEPS 5- my italics)

Move 5: Data analysis procedures

Step 1

This step appears in 22 RAs at the end of methods section and in 18 RAs under the results section. The researchers indicate that the statistical tests were applied and some articles name them in English to make the referent clearer to readers. The writers' tacit knowledge here pertains to technical terms being articulated using English and Arabic phrases. The example below displays what statistical tests utilised and the rationale for their use:

للإجابة عن السؤال الرئيس للدراسة تم استخدام المعالجات الإحصائية التالية:

1- حساب المتوسطات الحسابية والانحرافات المعيارية.

2- تطبيق اختبار (ت) للمجموعات المترابطة (Paired-Samples T-Test) لتحديد دلالة الفروق بين متوسطات درجات

الطلاب المعلمين في تخصص العلوم في التطبيقين القبلي والبعدي لأداة الدراسة.

The following *statistical procedures* were used to answer the main question of the study:

1- Calculating the *means and the standard deviations*.

2- *Applying the paired samples t-test [statistical test] to determine the significance of mean differences between the marks of the science teachers-students in the pretest and posttest [the rationale]. (IJRE 2- my italics)*

Step 2

The second step is preliminary analysis and it is reported by showing that the groups of a study (the experimental and the control) are equivalent in their level of achievement in a pretest and/or

in their age. Groups' equivalence appears under the results section in six articles. An example of this step is:

تم تطبيق اختبار التفكير الإبداعي على طلبة المجموعتين التجريبية والضابطة، قبل البدء بتطبيق الدراسة، وحسبت المتوسطات الحسابية والانحرافات المعيارية لنتائج طلبة المجموعتين، على مهارات الطلاقة والمرونة والأصالة والاختبار ككل، واستخدم اختبار (ت) للعينات المستقلة لمعرفة الفروق بين المتوسطات الحسابية.

The creative thinking test was administered on the students of both the experimental and the control groups before conducting the study. The mean and the standard deviations of the students' results were calculated on fluency, flexibility and originality skills and on the whole test. The t-test for independent samples was used to find the differences between the means. (JJES 2)

It can be seen that the statistical tests were applied to make sure of equivalence in achievement.

The writer then adds the results of the analysis which confirms that both groups are equivalent.

5.3 Comparing the two sets

The rhetorical analysis of the current study sample shows some similarities and differences between the English and Arabic RAs. At the move level, all articles share the same moves which are: 1- sample and population, 2- procedures of study, 3- measure and 4- data analysis procedures. The only difference between the English and the Arabic RAs is in the addition of the 'variables' move in the Arabic articles. The variables in the Arabic sample are assigned within a move because they occupy a separate subsection entitled with 'variables of study' under which a description of independent and dependent variable is given. Similar to this, variables appear in Weissberg and Buker's (1990) study as one of the 'information elements' shaping the methods

section. This move presents mainly independent and dependent variables. The independent variables are introduced as the source of an effect and the dependent variables are the result of that effect. The writers of the Arabic RAs do not assume that readers know these variables although the information given about them may be considered as part of the knowledge shared with readers. Readers can identify what variables are independent or dependent by just reading the RA title, which clearly display these variables.

On the contrary, variables appear in the English articles as a sub-step within ‘the measure’ or ‘data analysis’ moves. They are introduced as part of a description of the measure or within the analysis procedures. Lim (2006) found in his analysis that ‘defining variables’ is a sub-step described within the ‘methods of measuring variables’. The writers of the English RAs introduce some variables without assuming that readers know them because the information about these variables is new and may not be considered as part of knowledge shared with readers.

The moves and steps found in the two sets of texts are not similar to the ones found in Nwogu’s (1997) study. The following steps from Nwogu’s framework of the methods section of Medical papers do not exist in my data: ‘indicating criteria for success’, ‘defining terminologies’ and ‘indicating modification to instrument/procedure’. These steps might be considered as features relevant to the experiments conducted in the Medical field. Therefore, the differences between the methodological elements analysed in the current study and in Nwogu’s study might be attributed to disciplinary differences between Medical RAs and the Educational RAs. This finding is supported by Briones (2012), Kanoksilatham (2012), Latic (2010), Peacock (2011) and Samraj (2002), who found some rhetorical differences across different disciplines. However,

it could be said that these steps which Nwogu lists are still valuable in Education. Perhaps they occur in other sections of the RAs in the current study sample. For example, the step, 'defining terminology' has a similar one in the introduction section of Arabic RAs under the sub-section, 'key terms'.

On the other hand, the moves presented by the current study are similar to the ones found by Ping and Lingli (2010), as given in the Literature Review. Except for the first move in their analysis, 'aim or questions of research', all other moves are similar. Their analysis of the RA methods in Medical and Applied Linguistics RAs can justify the similarity between the moves. The field of Applied Linguistics can share similarities with the discipline considered in this study as they both fall under the umbrella of soft sciences.

It can be noted that the English and Arabic RAs share the same moves. They also share similarities at the level of steps within the first move. They both include the following steps: size of sample, population, setting and time of study, characteristics of sample and sampling technique/design. However, there are some differences in how/how often some of these steps are realised. Firstly, the accounts of methodology of Arabic RAs provide much more information about the population than the English RAs. The information gives the setting containing population, time of selection and size and characteristics of population. Moreover, 85% of the Arabic articles use subsection headings to guide readers to a description of study population while only one English article uses a subsection heading under which a detailed description of population is given. Therefore, the writers of the Arabic RAs give more weight and attention to the population of the study to make the description of participants clearer to their readers.

Secondly, the step, 'situation of study' provides some more information in the English articles than the Arabic about teaching materials used in the setting and characteristics of people there. Such information gives readers an overview about the setting from which a sample was selected. However, the step, 'time of study' is found in only 8% of the accounts of methodology of English RAs, but it is included in 92.5% of Arabic RAs. The writers of the English RAs do not employ this step implying that introducing the time of study may not have any effects on the results of the study or on its procedures in the educational settings. This suggests that these writers adhere to a notion of timeless truth, that they are researching what [people] do rather than what they did.

Finally, as part of 'sampling technique', English RAs include one feature about inclusion criteria for the sample that is not available in the accounts of methodology of Arabic RAs. The authors establish this step to perhaps indicate that the right sample has been chosen. Another feature, 'motivation' is also absent from the Arabic RAs. It shows that the researchers involved in the English RAs are willing to pay some money to attract some members to participate in their study. The researchers involved in the Arabic RAs may rely on the social relations to help selecting the sample of their studies. They might refer to a colleague, relative or a friend in an educational setting to facilitate the selection of participants. Those participants might participate in a study to gain their teacher's satisfaction even they are not interested in doing so. This suggests that the motivational aspect may appear in Arabic RAs in a different way.

The writers of the English and Arabic RAs assume shared knowledge with readers about some concepts within the sample of the study. For example, they assume that readers are researchers

who know what experimental and control conditions refer to. However, the shared knowledge about some concepts in the English articles is different from that in the Arabic RAs. Such differences have already been explained by some examples such as ‘first secondary grade’ and ‘first intermediate grade’. The shared knowledge about these concepts is different within different Arab countries. All these differences might be attributed to different academic cultures, as was shown by Al-Ali (2010) and Martín (2003). These researchers pointed to the role of cultural contexts in shaping a particular genre. Furthermore, the two academic cultures do not always give enough modifications that can help identify the referents of some noun phrases, as in the example of 7th grade, but sometimes the Arabic RAs include glossing in English and some definitions for some phrases within the methods and introduction sections. For example, 25% of the Arabic RAs define the traditional methods used with control groups without assuming that readers know such methods.

The steps within the second move are similar in both English and Arabic RAs. They both give the name of the design. However, 92.5% of Arabic RAs guide their readers using subsection headings for the study design under which the name of the design is directly given whereas only 50% of English RAs follow this process. Moreover, the description of the design in the accounts of methodology of Arabic RAs includes repetitions of procedures used to design the sample; these procedures have already been presented within the sample move. Another difference found is in adding abbreviations in English to explain the design in the Arabic RAs; these abbreviations are identified in Arabic, but they could leave a question about their referent in English. Finally, some Arabic RAs present glossing and definitions of the design. It can be seen that the writers of

the Arabic RAs try to give enough information to deliver the message clearly to their readers by including headings, abbreviations, glossing and definitions. The instances of glossing may be considered as part of the assumed shared knowledge that Arabic readers may be familiar with (see section 7.1.1.2: Glossing). In the case of definitions, the writers do not assume that readers have background knowledge about the meaning of a design.

The step, 'identifying interventionists' occurs in 92.5% in the Arabic articles and in 66.6% in the English RAs. The writers of the English RAs, however, explain how to prepare interventionists in detail in some articles while the Arabic RAs only announce that the interventionists are prepared. Another step, 'introducing an intervention or a material' relies on introducing the aims of intervention in both English and Arabic RAs. This feature is available in 57.5% of Arabic articles, but it occurs in only 16% of English articles. In addition, the Arabic articles introduce their intervention by defining it within the introduction under 'key terms', a section that is not available in the English articles. The writers of the Arabic RAs do not assume that the intervention is part of knowledge shared with readers as they give other researchers' definitions and then they clarify what it means for them in their studies.

English and Arabic RAs have similar sub-steps within 'designing and implementing an intervention or a material'. They introduce the components of intervention or material and the procedures of implementation. They also present the type of the apparatus used in designing and implementing an intervention. The writers of the Arabic RAs name the devices in English because the readers are possibly more familiar with their English names and these names may be considered as part of the assumed shared knowledge. In addition, the writers of the English and

Arabic RAs cite literature to show what reference they depend on to justify the way they design their intervention or material. This finding does not agree with what Al-Ali and Sahawneh (2011) showed in their analysis of the abstracts of the Arabic PhD dissertations. They concluded that the writers do not refer to previous research to justify their work. A few differences occur between the two sets of data. Firstly, the Arabic RAs include one sub-step that is not found in the English RAs; it is: checking the validity and reliability of the intervention or material. Secondly, the English RAs use references to support a procedure they have followed in their research. The writers of these RAs do not assume shared knowledge and acceptance of these procedures. The use of references lends Al-Ali and Sahawneh support because they affirmed that the English PhD candidates tend to focus on how more than what.

The step, 'fidelity of implementing the intervention' exists in some English and Arabic RAs. The writers of the English RAs, unlike the Arabic articles, give much more information about the fidelity and how to measure it without assuming shared knowledge with readers. They may want to convince their readers that their results are not influenced by any external variables. The writers of the Arabic RAs do not explain how they control the implementation of an intervention assuming shared knowledge with readers about how to ensure fidelity. They still need to add more illustrations and information to this function to help their readers understand it.

Both English and Arabic RAs have the step, 'recounting procedures' as they both narrate carefully the steps followed in conducting the whole study. However, the writers of the Arabic RAs do not assume that readers know these steps although readers can understand them by reading the previous texts occurring before the 'recounting procedures'. This step repeats most of

the procedures that have already been discussed. On the contrary, these procedures in the English articles are new to readers as they have not been introduced before and they may not be part of the shared knowledge.

There are three differences within the third Move, 'measure'. Firstly, the writers of the English RAs provide examples on the items of a measure in 83% of articles, but only 5% of Arabic articles include such examples. Hence, there are more English RAs than the Arabic that indicate that the measures can be replicable. Secondly, the process of measure construction in nearly half of the Arabic RAs includes referring to other relevant research and studies as a source to help the researchers themselves establish their measure. This lends supports to the result indicated previously about reviewing literature to establish the intervention in the Arabic articles. The writers of the Arabic RAs try to persuade their readers of their measure credibility because they themselves construct the measure. Mur-Dueñas (2007) pointed out that referring to previous research is a way to convince readers of research credibility.

Thirdly, the writers of the Arabic RAs also try to persuade their readers of the measure validity, which was tested by consulting some specialists and referees. The writers of only two Arabic RAs which used measures from previous studies did not mention such testing. These writers claim that the instrument can measure the variables of their studies. The other researchers involved in the Arabic RAs established the measure themselves and they probably want to confirm to readers that their design of measure is not based only on their experiences but also on some referees' views to make sure that their measure is valid. On the other hand, most of the researchers involved in the English RAs used already designed measures that are available in the

literature and they did not test its validity. Therefore, the writers of these RAs assume knowledge and acceptance of these procedures in a way which the Arabic RAs do not. In addition, the step, 'validity of measure' occupies more space in the Arabic articles than in the English RAs and there is an obvious orientation to readers by using more explicit headings. The process of guiding readers using direct headings exists also in step 3, 'reliability of the measure' and in step 4, 'scoring procedures' in the Arabic articles making it easier for readers to find information about the reliability and the scoring processes. However, the writers of the Arabic RAs add some information which may be considered as part of the assumed shared knowledge because the information presents a few definitions about the validity of the measure.

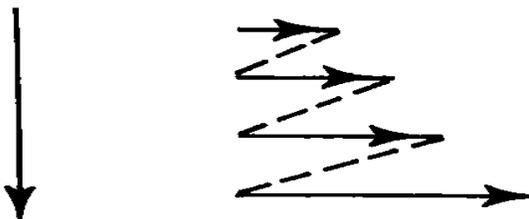
The last move, 'data analysis procedures' in the English RAs contains two steps that are not available in the Arabic articles. They are: 'statistical analysis model' and 'analysis procedures'. This move occupies more space in the English articles due to the existence of analysis procedures, which show detailed steps followed by the researchers in their analysis of data. There are two shared steps within this move in English and Arabic RAs. The first is the use of 'statistical tests' within which the writers name the tests used to analyse the data. A few writers of the Arabic RAs, moreover, add glossing to the names of these tests. The statistical techniques in the accounts of methodology of both English and Arabic RAs are not explained assuming shared comprehension with readers. Brett (1994) also showed that the statistical procedures in the sociology articles are shared by the members of the discourse community. It can be helpful for readers to add some clarifications to these techniques, so they do not struggle in understanding them. The second step is doing preliminary analysis. Unlike English RAs, all

Arabic RAs which have this step follow the same procedures in their preliminary analysis by making sure that the groups included in their studies are equivalent in a pre-test.

The differences between English and Arabic RAs presented above support Kaplan's (1966) claims about cross-cultural differences in rhetoric. However, both English and Arabic RAs share similarities in terms of the way in which writers' main points are delivered. The writers of the English and Arabic RAs present their main points directly at the beginning of their paragraphs. Such similarities disagree with Kaplan's discussion about the differences between English and Arabic paragraph writing. Kaplan reports that expository paragraphs in English develop in a linear sequence by initiating a paragraph with a topic sentence and then providing supporting examples and demonstrations. The reverse procedure may be employed by presenting the examples firstly and ending with the main idea. In Arabic, paragraphs rely on using a chain of parallel patterns. Kaplan demonstrates the development of English and Arabic paragraphs using the following graphic (1966, p. 15):

English

Arabic



It is found that both English and Arabic RAs follow the first representation shown above in the graphic as they both go directly to the main point. For example, the first move, 'sample and

population' presents directly relevant information about sample size and the remaining steps immediately at the onset of the move. This way of representing ideas in Arabic RAs does not match with the parallel forms explained by Kaplan. For example, Kaplan mentions that climatic parallelism is a form in which an idea is only completed at the end of a passage. This is not found in the representation of ideas in the accounts of methodology of Arabic RAs. It could be that the nature of methodology influences Arab writers' style as it deals mainly with procedures; therefore, writers just need to list directly their procedures. Moreover, the use of the linear sequence by the writers of the Arabic RAs raises the possibility that English language discourse patterns have become norms used by other languages in international scholarship.

Some problematic cases appeared in the Arabic RAs, as in providing information which is totally unrelated to 'characteristics of sample' in one article causing realisation of another step, 'sampling technique'. Another article also within the sample of study move includes information part of which realises another step, 'designing and implementing of an intervention'. Other articles left some information empty within a few steps, as in 'components of intervention' in one article and 'scoring procedures' in another article. This causes lack of detail for these steps. Other five RAs make reference to appendices on items of measure, but they fail to attach them. Lack of detail is also found within the step, 'sampling design' in both English and Arabic articles. 19.4% of the English articles do not state how the subjects were selected and only mention how they were assigned to control and treatment groups and 12.5 % of Arabic articles do the other way around. Such problematic issues may be attributed to lack of solid review

conducted on RAs by the researchers themselves and by the reviewers of the journals where these RAs were published.

Chapter six

A non-language-specific framework

The moves and steps of the English and Arabic RAs already identified are the results of an inductive process which involves adding new categories and modifying existing ones in Nwogu's (1997) outline which has been initially used. This outline was modified because it does not accommodate the data under analysis. The modification results in one framework for the moves and steps of the accounts of methodology of English RAs and another for the Arabic (see tables 5.1 and 5.2). At the final level of bottom-up analysis, the aggregate of moves and steps from the two tables can be combined to propose a more comprehensive framework for accounts of methodology which is non-language-specific. It is found that most of the moves and steps are shared in both of the English and Arabic frameworks. Such similarities help combining these moves and steps in one framework, as presented in the following table:

Table 6. 1 A non-language specific framework

Moves	Steps
1- Sample and Population	1- Population of study. 2- Size of sample. 3- Situation of study. 4- Characteristics of sample. 5- Sampling technique/design. <i>5.1 inclusion criteria for sample.</i> 6- Considering ethical principles. 7- Motivation.
2- Procedures of study	1- Design. <i>1.1 name of the design.</i> <i>1.2 expected knowledge to be produced.</i> <i>1.3 rationale of adopting the design.</i> 2- Identifying and preparing interventionists.

	<p>3- Introducing an intervention or a material.</p> <p>4- Designing and implementing an intervention or a material.</p> <p>4.1 <i>reviewing available literature and sources about the intervention or material.</i></p> <p>4.2 <i>size and source of materials.</i></p> <p>4.3 <i>components of the intervention or the material.</i></p> <p>4.4 <i>checking the validity and reliability of the intervention or material.</i></p> <p>4.5 <i>identifying apparatus.</i></p> <p>4.6 <i>implementation procedures.</i></p> <p>4.7 <i>duration needed to implement the intervention or the material.</i></p> <p>5- Fidelity of implementing an intervention or a material.</p> <p>6- Recounting procedures.</p>
3- Measure	<p>1- Establishing or identifying a measure of variables.</p> <p>1.1 <i>name of the measure.</i></p> <p>1.2 <i>variables intended to be measured.</i></p> <p>1.3 <i>referring to relevant studies to help establish the measure.</i></p> <p>1.4 <i>items of the measure.</i></p> <p>1.5 <i>measure/test instructions.</i></p> <p>2- Validity of a measure.</p> <p>3- Reliability of a measure.</p> <p>4- Data collection.</p> <p>4.1 <i>data collectors.</i></p> <p>4.2 <i>a tool used to collect the data.</i></p> <p>4.3 <i>procedures of implementing the tool.</i></p> <p>5- Scoring procedures.</p> <p>5.1 <i>coding reliability.</i></p>
4- Data Analysis Procedures (*PIM)	<p>1- Statistical analysis test/model.</p> <p>2- Preliminary analysis.</p> <p>3- Analysis procedures.</p>

* Possible in the methodology or in the results section

This framework is important for a number of reasons: Firstly, it is detailed and more comprehensive than Nwogu's outline as it adds new categories that are not part of Nwogu's as given in section 3.4. Secondly, it does not only compare English and Arabic Educational RAs

whose design is experimental or quasi-experimental, but also shows what sub-steps are employed to realise a step. It can reveal whether the information given within a step is relevant to that step or it realises another different step as seen within the step ‘characteristics of sample’ in section 5.2. This is important for laying out the methodology clearly by knowing correct realisation of steps in order not to mislead the readers. Thirdly, the proposed framework can be useful for students to learn what elements represent the methodology and to have a good understanding of the organisation of the methodological elements. Then, students, as a kind of practice, can employ what they learn to write the methodology. Teachers may find it easy to use the framework in teaching the students detailed elements to help them write their methodology chapter.

Fourthly, although the proposed framework relies on one field of study, Curricula and Methods of Instruction, it displays an exhaustive description of accounts of methodology. This is because the methodological elements have to be made explicit in the Educational field (see section 3.2). This framework, for example, can cover almost all of the ‘information elements’ prescribed by Weissberg and Buker (1990) in their textbook, which serves as a guide for writing RAs (see section 2.1). The only element that the framework misses is ‘restrictions’. This element is found in the Arabic RAs, but it is not added to the framework because it appears in the introduction section of these articles (see section 7.2.2). Moreover, this framework is more detailed than Weissberg and Buker’s pattern because it presents the steps and the sub-steps that can clarify the function of each move. It can be noticed that this framework includes many more steps than those in Weissberg and Buker’s as these researchers do not give what categories can go under the

‘information elements’ they provide. It should be noted that the prescriptive approach taken by Weissberg and Buker is inherently top-down. This fact signposts the point in this thesis in which a top-down perspective comes into play.

Another academic writing guide is presented by Singh and Lukkarila (2017) and it prescribes the components of the methods section. These are: ‘description of research approach, participant demographic information, study procedures, study instruments, data collection and data analysis’ (Singh and Lukkarila, 2017, p. 204). These researchers demonstrate these components as follows: the first component includes a description of the study design such as a qualitative or a quantitative design. This component in quantitative research also focuses on describing the research context and the instrument used in a study. The second component shows information about the characteristics of sample such as the gender, education and ethnicity. The third component begins with the place of a study followed by informed consent and sampling procedures. The fourth component in qualitative research includes description of the researchers and demographic surveys while in quantitative research it narrowly provides description of surveys and gives information about the validity and reliability of instruments, if there is any. The last component presents chronologically the steps followed in collecting and analysing the data. Collection and analysis of data can be either in one section or separated into two sections. It can be observed that the proposed framework covers all of these components and it has some more steps and sub-steps that are not present in Singh and Lukkarila’s guide. The absent steps are ‘population of study’, ‘size of sample’, ‘motivation’, ‘preparing interventionists’, ‘introducing an intervention or a material’, ‘designing and implementing an intervention or a

material' with its constituent sub-steps, 'fidelity of implementing an intervention or a material', 'recounting procedures', 'establishing or identifying a measure of variables', 'scoring procedures' and 'preliminary analysis'.

The proposed framework offers detailed description of the steps and the sub-steps and has the possibility of covering methodological elements prescribed in some guided writing textbooks, which are not discipline specific, as in the examples given above. Therefore, it can escape from the confinement to one discipline and can have relevance beyond Educational RAs to cover the accounts of methodology of RAs of multiple fields falling under the umbrella of Social Sciences such as History, Geography, Linguistics, Economics, Political Sciences, Psychology and Sociology. Moreover, as this framework is detailed and has multiple set of steps and sub-steps, it can cover the methodological elements or help unpacking them in some fields of scientific research which have limited methodological elements as such RA methods are described as 'condensed' (Swales and Feak, 2004). However, this framework is limited to the RAs whose design is experimental or quasi-experimental and it is unlikely to cover the accounts of methodology of different designs as they may proceed in a different way.

Finally, this framework includes multiple set of methodological elements which can be used by novice writers in some other languages. This framework is compared with Robitaille and Vallée's (2017) guide which prescribes the components of the methods section in Humanities and Social Sciences in French. This guide includes the following categories as the sub-sections of the methods section: 'Conception de l'étude' (design of the study), 'Participants', 'Collecte de

données' (data collection) and 'Analyses des données et approbation éthique' (data analysis and ethical approval) (Robitaille and Vallée's, 2017, p.19-20).

Robitaille and Vallée state that each sub-section should consist of some components as follows: the first sub-section describes the type, place and time of study. The second mentions the population of study and size of sample, details the type of sampling technique and how the sample was recruited, mentions the inclusion and exclusion criteria for the sample, mentions the socio-demographic data of sample and describes the composition of the control group. The third sub-section defines the dependent and independent variables of the study and how they were measured, describes the measurement tools and mentions when they were made. The last sub-section describes how the data were analysed, presents the analysis performed for each research question and declares informed consent process. In quantitative research, this sub-section describes the statistical tests applied to the data, ensures identifying the variables of study and shows the statistical significance of results. In qualitative research, it introduces the type of analysis and details the encoding technique and ways of analysis. It can be noticed that the proposed framework includes all of the above categories and it has some more steps to add such as 'motivation', the steps within the second move 'procedures', 'validity and reliability of measure' and 'scoring procedures'.

As an another example of comparison with Italian, Boni, Cesqui, Gallani, Pasquale and Tenti (2016) offer some guides to write the methods section of scientific articles. This guide includes the following four categories: 'Descrivere il disegno dello studio e dare informazioni sul setting e sul periodo di conduzione' (1- describing the study design and giving information on the setting

and time of conducting the study), ‘Descrivere le informazioni tecniche’ (2- describing the technical information), ‘Descrivere i parametri misurati (o endpoints) e i relativi metodi di analisi utilizzati nei diversi momenti dello studio’ (3- describing the measured parameters and related methods of analysis used at different times of the study) and ‘Descrivere le procedure statistiche e i tipi di analisi utilizzati’ (4- describing the statistical procedures and the types of analysis used) Boni et al. (2016, p. 60-61).

Boni et al. give further information about what each category includes. The first one considers the ethical principles and describes the study design, sample, selection of participants, experimental observation, inclusion and exclusion criteria, presence of diseases and concomitant treatment. The second category describes the methods, the apparatus, the relative procedures followed and it justifies each action carried out. The third category focuses on articulating and defining the main variables of the study and identifies the relationship between them. The fourth category reveals the level of significance, the appropriate measures of error or uncertainty, how to calculate the number of participants and the statistical methods used. These categories exist in the proposed framework except for experimental observation, presence of diseases, concomitant treatment and measures of error or uncertainty. These last four elements can highlight disciplinary differences as they belong to scientific RAs, specifically the Medical field.

Therefore, the proposed framework can be considered as non-language specific and it can offer the possibility for cross-cultural comparison with RAs of different languages. Comparisons can be made in terms of presence and absence of moves and steps, realisation of steps and frequency of step occurrences. Some same steps can appear in RAs of different languages, but they can be

realised using different sub-steps or different amount of information. Writers may give enough information within a move or a step resulting in the clarity of their methodology while others may provide less information which can cause lack of details and ambiguity. Cross-cultural comparison can also be made in terms of how the same moves, steps and sub-steps with their linguistic exponents can appear across different articles of one language and compare the realisations of these moves and steps in RAs of a different language. This comparison can show which cultures are described as collectivistic, which results from harmony and using similar categories across different texts in a language, or individualistic which reflects differences in individuals' thoughts (Samovar, Porter and Stefani, 2011). All of the above possible aspects of comparison are used to discuss the differences between English and Arabic RAs, as given in sections 4.3 and 5.3.

This activity of comparison, by using the proposed framework as a reference, is inherently top-down – it starts from the highest unit of organisation (the framework itself) and proceeds to see whether particular components appear and how they are realised.

Chapter seven

Organisation of moves and steps

The word ‘organisation’ involves both the order in which the moves and steps appear (sequence) and where they appear in the RA as a whole (location). This chapter takes a firmly top-down perspective and examines how the components of accounts of methodology are deployed in the RAs. It is divided into two sections. The first describes the sequence of these components. The study of sequencing reveals the occurrence of repetition of steps in the RAs. Therefore, this first section includes two sub-sections which identify and discuss other rhetorical features: repetition and glossing. In the second section of this chapter, the location of these components in the RAs is identified and discussed.

7.1 Sequencing

The sequencing of the moves and steps in the methodology of English RAs is as presented in table 5.1 in section 5.1. At the step level, some same steps in different articles appear in different order or under different categories. Within the sample move, the size of sample is preceded by the situation of study in seven articles. Step 5, ‘sampling technique/design’ is presented as part of the second move in eight RAs. M2 S1 the ‘design’ appears before the sample of study in eight RAs. This step is considered as part of the second move, ‘procedures of study’ as it explains procedures representing a design. The sub-step, ‘considering ethical principles’ appears within the first move in six RAs or as part of M2 S4, ‘recounting procedures’ in nine RAs. M2 S2, ‘identifying interventionists’ occurs in 15 articles within the sample move mainly after the size

of sample and it is found in nine articles within the second move. M2 S3, 'designing and implementing an intervention or a material' has been introduced before the methods section in four RAs. The steps within the third move, 'measure' do not follow a stable sequence. Their sequence is either as described in table 5.1 or it allows the 'scoring procedures' to come after the 'items of measure' in seven articles. The step, 'reliability' could occur before the step 'items of measure' in three articles.

There is also another description for the sequence of the moves and it appears in 13 English RAs: 1- sample 2- measure 3- procedures 4- data analysis. According to this sequence, move 3 includes information which has been previously discussed within the measure. Some information about the first step, 'identify a measure of variables' and the fifth step, 'data collection' reoccurs within the procedures of study. The reoccurrence of steps in the English and Arabic articles is discussed in more details under the feature of repetition in the following sub-section.

In the Arabic articles, there are two patterns of moves sequence. The first is as follows: 1- sample 2- procedures of study 3- measure (or 2- measure 3- procedures) 4- variables 5- data analysis. The second pattern is: 1- variables 2- sample 3- procedures of study 4- measure (or 3- measure 4- procedures) 5- data analysis. The only difference between the two patterns is in the place of the variables move. It is either the first or the fourth move and it occurs before or after the design of the study. As for the second move, 'procedures', it occurs after the 'measure' in 26 articles regardless of the 'variable' position.

At the step level, it can be said that there is no fixed sequence for the steps within the first move, 'sample and population'. It can be said only that the 'population of study' appears at the beginning of this move in most of the articles and the 'size of sample' is followed by the step 'characteristics of sample' in all articles. The sample size reoccurs within the second move, 'the procedures' in four articles. The steps, 'time and setting of the study' appear in the introduction section and again within the first move allowing for repetition to occur.

The sequence of the steps under the second move, 'procedures of the study' is: 1- design 2- introducing an intervention or a material 3- designing the intervention or the material 4- introducing the interventionists 5- recounting procedures. However, most of these steps do not occur in this order or within this move. The design of the study precedes the 'sample' move in 24 RAs. It is also found at the end of the methods section allowing for the procedures of sampling design to reoccur. Step 2, 'introducing an intervention or a material' is also found in the introduction section. Step 4, 'identifying interventionists' appears after any of the steps of move 2. Step 5, 'recounting procedures' occurs after the third move, 'the measure'. This step announces again some steps which are parts of move 1, 'the sample'; move 2, 'the procedures' and move 3, 'the measure'. These steps are: selecting the sample, selecting and designing the material or the intervention, establishing the measure and procedures representing the design. More detail about this is presented in the next section under the feature of repetition.

Unlike the English articles, the third move, 'measure' presents its steps in the following constant sequence: 1-construction of the measure 2- validity of the measure 3- reliability of the measure

4- scoring procedures. Move 5 in the Arabic articles, ‘data analysis’ includes two steps; one is about the application of the statistical test and it appears more frequently in the results section. The second step, ‘preliminary analysis’ occurs within the sample, within or after the recounting procedures, or at the beginning of the results section.

It is obvious that the sequence of steps mainly under the first move, ‘sample of study’ and the second move, ‘the procedures’ is not stable in both English and Arabic RAs. Some steps from the second move sometimes occur within or before the first move. The whole move 2 comes after the measure in 36.1% of the English RAs and in 65% of the Arabic RAs. Such occurrences might be explained in terms of the nature of RA methods as they mainly discuss procedures allowing the steps in the second move to appear under different categories throughout the accounts of methodology.

7.1.1 Other rhetorical features

The rhetorical features that describe the English and Arabic RAs have already been identified in terms of the moves and steps in chapter five. Some other features are also found to frequently occur mainly in the Arabic articles; they are repetition and glossing, as explained below.

7.1.1.1 Repetition

Most of the Arabic RAs include repetitions of the content for what is given in Move 1, ‘sample and population’, or for what is mentioned in the introductions of the articles. These repetitions

occur mainly in M1 S4, 'time of the study'; M1 S5, 'setting and site' and M2 S5, 'recounting procedures'.

It is found that M1 S4, 'time of study' occurs under the sub-section, 'limitations of the study' in the introductions of Arabic RAs and then it is repeated within the first move in 20 RAs. It seems that the writers of these articles treat the methods section separately from the introduction as they announce again the time of study although they have already mentioned it. Such repetitions can be useful for readers who might only read the methods section of an RA. The same also happens with the step, 'setting and site' in 7 RAs. One example below shows the time of a study followed by another one which displays the repetition:

'طبق البحث في الفصل الدراسي الثاني من العام الدراسي ٢٠١٠-٢٠١١م.'

1- Tubiqa albaHthu fii alfaSli aldiraasii althaanii min al9aami

1- Was implemented the research in the semester the second of the year

aldiraasii 2010/2011.

the academic 2010/2011.

1- The research was implemented in the second semester of the academic year 2010/2011.

(JEPS 3)

'تم تطبيق تجربة البحث في الفصل الدراسي الثاني من العام الدراسي 2011/2010.'

2- tamma taTbiiqu tajrubati albaHthi fii alfaSli aldirasii althanii min

2- Done implementing experiment the research in the semester the second of

al9aami aldiraasii 2010/2011.

the year the academic 2010/2011.

2- The research experiment was implemented in the second semester of the academic year 2010/2011. (JEPS 3)

The second example repeats exactly what is given in the first example. It also uses the construction of ‘tamma taTbiiqu’ which expresses the same meaning of ‘Tubiqa’, which is used in the first example (see section 4.2).

There are nine articles that include repetitions of the setting within the methods section. It could be that the writers of these articles consider this repetition as an important piece of information that needs to be stressed. However, one of the nine articles repeats the setting eight times in exactly the same way. In this case, repetition is apparently redundant. The writers of 21 RAs who make repetitions of this step within the sample either add more information to make the description of the setting clearer to the readers or they give less information because the remaining description of the setting has already been given under the ‘limitations of the study’ in the introduction. That is, the writers repeat part of what they have mentioned. These repetitions can act as a connection between the sample move and the introduction. It was stated by Johnstone (1983, 1991) that repetition plays an important role in creating text cohesion and in producing new information in Arabic prose when new items are added to the same class of items.

Step five, ‘recounting procedures’ in move 2 arises as a result of repeating some steps that are already presented as part of the previous moves, ‘sample’ and ‘measure’. It is shown in section 5.2 that most of the sub-steps belonging to this step are just repetitions with no new information is presented. These sub-steps are: selecting the sample, selecting and designing the material or

the intervention and constructing and administering the measure. These repetitions can be reduced from the articles without influencing the procedures adopted in the Arabic RAs.

There are some other examples of repetitions within other steps. In M2 S1, ‘design of a study’, six RAs consist of a repetition of the procedures used to design the sample; these procedures have already been given within the sample move. These articles add new information to the design creating a connection with sampling design mentioned within the sample move. The examples below display how repetition occurs:

’تم توزيع الذكور عشوائيا في مجموعتين، وتم اختيار إحدى المجموعتين عشوائيا لتمثل المجموعة التجريبية، في حين كانت المجموعة الثانية ضابطة.’

1- The males were randomly distributed into two groups. One of them was randomly selected to represent the experimental group while the other was a control group. (JJES 1)

’استخدمت الدراسة المنهج شبه التجريبي، وكان هناك مجموعتان، اختيرت احدهما بطريقة عشوائية لتكون مجموعة تجريبية، والثانية ضابطة. درست المجموعة التجريبية وحدة الضرب في الرياضيات باستخدام الحاسوب (البرمجية التعليمية).’

2- This study used the quasi-experimental design. There were two groups, one of them was randomly selected to represent an experimental group and the other one was a control group. The experimental group studied the multiplication unit using computer (the instructional software). (JJES 1)

The second example repeats ‘sampling design’ given in the first example and it adds the name of the study design and some information about the procedures that clarify the design.

There are six RAs which include repetitions of the components of an intervention or of a material (a sub-step within M2 S3 ‘designing an intervention or a material’). The components in these six articles have been previously mentioned and then they are repeated within the description of the intervention or within step 5, ‘recounting procedures’. For example, the writer in the following example points to the rhetorical subjects taught in his experiment:

‘قام الباحث باختيار عدد من الموضوعات البلاغية’...، وهذه الموضوعات هي: المجاز، والاستعارة التصريحية، والاستعارة المكنية، والاستعارة الجيدة والاستعارة الرديئة والكناية’.

1-The researcher selected a number of rhetorical subjects ‘...’. These subjects are: allegory, explicit metaphor, implicit metaphor, good metaphor, bad metaphor and metonymy. (JEPS 5)

The example below restates these subjects within the step, ‘designing an intervention or a material’ as the content elements of the teacher’s guide book:

‘احتوى على خمسة دروس وهي : المجاز، والاستعارة التصريحية، والاستعارة المكنية، والاستعارة الجيدة والاستعارة الرديئة والكناية’.

2- It consisted of five lessons which are: allegory, explicit metaphor, implicit metaphor, good metaphor, bad metaphor and metonymy. (JEPS 5- my italics)

The writer here may want to emphasis such elements considering them as crucial information included in the teacher’s guide book. Similarly, a repetition of the sample size, as given in the example below, seems to have a purpose:

‘تم التطبيق البعدي على طلاب العينة نفسها التي تم التطبيق القبلي عليها والبالغ عددها ثلاثة وسبعين طالبا وطالبة’.

The post test was administered on the same sample on which the pre-test had been administered and whose number is seventy-three male and female students. (IJRE 7).

The writer here reminds the readers of the sample size and confirms the same sample size on which the pre-test was administered. Furthermore, four RAs introduce the size and characteristics of sample in the introduction and they repeat them within the sample move with adding information about sampling technique and about distribution of participants into control and experimental groups. However, repetition of sample size occurs within the step, ‘recounting procedure’ in three articles and one of them makes the repetition three times. In this latter case, repetition can be considered redundant as it apparently performs no function.

In M3 S1, ‘construction of the measure’, a few researchers give some instructions to help the study sample complete the test. An example of this is:

’وقد وضحت هذه التعليمات كتابة البيانات على ورقة الإجابة، وضرورة قراءة كل سؤال قراءة جيدة قبل اجابته، والإجابة عن جميع الأسئلة، وعدم ترك اي سؤال بدون إجابة‘.

The instructions include illustrations about writing the data on the answer sheet, reading every question carefully before answering it, answering all questions and not leaving any questions unanswered. (JEPS 5)

It can be noticed that the last phrases ‘not leaving...’ paraphrase the preceding one ‘answering all questions’. This repetition is employed purposefully to confirm following the same instruction. However, perhaps this example just faithfully reports the instructions as the repetition was not here, but in the original text.

In the English articles, repetition occurs in nine RAs. In one article, some information about the size of sample is repeated within the step, 'design of the study' in the second move, as in the examples below:

1- All the children in two Year 1 classes and two Year 2 classes participated. (EARLI 6).

2- Four complete classes of children participated (two Year 1 and two Year 2 classes). Each class was divided into two sub-groups of mixed ability based on teacher assessments. This produced eight subgroups overall, each with 15 children. (EARLI 6)

The writers of this article give the number of the classes, in example 1, within the sample and they possibly want to remind the readers of this number again, in example 2, within the design to help them understand the sampling design. The writers could create a connection between this text and the previous information about the sample size by repetition. Moreover, this article in addition to another article have already stated the name of the design in the introduction section and they repeat it in the methods section adding further clarification to the nature of that design.

M3 S5, 'data collection' includes a repetition about the procedures followed in collecting the data. The writers of one article give more elaboration on this step in the repetition part and they establish cohesion between this part and what they have already mentioned, as in the examples below:

1- Classroom observations were conducted with one randomly selected teacher from each of the 64 schools three times from September to January. (JRST 3)

2- One randomly selected teacher from each of the 62 [sic] schools was observed three times between September and January. '...'. Throughout the data collection period, 10% of the observations were conducted with pairs of observers. (JRST 3)

It can be seen that example 2 repeats exactly what is mentioned in example 1 about how and when observation was conducted and it gives more clarification about data collection procedures. In another article whose sequence is: sample-measure-procedure, a procedure of data collection from the 'measure' move reoccurs within the move 'procedures of the study'. This repetition adds more information about how this procedure is implemented and it reminds readers of the already given procedure.

In two articles having the same sequence presented above (measure-procedure), the step, 'identify a measure of variables' reoccurs within the move, 'procedures of the study' and the duration required to complete the test is added to this step. The 'measure' move in one of the two articles includes a repetition of this step within the same move; within the step, 'scoring procedures'. This step is repeated in another article within the 'measure' move to give more clarification about the measure. The first example below identifies a measure, which is repeated under other two steps:

1- A measure of each participant's prior knowledge was obtained through a pretest that asked the participants to list 10 parts of the human nervous system that they know and to briefly describe the function(s) of each listed part. (EARLI 4)

2- Prior knowledge of human nervous system was assessed by using a pretest that asked participants to list 10 parts of the human nervous system that they know and to briefly describe the function(s) of each listed part. (EARLI 4)

3- For the pretest, the participants were allowed 6 min to list 10 parts of the human nervous system that they know and briefly describe the function(s) of each listed part. (EARLI 4)

The second example restates the measure within the step, ‘scoring procedures’. That is possibly because the writer considers the given information important for establishing the scoring criteria. The third example repeats this information again within the step, ‘recounting procedures’ to add the duration needed to complete the pre-test.

The move, ‘procedures of the study’ in three articles includes a repetition of the step, ‘sampling design’. One of these articles only repeats the step without adding new information. It is possible that the writer wants to emphasise it as a crucial piece of information. Two of the three articles add some information to the step such as adding the duration that the subjects of study took to complete the experiment. A different article makes a repetition of the steps, ‘identifying interventionists’ and ‘procedures of implementing an intervention’, as seen below:

1- Kindergarten classroom teachers served as interventionists in each classroom. (JREE 2)

2- Groups in both conditions comprised three to five students. Interventionists in both conditions were asked to meet with their groups for 30 min 5 days per week. (JREE 2)

3-Kindergarten teachers who served as interventionists in the comparison, or SDI, condition *were asked to provide typical school-designed beginning reading intervention to identified students for 30 min daily, in groups of three to five students.* (JREE 2-my italics)

Example 3 identifies again the interventionists already introduced in example 1. The writer of this article may want to stress the fact that the interventionists worked in all of the study conditions (comparison and SDI conditions). This example also repeats the procedure of implementing the intervention (in italics) provided in example 2 to let the readers make a clearer image about the intervention being applied in the study.

It is clear that there are more repetitions in the Arabic RAs than the English. The Repetitions in the Arabic RAs shown above can serve Johnstone (1983, 1991), who affirmed that repetition is a main rhetorical strategy in literary Arabic that can perform an effect (see section 1.3.1). The appearance of repetition is possibly because it is traditional in Arabic rhetoric and it exists to display rhetorical credibility. In addition, the existence of repetition can be considered a feature that characterises the Arabic discourse as a result of its orality. Fakhri (2009) mentioned that the oral nature of Arabic discourse is behind the appearance of some features such as repetitions.

Repetition can have possible effects on writer/readers relations. On the one hand, the writer's credibility is (thought to be) enhanced because, by demonstrating his/her consistency in the presentation of information, it underlines the veracity of that information. In addition, it indicates a real desire to communicate with the reader (to get the reader to follow the discourse). More generally, it could be said that credibility is enhanced simply by demonstrating that the writer is familiar with conventions of rhetoric in Arabic. On the other hand, repetition risks insulting the reader by implying that s/he cannot be trusted to believe the information if it is only presented once and/or that s/he is too stupid to remember.

7.1.1.2 Glossing

The second feature that characterises the Arabic RAs is to give English glosses for some Arabic phrases. Some writers of these articles, as seen below, give glossing under the following steps: sampling technique, design of study, designing an intervention or a material, reliability of measure and statistical tests. The gloss is inserted into the running Arabic text immediately after the phrase which it glosses without signposting of any kind other than (usually but not always) bracketing.

Firstly, it is found that three RAs add glossing to the sampling technique. This implies that the writer believes that the English name is familiar to readers. But of course, it is possible that the writer doesn't really believe this and is using the gloss simply to add to his/her credibility. An example of this is:

‘وقد تم تطبيق أسلوب العينة المتاحة Convenience Sampling لإختيار عينة البحث؛’

Convenience sampling technique was applied to select the study sample. (JEPS 3)

Secondly, glossing for the research design is provided in four RAs, as in the following example:

‘يمثل منهج البحث الكمي في المعالجة التجريبية ذات التصميم القبلي والبعدي لمجموعة واحدة (One group pre-test) (post-test) .’

The quantitative research is represented in the experimental process which has *one group pretest posttest design*. (IJRE 2- my italics)

Thirdly, six RAs include glossing for the components of the intervention. In the example below, the English gloss is not a technical term as in the previous examples.

’الاستراتيجية الأولى- إيجاد القصة في الأنشودة أو الأغنية (Finding Stories in Song)‘.

The first strategy- Identifying stories in a chant or a song. (JEPS 4).

In addition, one article adds glossing to the stages used in designing the intervention. These stages form an instructional model known in English as ‘ADDIE: Analysis, Design, Development, Implementation and Evaluation’. It seems that the writer of the article assumes that such glossing can better identify the model because it allows readers to refer to it in the original English texts.

Fourthly, one article gives the type of measure in English, as in the example below. Although the writers show the type of test in Arabic and demonstrate its parts, they provide its type in English assuming that there are some readers who can recognise it in English. It is also possible that the writers want to show their readers that they know the English name for this test type.

’كانت أسئلة الإختبار من نوع الإختبار من متعدد ذي الشقين (Two-Tier MCQs)‘.

The test questions were two-tier multiple choice. (JJES 3)

Fifthly, reliability of the measure can be confirmed by test and retest method. Three RAs give glossing for this method, as in the example:

’حسب معامل الثبات بطريقة الإختبار وإعادة تطبيق الإختبار (Test-Retest)‘.

Reliability coefficient was calculated by the test and retest method. (JJES 7)

Finally, the statistical tests that researchers used to analyse their data are described in 18 Arabic RAs either using English glosses, as in 1 below, or using an international specialist item, as in example 2:

‘تطبيق اختبار (ت) للمجموعات المترابطة (Paired-samples T-test)’.‘

1- Applying paired-samples t-test. (IJRE 2)

‘تم استخراج المتوسطات الحسابية والانحرافات المعيارية واستخدام تحليل التباين الثنائي المصاحب (TWO WAY ANCOVA) لبيانات الدراسة’.‘

2- The means and standard deviations were calculated and two way ANCOVA was used to analyse the data. (JEPS 4- my italics)

To sum up, presenting such glossing may help readers understand more about the Arabic phrases to which the glosses are added. It is possible that the writers have originally learned such phrases in English and they also assume that readers may know them in English. In the examples above, ‘convenience sampling’ and ‘Two way ANCOVA’ may even be considered as part of the repertoire of an Arabic-speaking social scientist. In the above cases, it can be said that the writers are not code-switching to English as they give the Arabic equivalents and they use English phrases as part of their repertoire.

The writers of the Arabic RAs might also want to display their knowledge in English and familiarity with the international world of scholarship and its associations of expertise through the use of such glossing in their texts. The writers’ educational level supports them with a state

of power to show this knowledge to readers. Having this knowledge might reflect the strategy of 'elite closure' associated with the writers' occupations at universities. Elite closure here pertains to technical knowledge because the glosses are given in a form of technical specialist terms in an international domain. Scotton (1990) defines 'elite closure' as a strategy which employs language choices by those people in power to preserve their power. This can be achieved by the elite's use of a linguistic variety that is different from the masses'. Scotton explains that 'elite closure' can be created when there are linguistic differences between the elite of a community and other members of the same community. These differences can be either within the same language or by knowledge of another language different from the one/s known by the other members, as in the case of utilising English by the writers of the Arabic articles.

Wonyo (2015) also discussed the existence of 'elite closure' phenomenon in Ghana. The ruling elites; politicians, officials and educated people use English there as the official language, as a way to maintain 'elite closure'. However, the situation in Ghana is not similar to the one found among the writers of the Arabic RAs. The ruling elites in Ghana use English for 'intra-elite communication' and they use the native language for communication with the other members of the community. English is not only used as a means of communication among the educated elites in Ghana, but also as a key to open the door to political and economic power. Thus, the educated elites can maintain power and be members of the ruling elites.

7.2 Location

The English and Arabic RAs analysed in this study follow a standard structure that consists of the main elements of an RA. These elements are: introduction, methods, results and discussion. All RAs also include another section wherein writers review previous studies, either within the introduction section or in a separate section immediately afterwards. English RAs end with a section wherein they present at least one of the following elements: conclusion, implications, recommendations, limitations and suggestions for further research. Arabic RAs end with recommendations and some of them add suggestions for future research. It is found that all Arabic RAs include recommendations for classroom /curriculum practice while only three English RAs employ this feature. This would indicate a divergence in assumptions about the value of the research. It can be said that English RAs value truth more while Arabic RAs value practical application more.

The current study is concerned with the accounts of methodology and it presents the moves and steps occurring in the methods section, as seen in sections 5.1 and 5.2, or elsewhere. It is pointed out in these sections and in section 7.1 (sequencing) that there are some steps and a whole move (data analysis procedures) which occur outside the methods section. This current section identifies and discusses these steps.

7.2.1 The English RAs

Some of the steps realised in the methods section are also found either in the introduction or in the results section of English RAs. These steps are presented below with examples and are compared with other examples realising the same steps in the methods section.

Move 2 Step 1: Design of study

This step occurs in the introduction section of four RAs and it is realised by presenting the design name, as given below:

1- This study used a 2 x 2 factorial design to assess the effects of animation (animation vs. static). (EARLI 4)

2- A simple cross over design was employed. (EARLI 6)

3- We conducted a group-randomized trial. (EARLI 13)

4- We employed 2 (hands: no-hands vs. with-hands) x 2 (presentation: statics vs. animation) factorial designs. (EARLI 3)

Examples 1 and 2 have no active agency and they present the design as the goal of a material process type. In 2, the design name is acted upon in the passive construction of 'was employed'. However, examples 3 and 4 have active agency 'we conducted'/'we employed' followed by the design name set as the goal of the material processes.

It can be noted that the step, ‘design of study’ is realised in both the introduction and the methods sections using the same active/passive constructions in simple past tense and the same process type (see section 4.1).

Move 2 Step 2: Identifying interventionists

One article identifies who implemented the intervention in the introduction section, as seen below:

CFC coaches averaged 12 years of elementary teaching experience (ranging from 0 to 22 years) and 2 years of prior coaching experience. (EARLI 13)

This example identifies the characteristics (the teaching and coaching experience) that qualify the interventionists to implement the intervention. There is a relational process type in this example because the interventionists ‘CFC coaches’ are possessors of the given characteristics. The realisation of this step here is similar to one example occurring inside the methods section of an RA, as given below:

3- The teachers of these students (11 female, 4 male) had a mean age of 31.27 years. (JREE1)

The interventionists in this example ‘the teachers’ are also possessors in a relational process type of the simple past tense ‘had’. Therefore, this step is realised in and out of the methods section using the same process type and tense. Such similarities indicate that some categories of the methodology can appear in such sections as the introduction.

Move 2 Step 3: Designing and implementing an intervention or a material

It has been discussed that this step consists of some sub-steps such as the procedures of implementing an intervention, identification of the apparatus and duration needed to implement the intervention. They are all found to occur in the introduction of four RAs. The following set of examples demonstrate each of the preceding sub-steps:

1- The third strategy, the Full-worked example strategy, provided full-worked example where all four calculations were presented each time. (EARLI 18)

2-The EPMs and ball-and-stick representations were presented simultaneously.
(EARLI 14)

3- We used an online eye tracking methodology to determine the degree of visual attention directed to the novel EPMs versus the standard ball-and-stick displays. (EARLI 14)

4- We therefore compared an outline condition, *in which writers were given five minutes to make an outline*, with a non-outline condition. (EARLI 2 – my italics)

Examples 1 and 2 introduce the interventions (the third strategy and the EPMs) and how they were implemented. Material processes ‘provided’/ ‘were presented’ in active and passive constructions of the simple past tense are available to realise the implementation procedures. Example 3 introduces the device ‘eye tracking’ used in the study as the goal of the material process ‘used’. The embedded italicised clause in example 4 includes passive construction of simple past tense to display the duration assigned to implement the intervention. It is clear that these representations are similar to the ones used to realise the same step, ‘designing and

implementing an intervention' when it occurs inside the methods section as they all include material processes and passive and active constructions of simple past tense (see section 4.1).

Move 3 Step 1: Identify a measure of variables

The writers of two RAs present the measure they used in their studies in the introduction and the literature review, as in the following:

- 1- We used standardized measures of WIAT-II mathematics and reading performance. (EARLI 7)
- 2- We used a more complete set of outcome measures (free recall, transfer and knowledge tests) to. (EARLI 4)

The measure adopted in these articles is set as the goal in 1 and 2. It can be seen that both examples present similar representation of the step by using the same material process and having the active agency 'we used'. This matches with the realisation of this step in the methods section, as seen in the example below:

- 1- We also used two tests of spatial ability. (EARLI 3)

Move 4: Data analysis procedures

This move with one or more of its constituent steps appear in the results section in 19 RAs (52.7%). Its steps and the frequency of their occurrence in the results section are described below and compared with those appearing in the methods section:

Move 4 Step1: Statistical analysis model

This step occurs in five RAs in the results section of English RAs. The examples below represent this step:

1- A- A hierarchical linear model (see Raudenbush & Bryk, 2002) with four nested levels was used to analyze the data ‘...’,

B- we modeled performance ‘...’. (EARLI 17)

2- Multilevel modelling ‘...’ was chosen to analyze the data. (JREE 2)

3- A- GEE analysis for the delayed posttest data was conducted with two new models ‘...’.

B- Both models included the following covariate predictors. (EARLI 12)

4- Due to the repeated measurements and nested structure of the data ‘...’, a mixed-effects modeling approach was adopted for all analyses. (EARLI 10)

In all of these examples except 1b and 3b, there is a material process realised by verbs in the passive form of simple past tense: ‘was used’, ‘was chosen’, ‘was conducted’ and ‘was adopted’. Example 1b denotes the material process ‘modeled’ within active agency: ‘we’. Example 3b displays a relational possessive process denoted by the simple past tense: ‘included’. Such representations of the step find similar ones inside the methods section, as seen below:

1- We used a Rasch analysis as our interpretational model. (JRST 7)

2- Cross-sectional multilevel modelling ‘...’ was conducted. (JRST 3)

3- The first model was an unconditional model and contained no covariates. (JREE 2)

However, two examples below show a different realisation of the step in the methods section:

We adopt a parsimonious multilevel modeling framework ‘...’. We model our dichotomous.
(JREE 4)

We fit a logistic regression model in which the dependent measure was. (EARLI 18)

The use of simple present tense ‘adopt, model and fit’ represents this aspect of the processing of the data as something pertaining to the authors not to the reported experiment. It tells what they do, not what they did.

Move 4 Step 2: Statistical test

This step appears in the results section of 19 RAs. It reveals what statistical test the researchers used in their analysis and gives the purpose of using that test in an infinitive form in the circumstance, as in:

1- One-way ANCOVA was used to examine the null hypothesis. (JRST 6)

2- We conducted chi-square tests to determine any differences in attrition patterns for each of the two years. (JREE 2)

3- To examine the effects of generating and reading explanations ‘...’, we compared each pair’s scores on the prediction and reflection questions using a repeated measures ANVOA.
(JRST 3)

Example 1 has no active agency and it presents the statistical test as the goal of the material process ‘was used’ in passive construction of simple past tense, whereas the remaining examples

have active agency revealing the material processes in an active form of simple past tense. These representations of the step are similar to those found in the methods section. One example below from the methods section is the same as 1 above:

Analysis of covariance (ANCOVA) was used to analyze. (JRST 5)

Some other examples from the methods section use active agency and simple past tense similarly to 2 and 3 above, as in the italics in the example below:

Because group means differed at pretest, *we used 3 (Condition) x 2 (Time) repeated-measures ANOVAs to analyze gains in biology.* (EARLI 15- my italics)

Move 4 Step 3: Preliminary analysis

This step appears in ten RAs, three of them present the preliminary analysis in the results section while the remaining seven articles present it in the methods section without having any differences in the realisation of the step. The examples below are from the results section:

1- Preliminary assumption testing was completed to assess for assumption violations. Histograms demonstrated that *the data were normal for the control group.* (JRST 6- my italics)

2- A preliminary analysis evaluating the homogeneity-of-regression assumption indicated no interaction between condition and pretest performance. (EARLI 20)

3- Preliminary analyses revealed that Prior Knowledge-centred was a significant predictor for each dependent variable. (EARLI 18)

All of these examples indicate to the analysis using explicit items and they all use simple past tense to show the results of the analysis. In 1, the results, given in italics, are expressed in a relational process using the past tense: 'were', and this is similar to the example below taken from the methods section:

Distributions were satisfactory. (EARLI 2)

Examples 2 and 3 above are also similar to some other instances, as given below, drawn from other RA methods section as they all use the same verbs which denote results and the same noun phrases that signal the beginning of the step:

1- Preliminary analyses indicated no significant interaction. (JREE 1)

2- Preliminary analyses confirmed no differences. (JREE 3)

Move 4 Step 4: Analysis procedures

Step 4 reveals the steps followed in the analysis in the methods section of 18 RAs (50%) and in the results section of ten RAs. The selected examples below show how analysis procedures are represented in the results section:

1- The data *were examined* for normality and homogeneity of variance. All dependent variables *were normally distributed* with skewness and kurtosis values in acceptable ranges. (JRST 2- my italics)

2- An independent t-test *was first conducted* to ensure '...'. Thus, ANCOVA *was used* to control for preexisting differences. (JRST 6- my italics)

3- ‘...’ we disregarded the order of representation in the reported analyses ‘...’, we analysed the effect of ‘...’. Finally, because ‘...’, we computed a covariate that describes. (EARLI 17)

The first two examples report the analysis procedures using passive formations of simple past tense, as shown in the italics, whereas example 3 displays the steps of analysis using active agency with simple past tense. All of these examples have equivalent ones in the methods section, as discussed in section 4.1.

7.2.2 The Arabic RAs

Move 1: Sample and population

Step 1: Size of sample / step 2: Characteristics of sample

It has already been mentioned that these steps occur in the introduction of four articles and is repeated within the first move: sample and population of study. These steps are discussed again here to state that such steps from the methods section can occur outside it in Arabic RAs. The examples below show how these steps appear in the introduction under the sub-section ‘limitations of the study’:

’وبلغ عددهم (87) طالبا وطالبة‘.

1- wa balagha 9adaduhum (87) Taaliban wa Taalibah.

1- and reached their number 87 male student and female student

1- and their number reached 87 male and female students. (JJES 7)

’اقتصر حجم العينه على (٥٦) طالبا‘.

2- 'qtaSara Hajmu al9ayyinah 9ala 56 Taaliban.

2- Was limited size the sample on 56 male students.

2- The sample size was limited to 56 male students. (JEPS 16)

Three out of the four articles follow the first example in using the relational process 'reached' in simple past tense. They also present the gender of participants to realise the characteristics of the sample. This way of realising the two steps is similar to what is found in representing them in the methods section, as in the example below:

‘بلغ العدد النهائي لمجموعتي الدراسه (٤٤) أربع وأربعين طالب؛’.

The final number of the two study groups reached 44 female students. (JEPS 5)

The second example above uses a different verb from those used in the methods section as a reflection of the limitations of the study due to its occurrence under the sub-section 'limitations of study'. However, the example still represents the steps using a material process in past tense and shows the gender of participants.

It is also found that the step, 'size of sample' occurs in the results section of only one RA whose writer displays the size of sample in a form of a table only. This step is delayed to the results and it would be better to inform the readers about the sample size earlier within the sample move. The same article also introduces step 2, 'characteristics of sample' only in the introduction under the sub-section 'limitations of study'. This step is represented in a way similar to example 2 above using the material process 'was limited to' followed by the gender of participants.

Move 1 Step 4: Time of study

As mentioned in section 5.2, this step occurs in the introduction in most of the articles; it occurs in both the introduction and methods sections of 20 RAs (50%) and in only the introduction of nine RAs. It is found under the sub-section 'limitations of study' and represented as given in example 2 above using the verb 'was limited to'. The examples below demonstrate the realisation of the step in the introduction:

'اقتصرت هذه الدراسة على تلاميذ الصف السابع في مدرسة الفاروق بأمانة العاصمة للجمهورية اليمنية في الفصل الأول للعام الدراسي ٢٠٠٩-٢٠١٠م.'

1- This study was limited to the seventh grade male students in Al-Farouq school in the capital of Yemen in the first semester of the academic year 2009-2010. (JEPS 13)

'للدراسة الحالية حدود مكانية تتمثل في غرف مصادر صعوبات التعلم التابعة لمديرية التربية والتعليم لمنطقة اربد الأولى، وحدود زمانية تتمثل في الفصل الدراسي الأول من العام الدراسي 2012-2013.'

2- The study has spatial limitations represented in the learning disabilities resource rooms of the Irbid Aloula Directorate of Education and it has temporal limitations represented in the first semester of the academic year 2012-2013. (JJES 8)

It can be seen that the time of conducting the studies reported here is realised in the circumstance for the material process in 1 and for the relational process in 2. These examples are similar to what is given in section 4.2 showing similar representation of the step inside and outside the methods section. The appearance of this step under the sub-section 'limitations of study' raises a question about what is limiting about the time frame. After all, any empirical study has to occur

within time. This may tell that the researchers do not adhere to the notion of timeless truth as they are concerned with when they conducted their studies.

Move 1 Step 5: Place of study

This step occurs outside the methods section in three RAs under the ‘limitations of study’ and it is also found in both introduction and methods sections of 35 RAs (87.5%). It is realised, inside and outside the methods section, in the circumstance for a material and relational processes, as can be seen in the examples above (1 and 2) under step 4, and as in the example below:

’وقد أجريت هذه الدراسة في جامعة الملك سعود في الرياض‘.

1- This study was conducted in King Saud University in Riyadh. (IJRE 9)

The place of the study in this example is the circumstance for a material process type. This example shows that step 5 is realised in the same way in both introduction and methods sections of RAs using passive formation of simple past tense (see section 4.2).

Move 2: Procedures of study

Move 2 Step 3: Designing and implementing an intervention or a material

There is one article which presents the components of an intervention in its introduction, as can be seen below:

’الحقيبة التعليمية المحوسبة: ...‘ تحتوي على خمسة مجلدات الأول‘.

1- The computerised instructional package: ‘...’ it consists of five folders. The first is. (JJES 5)

This example has a relational possessive process and it presents the components of the intervention as possessed parts. This way of representation is utilised by the writers of the Arabic RAs in displaying the components of an intervention in their methods sections, as shown in section 4.2.

There are also two writers who present the procedures followed in implementing the intervention as part of the introduction of their studies, as in the example below:

‘تفسير إجراءات الصراع المعرفي في عدة خطوات ’...‘. وقد اتبع الباحث الاجراءات السابقة عند بنائه دليل المعلم لتنمية مهارات القراءة ‘.

2- The cognitive conflict strategy proceeds in a number of steps ‘...’. The researcher followed the previous procedures in constructing teacher’s guide book to develop the reading skills. (IJRE 10)

This example presents some steps used in implementing the intervention ‘cognitive conflict strategy’. The researcher here confirms that he followed the implementation steps using a material process in simple past tense ‘followed’. Similarly, writers report the procedures in the methods section using simple past tense in both active and passive constructions.

Move 4: Variables of study

This move appears as part of an introduction section of one RA, as can be seen below:

‘تحدد متغيرات الدراسة الحالية فيما يلي: المتغير المستقل ’...‘ المتغير التابع‘.

1- The variables of the current study are determined as follows: The independent variable ‘...’
The dependent variable ‘...’. (JJES 3)

The writer here displays the independent and dependent variables of the study using material process type. This is similar to the example below which shows how a study variables are introduced in the methods section:

‘تناولت الدراسة المتغيرات الآتية.’

2- The study tackled the following variables. (JJES 9)

Other examples which use material and relational processes in both simple present and simple past tenses are found in the methods section. This can prove that there is no difference in representing move 4 in the introduction or in the methods section of an RA.

Move 5: Data analysis procedures

Move 5 Step 1: Statistical tests

It is found that 18 RAs (45%) locate the statistical tests used in the analysis in the results section. This step is realised using either active agency, as in 1 below, or using passive formation of simple past tense, as in 2 and 3:

‘قام الباحث بحساب قيمة (ت) من خلال البرنامج الإحصائي SPSS.’

1- qaama	albaaHithu	biHisaabi	qiimat	t	min khilaali	albarnaamaj
1- Performed	the researcher	in calculating	value	t	using	the programme

al'iHSaa'ii SPSS.

the statistical SPSS.

1- The researcher calculated t value using SPSS. (IJRE 10)

تم إجراء اختبار "ت" للعينات المرتبطة paired samples t-test.

2- tamma 'ijraa'u 'ikhtibaari t lil9ayyinaati almurtabiTati paired samples t-test.

2- Done conducting test t of samples paired.

2- The paired samples t-test was conducted. (JEPS 8)

استخدم تحليل التباين المصاحب (ANCOVA).

3- 'ustukhdima taHliilu altabaayun almuSaaHib ANCOVA.

3- Was used analysis covariance.

3- Analysis of covariance (ANCOVA) was used. (JEPS 7)

Example 1 has a material process 'calculated', which is represented in the Arabic version by the verb 'qaama' and the prepositional phrase 'biHisaabi'. The statistical test is given in the circumstance. There is a material process in example 2 and it is realised by the verb 'tamma' and the gerund 'conducting'. This construction has the same meaning of the passive voice: was conducted. The statistical test is set as the goal in this example and it is accompanied by glossing in English. Example 3 includes a material process in passive voice and a statistical test set as the goal. All of these representations of the step in the results section find equivalent ones in the methods section of the Arabic RAs (see section 4.2).

Move 5 Step 2: Preliminary analysis

This step appears in the results section in six RAs. Three of them introduce step 1, ‘statistical tests’ inside the methods section. There are also other six articles that present their preliminary analysis inside the methods section, but they provide the statistical tests in the results section. This means that sometimes part of move 5 occurs inside the methods section while another part is given outside. The example below shows how step 2 is realised in the results section:

يتضح من الجدول رقم (1) إن قيمة (ت) غير دالة احصائيا ‘...’، وهذا يعني تكافؤ المجموعتين في اختبار مهارات التفكير ما وراء المعرفة القبلي .

1- ‘...’, wa hadha yu9nii takaafu'u almajmuu9atayn fii 'ikhtibaari ‘...’.

1- ‘...’, and this *means equivalence the two groups in test ‘...’.*

1- It is clear from table 1 that t value is not statistically significant ‘...’, and this means *that the two groups are equivalent in the pre-test of metacognitive thinking skills.* (JEPS 10 – my italics)

This example presents the results of preliminary analysis (given in italics) which was conducted to check if the experimental and control groups are equivalent in achievement before initiating the experiment. The results are set as the value for the relational process in simple present tense ‘means’. This representation of the step appears also inside the methods section of the Arabic RAs.

7.2.3 Summary

This section shows that there are some steps which occur outside the methods section of English and Arabic RAs, as summarised in table 7.1 below.

Table 7. 1 Occurrence of steps outside the methods section of English and Arabic RAs

The section in which the steps appear	Steps outside the methods section of English RAs	Steps outside the methods section of Arabic RAs
Introduction section	Move 2 Step1: Design of study. Move 2 Step 2: Identifying interventionists. Move 2 Step 3: Procedures of implementing an intervention, identification of the apparatus and duration needed to implement an intervention.	Move 1 Step 1: Size of sample. Move 1 Step 2: Characteristics of sample. Move 1 Step 4: Time of study. Move 1 Step 5: Place of study.
		Move 2 Step 3: components of the intervention and the procedures of implementing them.
		Move 4: Variables of study.
Introduction or literature review section	Move 3 Step 1: Identify a measure of variables.	
Results section	Move 4 Step 1: Statistical analysis model. Move 4 Step 2: Statistical tests. Move 4 Step 3: Preliminary analysis. Move 4 Step 4: Analysis procedures.	Move 5 Step 1: Statistical tests. Move 5 Step 2: Preliminary analysis.

This table indicates that it is possible for some steps of move 2, ‘procedures of study’ to occur outside the methods section of both English and Arabic RAs. Within this move, there are some more steps found in the introduction section of the English articles than the Arabic ones, as can be observed in the table. On the other hand, some steps within the first move, ‘sample and population of study’ occur in the introduction section of only the Arabic RAs. As for the steps

from the move 'data analysis procedures', they occur in the results section of both English and Arabic RAs. The whole move with one or more of its steps are presented as part of the results section in 52.7% of the English RAs and in 37.5% of the Arabic RAs. The difference between English and Arabic RAs is that this move does not allow for separating its steps across the methods and results sections in the English RAs. When this move appears in the results section, its constituents steps also appear there and none of them remains in the methods section. In nine Arabic RAs, one of the two steps within this move appears in the methods section while another step appears in the results section. This can separate this move across these sections.

It is noted that all steps mentioned above are represented similarly inside and outside the methods section. Therefore, it can be said that the methodology need not have a specific location as its steps can appear in the introduction or in the results sections with no change affects their realisations.

Chapter eight

Conclusion

This contrastive study examines the rhetorical features of the accounts of methodology of English and Arabic Educational RAs whose design is experimental or quasi-experimental and culturally compares the two datasets in terms of what the writers assume is known to readers. It reveals the moves and steps of accounts of methodology with their realisations, their sequencing, their location in the RAs and other features such as repetition and glossing. The shared knowledge assumed by authors is identified using the perspective of tacit knowledge in terms of the tellability principle of information and the functional relation aspect of tacit knowledge (see section 3.1.2). The analysis of moves and steps relies initially on Swales' (2004) moves analysis approach and then uses bottom-up processing. The first phase of this processing begins with an analysis of the linguistic features using the transitivity framework. The analysis shows the type of processes employed and how these features are put together to realise the various moves and steps of the accounts of methodology. The second phase identifies the moves and steps across the two sets. In the final phase, these moves and steps are used to propose a non-language specific framework for accounts of methodology that has a number of possible applications (see below).

8.1 Summary comparison of the two sets

It is found that English and Arabic RAs share the same moves and that there are very few differences in terms of presence or absence of a few steps or sub-steps (as discussed in section

5.3). Therefore, the proposed framework is able to combine all of the moves and steps occurred in the accounts of methodology of the English and Arabic RAs.

The analysis of the rhetorical structures of the two sets reveals that the two are very similar in terms of the moves they employ. Both sets make use of the following moves: 1- sample of study, 2- procedures of study, 3- measure, and 4- data analysis procedures. This similarity is presumably to a large extent because these moves can be regarded as essential from an introspective point of view (see chapter six for the comparison between these moves with the elements prescribed by Weissberg and Buker (1990) and Singh and Lukkarila (2017)). Another possible reason for the similarity is simply that it reflects the fact that scholarship is an international domain. Also, it could be that Arabic and English academic communities partake of largely the same intellectual (broadly ‘western’) history. The Arabic RAs, however, give more space and prominence than the English articles to the description of the variables giving this aspect a separate subsection. Thus, they are assigned a fifth move, ‘variables of the study’ in the framework which describes the moves and steps in the Arabic RAs.

A number of differences between the English and the Arabic RAs are apparent at the step level. Within the first move, ‘sample of study’, Arabic RAs employ the step, ‘time of study’ in 92.5% while the English RAs employ it in 8%. The writers of the Arabic RAs also give more detailed information within the step, ‘population of study’ and there is more use of sub-headings to describe the study population (see section 5.2). This can result in a clearer description of the source of participants and a clearer orientation for readers. The emphasis placed on these two steps may indicate that the writers of the Arabic RAs are not so firmly attached as the writers of

the English RAs to the notion of timeless truth. They appear to give greater significance to particularities of who the people are (population of study) and what they did in a particular time (see also below for particularities of the way of testing the validity of an intervention or a measure). On the other side, the English articles employ two additional features within this move, which never appear in the Arabic RAs, namely: inclusion criteria for the sample and motivation of the participants. The appearance of the step, 'motivation' seems to suggest that the researchers involved in the English RAs feel a greater need to ensure that their study participants are fully engaged in the process and taking it seriously, hence the mention of rewarding them in some way. As for the step, 'inclusion criteria for sample', its existence might suggest a greater concern for the replicability of the studies.

The second move, 'procedures of study' in both academic communities is realised by the steps, 'design of study', 'identifying interventionists', 'describing and implementing an intervention or a material' and 'recounting procedures'. The differences between the two communities are as follows: firstly, there is one sub-step which is found to occur only in the Arabic articles, which is 'checking the validity and reliability of the intervention or material'. In this aspect, the researchers foreground the efforts they have made to make sure that their interventions or materials are appropriate to the participants in their experiments. They consult referees and experts in the field and then they amend their materials according to the referees' comments, if there are any. Therefore, readers may observe that the interventions or materials are carefully constructed and may help the researchers in pursuing their objectives. Secondly, the writers of the English RAs make reference to studies which follow the same procedures to support their

selection of procedures. Thirdly, the English articles give more detailed information within the following steps: ‘fidelity of implementing the intervention’ and ‘identifying interventionists’. The writers of the English RAs provide detailed description of how they measure fidelity; in this way, their results regarding adherence to implementing the intervention are foregrounded, perhaps indicating a greater concern that these results are convincing than in the Arabic articles. Finally, the writers of the English RAs give more information about interventionists including a description of how they prepare them to be able to implement an intervention.

Move 3, ‘the measure’, consists of similar steps in all of the English and Arabic RAs. Unlike the Arabic RAs, the English articles give more examples on the items of a measure to indicate that their measure can be replicable. Within the first step, ‘construction of the measure’, the writers of the Arabic RAs in 45% of the articles refer to other studies to help them establish their measures as they might want to convince their readers that their measure is plausible. The remaining steps about validity and reliability of the measure, data collection and scoring procedures are available in all of the articles. Testing the validity and reliability of the measure occurs in many more Arabic articles than English ones. The researchers involved in the Arabic RAs have consulted referees to test their measure validity as they themselves establish the measure, while the researchers involved in the English RAs have used measures from previous studies. These steps ‘validity and reliability’ in addition to ‘scoring procedures’ in the Arabic articles are prefaced by sub-headings which can give obvious guidance to readers.

The last move, ‘data analysis procedures’ in the English RAs includes two steps that are not part of the Arabic RAs. These are ‘statistical analysis model’ and ‘analysis procedures’. Therefore,

this move occupies more space in the English articles and shows more advanced statistical procedures conducted there. The two steps which appear in both the English and Arabic articles are the application of statistical tests and preliminary analysis. The step, 'statistical tests' in all articles shows what tests were applied to analyse data. The step, 'preliminary analysis' is realised in Arabic articles in the same way, unlike the English RAs, by presenting the results of testing the equivalence of the groups: the control and experimental.

It can be said also that the sequencing of moves in the Arabic RAs is essentially the same as that in the English RAs. The sequence of the moves in both English and Arabic RAs is: 1- sample of study, 2- procedures of study, 3- measure, and 4- data analysis procedures. There is an alternative pattern in which the procedures and measure are swapped around and it occurs in 65% of the Arabic RAs and in 36.1% of the English RAs. The Arabic RAs present the move, 'variables of the study' at either the start of the above sequence or just before 'data analysis procedures'.

With the exception of the 'measure' move in the Arabic RAs, there is no discernible regularity to the order in which the steps within each move appear. Some of the steps from the sample move are sometimes presented as part of the procedures move, or even in the introduction section of the article; some from the procedures move are presented as part of the sample move, or appear just before it. The steps, 'size of sample' and 'sampling design' reoccur within the second move, 'procedures' in a few English and Arabic RAs. The steps which show the time and setting of studies in the Arabic articles are given in the introduction section and are repeated within the sample move. The first step, 'design of study' of the second move, 'procedures' appears before

the sample in eight of the English RAs and in nearly half of the Arabic articles. The step, 'recounting procedures' occurs after the measure in the Arabic RAs allowing for some steps to appear again. In a few English articles, move 2, 'procedures' also appears after the measure allowing for some steps from the measure to reoccur. Thus, the importance of move 2, the 'procedures' as the core of the RAs analysed in this study can give its steps flexibility to be found under different categories in the accounts of methodology of the English and Arabic RAs.

The analysis of sequence reveals that some of the moves and steps realising the accounts of methodology of English and Arabic RAs can appear in other sections of RAs. For example, the introduction or literature review sections of English RAs include occasionally the steps: 'design of study', 'identifying interventionists', 'designing and implementing an intervention or a material' and 'identifying a measure of variables'. In Arabic RAs, move 4, 'variables of study' and some other steps occur sometimes in the introduction sections. These steps are as follows: 'size and characteristics of sample', 'place and time of study', and 'designing and implementing an intervention or a material'. The result sections of both English and Arabic RAs present frequently the whole move, 'data analysis procedures' with one or more of its constituent steps. The variable position of all of these moves and steps indicates that the accounts of methodology can be extended to sections of the RA other than the methods section. This phenomenon is perhaps a warning for readers who rely on the headings as the starting point to read and find the methodological elements of research as there could be readers who are interested in knowing only about the accounts of methodology of an RA who may begin reading only when they see a heading such as methods or procedures.

The above observations indicate that repetition of steps is not uncommon, though it occurs in significantly more of the Arabic texts than the English ones. It is possible that this repetition is a reflection in written discourse of the traditional practice in Arabic oral discourse of using it to establish rhetorical credibility (see section 7.1.1.1). The methodological steps in the Arabic articles that reoccur are: ‘size of sample’, ‘time of the study’, ‘setting and site of the study’, ‘sampling design’, ‘components of the intervention or the material’ and some sub-steps within the ‘recounting procedures’. These sub-steps restate that the sample was selected, the material or the intervention was designed and the measure was established and administered. The repetition of such sub-steps does not add any new information. However, some steps, such as ‘setting of study’ reoccur to add some information to the already mentioned, to create cohesion, or to confirm what has already been given. In a few English articles, some steps reoccur to give clearer information to readers and to establish cohesion (see section 7.1.1.1 for these observations on repetition in English and Arabic RAs). The reoccurrence here shows information about the following steps: ‘size of sample’, ‘sampling design’, ‘identify a measure of variables’, ‘procedures of implementing the intervention’ and ‘procedures of data collection’.

A feature that characterises the accounts of methodology of Arabic RAs is glossing. The writers give glossing for some Arabic phrases by adding English equivalents next to them. They presuppose that readers already know these glosses and such glosses can help those readers understand and recognise the glossed phrases. Glosses can be found with the following steps: ‘sampling design/technique’, ‘design of study’, ‘components of the intervention’, ‘testing the reliability of the measure’ and ‘statistical tests’. The writers of the Arabic RAs give the English

equivalents for the sampling technique and the statistical test because these equivalents can be part of their repertoire, so these may also be known to some readers. Moreover, it could be that the writers want to display what they know in English to be close to or be part of the elite (see section 7.1.1.2).

The transitivity analysis found examples of all of the process types in the accounts of methodology in both sets except for the behavioural one. Most of the process types that occur are either material or relational. It appears that the type of intervention implemented in a study can decide what process type is used and it even helps to establish verbal and mental processes. This analysis shows what semantic label is used to realise a step and how the same step can be realised by two different processes or by the process itself. This analysis also reveals the roles of the participants (i.e. the authors and the subjects of the RAs being reported) and their relation to the activity described. The English RAs show how different roles (e.g. actor and/or sayer) are conflated with the writer's role through the use of the first person plural pronoun 'we', a case that is not found in the Arabic RAs.

This study employs tacit knowledge as a helpful perspective to identify the assumed shared knowledge. It concludes that the English and the Arabic RAs display some cultural differences which appear in identifying the assumed shared knowledge between the writers and readers. In some cases, as the results suggest, it seems that the writers of the Arabic RAs do not articulate what they tacitly know. They assume a lot of knowledge on the part of their readers as they do not provide all the information that can help identify the referents of some nouns (see section 5.2). This may run the danger of readers building incorrect and different identifications for these

nouns and may lead to misunderstanding not only among readers beyond Arab communities, but also among readers in Arab communities. A reader from one Arab country may misunderstand a concept when it is used in a study conducted in another Arab country. As the results show, the writers of the English RAs also assume shared knowledge with their readers about some nouns or noun phrases wherein there may be a need to provide more descriptions to identify the referents of these nouns. In this aspect, it may be said that those writers tacitly know more about the terms they provide, but they do not articulate what they know. For example, the writers of the English RAs (as well as the writers of the Arabic RAs) assume that their readers are researchers who know what experimental or control groups refer to. Therefore, in all of the preceding cases, more information may be needed to help readers understand what is given. In some other cases, the writers of the Arabic RAs give some information that may be considered as part of knowledge shared with readers or can be presented in the introduction section such as the definitions. Thus, there is no need to provide some information which readers may already know. This means that what can be considered as shared knowledge can determine what to be given in texts. In other words, writers should be aware of the notion of shared knowledge to decide on the amount of information required for successful communication. Some writers appear to imagine geographically limited readership as perhaps they do not have international reach in mind.

8.2 Implications of the study

The results of this study provide insights into English and Arabic academic discourse in terms of the rhetorical features and linguistic devices and how these devices are joined together in the

accounts of methodology of the Arabic and English Educational RAs. They have some implications for research into academic discourse, for readers and writers of research and for pedagogy.

8.2.1 Implications for research into academic discourse

Researchers may use the non language-specific framework proposed in this study to analyse the accounts of methodology of RAs across different disciplines. Moreover, this framework may serve as a blueprint for researchers to conduct a cross-cultural comparison of the accounts of methodology of RAs written in other languages (see chapter six). The application of the transitivity framework in this study raises a question about the usefulness of its applicability to the accounts of methodology of RAs whose design is other than experimental or quasi-experimental. Its usefulness can also be tested by applying it to different sections of RAs written in different languages.

This study relies on different approaches and techniques in analysing the accounts of methodology of English and Arabic RAs. Firstly, it not only employs Swales' move analysis approach, but also adopts bottom-up processing to analyse the rhetorical features (moves and steps). Bottom-up processing helps identify the moves and steps by examining their realisations: the linguistic exponents. Secondly, this study uses the SF approach to analyse the lexicogrammatical features of the accounts of methodology in terms of the transitivity framework. Thirdly, tacit knowledge is employed to identify the assumed shared knowledge between writers and readers and to examine how referents are identified. Finally, Pope's (1995) 'textual

intervention' technique is used to make a change in the text and find the effect of that change on the participants (see sections 4.1 and 4.2). It is possible that these techniques may be useful for analysing all sections of journal articles

8.2.2 Implications for readers and writers of research

The analysis of the transitivity system used in this study, as it shows how one step is represented and where it is represented in a sentence, suggests that readers may benefit from the knowledge of this system. It is also possible that beginner writers may choose from the available options offered in realising the same step. Furthermore, awareness of the linguistic features is likely to be useful for informing readers about the purpose of a text segment. Also, the analysis of the linguistic features reveals that it would perhaps be wise for researchers and reviewers of Arabic journals to conduct more proofreading of RAs before publishing to make sure that there is no lack of details and the steps are realised using relevant information and the appropriate tense (see sections 4.2 and 5.2).

Finally, there is also a possibility that knowledge of the framework proposed in this study may benefit readers of RAs by building their expectations about what they will read in the accounts of methodology and by helping them understand the communicative function realised by the moves and steps. Beginner writers from the two academic cultures might also benefit from knowledge of this framework by allowing them to follow the rhetorical features they need to compose their accounts of methodology.

8.2.3 Implications for pedagogy

The detailed analysis conducted in this thesis also has the possibility of being useful for second language learners (Lim, 2006). It would, presumably, be useful for students, writers and readers to have an idea about the possible rhetorical features found in the accounts of methodology of RAs, certainly in the two languages (the English and the Arabic) and possibly more generally in other languages. This, though, would require some adaptation so that these features could be added to textbooks and teaching materials. Teachers might refer to them to develop their teaching practices by teaching students how the accounts of methodology of experimental and quasi-experimental design proceed and to help students avoid redundant cases of repetition. This addition to the teaching materials perhaps has the potential to improve beginner academic writers and students' knowledge and understanding of the organisation of the accounts of methodology and might thus enhance their writing and reading abilities of this section. Teachers need to draw students' (mainly the Arab) attention to a correct realisation of a step. Otherwise, the texts produced can confuse and distract readers. Students could perform a task of analysing a sample of methodology to find the constituent features and to examine how the textual elements are organised to develop their knowledge in producing similar texts of the same genre (Bruce, 2008).

The identification of the assumed shared knowledge conducted in this study may also be beneficial for writing teaching materials. Teachers could draw students' attention to the need to consider what information needs to be given to readers while writing their texts -and what does not. Students could put themselves in the position of readers by rereading their products after a while to make sure if what they write is clear enough and can be delivered successfully to

readers. They need to check if what they consider as shared with readers is really shared with them; otherwise, communication fails to occur. In this aspect, teaching materials could tackle the importance of using common unified terms by researchers to avoid miscommunication and show how terms can be demonstrated for readers by adding definitions or glossing, as shown in this study.

8.3 Recommendations

There are several ways in which the approach taken here might be expanded and refined. As a way of testing the wider applicability of some of its aspects, it would be instructive for researchers to conduct further research in which they analyse all of the main sections (Introduction, Method, Result and Discussion) of RAs in English and Arabic and, as suggested above, in other different disciplines. Researchers might also analyse RAs whose design is different from the one dealt with in this study and find whether the research design influences the rhetorical features of these RAs. Other studies may compare RAs of Arabic and other academic cultures. Researchers might also test whether the framework proposed by this study is applicable to the accounts of methodology of other RAs from other soft disciplines. Further, they might test to what extent this framework can cover the accounts of methodology of RAs drawn not only from soft disciplines, but also from hard disciplines. With this knowledge, the framework could perhaps be used to compare these disciplines and find what methodological aspects these disciplines differ in and whether this framework misses any elements.

8.4 Limitations of the study

The current study deals with a qualitative analysis and it provides descriptive statistics to describe the occurrence frequency of steps. The reason for this is that the size of sample makes it difficult to generalise about the population that the sample represents. Another limitation is that this study deals only with Educational RAs that allowed collecting data published in Arabic as researchers in other scientific fields publish their articles in English.

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Appendices

Appendix 1: presence and absence of the steps in the English RAs

	M1	M1	M1	M1	M1	M1	M2	M2	M2	M2	M2	M3	M3	M3	M3	M3	M3	M4	M4	M4	M4	
Journal	S1	S2	S3	S4	S5	S6	S1	S2	S3	S4	S5	S1	S2	S3	S4	S5	S6	S1	S2	S3	S4	
JREE1	+	+	+	+	+	-	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	
JREE2	+	+	+	+	+	-	+	+	+	-	+	+	-	-	+	+	+	+	+	+	-	+
JREE3	+	+	+	+	+	-	+	+	+	-	+	+	-	-	+	+	+	+	+	+	+	+
JREE4	+	+	+	+	+	-	+	+	+	+	+	+	-	-	+	+	+	+	+	+	+	+
JRST1	+	+	+	+	+	-	+	+	+	+	-	+	+	+	-	+	+	-	+	-	+	+
JRST2	+	-	-	-	+	-	+	+	+	+	-	+	+	-	-	+	+	-	+	-	+	+
JRST3	+	+	+	+	+	+	+	+	+	-	-	+	+	+	+	+	+	+	+	+	+	+
JRST4	+	+	+	-	+	-	+	+	+	-	-	+	+	-	-	+	+	-	+	-	+	+
JRST5	+	+	+	+	+	-	+	+	+	-	-	+	+	+	+	+	+	-	+	-	+	+
JRST6	+	+	+	+	+	-	+	+	+	+	+	+	-	-	+	+	-	-	+	+	+	+
JRST7	+	+	+	+	+	-	+	+	+	-	-	+	+	+	+	+	+	+	+	+	-	+
EARL11	+	+	+	+	+	+	+	-	+	+	-	+	+	-	-	+	+	-	+	-	-	-
EARL12	+	+	+	+	+	+	+	+	+	+	-	+	+	-	+	+	+	+	+	+	+	+
EARL13	+	+	+	+	+	+	+	-	+	+	-	+	+	-	-	+	+	-	+	-	-	-
EARL14	+	+	+	+	+	+	+	-	+	+	-	+	+	-	+	+	+	-	+	-	-	-
EARL15	+	+	+	+	+	-	+	+	+	+	-	+	+	-	-	+	+	-	+	-	+	+
EARL16	+	+	+	+	+	-	+	+	+	+	-	+	+	+	+	+	+	-	+	-	-	-

EARLI7	+	-	-	+	+	+	-	-	+	-	-	+	+	+	+	+	-	+	+	-	+
EARLI8	+	+	+	+	+	+	+	-	+	+	-	+	+	-	-	+	+	+	+	-	+
EARLI9	+	+	+	+	+	-	+	+	+	+	-	+	+	-	+	+	+	+	+	-	+
EARLI 10	+	-	+	+	+	+	+	+	+	+	-	+	+	-	-	+	-	+	+	-	-
EARLI 11	+	-	+	+	+	-	+	-	+	+	-	+	+	-	-	+	+	-	+	-	+
EARLI 12	+	+	+	+	+	-	+	-	+	+	-	+	+	-	-	+	+	+	+	-	-
EARLI 13	+	+	+	+	+	-	+	+	+	-	+	+	+	-	+	+	+	+	+	-	+
EARLI 14	+	+	+	+	+	+	+	+	+	+	-	+	+	-	+	+	+	+	+	-	-
EARLI 15	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+
EARLI 16	+	+	+	+	+	-	+	+	+	+	-	+	+	-	-	+	+	-	+	+	+
EARLI 17	+	+	+	-	+	-	+	+	+	+	-	+	+	+	-	+	+	+	+	-	+
EARLI 18	+	-	+	-	+	-	-	-	+	+	-	+	+	-	-	+	+	-	+	+	+
EARLI 19	+	+	+	+	+	-	+	-	+	+	-	+	+	+	-	+	+	-	+	-	+
EARLI 20	+	+	+	+	+	+	+	+	+	+	-	+	+	-	+	+	+	-	+	+	+
EARLI 21	+	+	+	+	+	+	+	+	+	+	-	+	-	-	-	+	+	+	+	-	+
EARLI 22	+	-	+	+	+	-	+	-	+	+	-	+	-	-	-	+	-	-	+	-	+
EARLI 23	+	-	+	+	+	+	+	-	+	+	-	+	+	-	+	+	+	-	+	-	+
EARLI 24	+	+	+	+	+	+	+	-	+	+	-	+	+	-	+	+	+	-	+	-	+
EARLI 25	+	-	+	+	+	-	+	+	+	+	-	+	+	-	+	+	+	-	+	-	-
Total	36	28	34	32	36	13	34	24	36	28	7	36	30	9	20	36	32	16	36	10	28
							(4)	(1)	(4)			(2)					(5)	(19)	(3)	(10)	

Appendix 2: presence and absence of the steps in the Arabic RAs

Journal	M1	M1	M1	M1	M1	M1	M2	M2	M2	M2	M2	M3	M3	M3	M3	M4	M5	M5
	S1	S2	S3	S4	S5	S6	S1	S2	S3	S4	S5	S1	S2	S3	S4		S1	S2
JJES 1	+	+	+	-	+	-	+	+	+	+	+	+	+	+	+	+	+	-
JJES 2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
JJES 3	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+
JJES 4	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	-
JJES 5	+	+	+	+	+	+	+	-	+	+	+	+	+	+	-	-	+	-
JJES 6	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
JJES 7	+	+	+	+	+	+	+	-	+	+	+	+	+	+	-	-	+	-
JJES 8	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
JJES 9	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
JJES 10	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
JJES 11	+	+	+	+	+	+	+	-	+	+	-	+	+	+	+	+	+	-
JJES 12	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
JRE 1	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	-	+	+
JRE 2	+	+	-	+	+	+	+	+	+	+	+	+	+	+	-	-	+	-
JRE 3	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+
JRE 4	+	+	+	+	+	+	+	+	+	-	-	+	+	+	-	+	+	-
JRE 5	+	+	+	-	+	+	+	+	+	+	-	+	+	+	-	-	+	-
JRE 6	+	+	+	+	+	+	+	+	+	+	+	-	-	-	+	+	-	
JRE 7	+	+	-	+	+	+	+	+	+	+	+	+	+	+	-	+	-	
JRE 8	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	+	-
JRE 9	+	+	-	+	+	-	+	-	+	-	+	+	-	+	-	-	+	-

JRE 10	+	+	-	+	+	+	+	+	+	+	-	+	+	+	-	-	+	-
JEPS 1	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+
JEPS 2	+	+	+	+	+	+	+	-	+	+	-	+	+	+	+	+	+	+
JEPS 3	+	+	+	+	+	+	+	-	+	+	+	+	+	+	-	+	+	+
JEPS 4	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	-
JEPS 5	+	+	+	+	+	+	+	+	+	+	-	+	+	+	-	+	+	+
JEPS 6	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	-	+	-
JEPS 7	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+
JEPS 8	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	-
JEPS 9	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	-
JEPS 10	+	+	+	+	+	+	+	-	+	+	-	+	+	+	-	+	+	+
JEPS 11	+	+	-	+	+	+	+	+	+	+	+	+	+	+	-	-	+	+
JEPS 12	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	-	+	+
JEPS 13	+	+	+	+	+	+	+	-	+	-	-	+	+	+	+	+	+	+
JEPS 14	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+
JEPS 15	+	+	-	+	+	+	+	+	+	+	-	+	+	+	-	-	+	+
JEPS 16	+	+	+	-	+	+	+	-	+	+	+	+	+	+	+	+	+	+
JEPS 17	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
JEPS 18	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+
Total	40	40	34	37	40	36	40	23	40	37	31	40	38	39	26	24	40	23
	(1)	(1)		(9)	(3)				(3)						(1)	(18)	(6)	

Notes: 1- M stands for move and S stands for step. For example, M1 S4 means step four under the first move.

2- The + sign points to the presence of a step whereas the - sign indicates the absence of a step.

3- The brackets show how many RAs include a step outside the methods section.