CHAPTER 4

RESULTS

This chapter presents the results of the main study according to the research questions which deal with the issues in the following parts:

1) rhetorical moves in Agricultural Science RAs and

2) lexical bundles in each move in Agricultural Science RAs

4.1 Rhetorical Moves in Agricultural Science Research Articles

In response to the first research question: "What are the overall rhetorical move structures in Agricultural Science Research Articles?" the analysis of the moves in 30 Agricultural Science RAs was considered as evidence for answer to this question. Table 4.1 summarizes the rhetorical moves in Agricultural Science RAs. (✧indicates the new moves found in the present study)

Table 4.1 Rhetorical Moves of Agricultural Science RAs

Move/Step	Introduction Section
Move 1	**Stating why the topic is important**
Step 1	Commenting on the importance of the topic
Step 2	Making topic generalizations
Step 3	Reviewing previous research
Move 2	**Indicating a research gap**
Move 3	**Introducing the present study**
Step 1	Stating purpose(s)

Table 4.1 Rhetorical Moves of Agricultural Science RAs (Cont.)

Move/Step	Methods Section
Step 2	Describing procedures
Step 3	Presenting findings
Move 4	**Describing materials**
Step 1	Listing materials
Step 2	Detailing the source of the materials
Step 3	Providing the background of the materials
✧ Step 4	Describing the location where the study was conducted
Move 5	**Describing experimental procedures**
Step 1	Documenting established procedures
Step 2	Detailing procedures
Step 3	Providing the background of procedures
Move 6	**Detailing equipment**
Move 7	**Detailing statistical procedures**
✧ **Move 8**	**Describing the mathematical modeling of the system**
Step 1	Detailing the mathematical methods used
Step 2	Detailing assumptions for the model
Move/Step	**Results Section**
Move 9	**Stating procedures**
Step 1	Describing aims and purpose(s)
Step 2	Making hypotheses
Step 3	Listing procedures or research methodologies
Move 10	**Justifying procedures or methodology**
Step 1	Detailing what methods (similar to these) that people used before
Step 2	Commenting on whether the method yielded successful results
Move 11	**Stating results**
Move 12	**Commenting on the results**
Step 1	Explaining reasons why these results occur
Step 2	Making generalizations or interpretations of the results

Table 4.1 Rhetorical Moves of Agricultural Science RAs (Cont.)

	Results Section
Step 3	Evaluating the current findings against those from previous studies or with regard to the hypotheses
Step 4	Stating limitations
Step 5	Summarizing
	Discussion Section
Move 13	**Contextualizing the study**
Step 1	Stating what is already known from previous studies
Step 2	Detailing conclusions based on analyses from previous studies
✧ Step 3	Restating the aims of the study
Move 14	**Consolidating results**
Step 1	Restating the methodology
Step 2	Stating selected findings
Step 3	Referring to previous literature
Step 4	Explaining differences in findings
Step 5	Making overt claims or generalizations
Step 6	Exemplifying
Move 15	**Stating the limitations of the present study**
Step 1	Limitations of the findings
Step 2	Limitations of the methodology
Step 3	Limitations of the claims made
✧ Step 4	Limitations of previous studies
Move 16	**Suggestions for further research**

The structure of 16 moves of Agricultural Science RAs is reported in Table 4.1. Three moves were found in the Introduction section, five in the Methods section, four in the Results section and four in the Discussion section. New moves were found in this study, including Move 4, Step 4 *Describing Location where the study was conducted,*

Move 8 *Describing the mathematical modeling of the system*, Steps 1 & 2, Move 13, Step 3 *Restating the aims of the study* and Move 15, Step 4 *Limitations of previous studies*; however, some moves which were identified in Kanoksilapatham's (2005) framework were not found in the present study, including *Raising a question* in the Introduction section and *Stating research questions* and *Invalidating results* in the Results section.

4.1.1 The Introduction Section

The structure of the Introduction section is presented in Table 4.2 in terms of functions and move frequency.

Table 4.2 Rhetorical Moves of the Introduction Section of Agriculture Science RAs

Move/Step		N	n	%
Move 1	**Stating why the topic is important**			
Step 1	Commenting on the importance of the topic	30	30	100
Step 2	Making topic generalizations	30	30	100
Step 3	Reviewing previous research	30	30	100
Move 2	**Indicating a research gap**	**30**	**22**	**73.33**
Move 3	**Introducing the present study**			
Step 1	Stating purpose(s)	30	25	83.33
Step 2	Describing procedures	30	16	53.33
Step 3	Presenting findings	30	10	33.33

Note: **N** refers to the total number of RAs analyzed in this study, **n** refers to the number of RAs containing the move specifically identified, and **%** refers to the frequency of occurrence of a move.

Altogether 3 moves were identified in the Introduction section. Their frequency of occurrence was 100%, 73.33% and 100% respectively. According to Kanoksilapatham (2005), if the frequency of a move occurrence is 100%, it is obligatory. If the occurrence of a move is below 60%, it is optional. On the other

hand, the move should be considered conventional if the occurrence ranges from 60% to 100%. Therefore, Move 1 and Move 3 are obligatory, while Move 2 is conventional in the present study.

Move 1: Stating why the topic is important

Move 1 covers 3 steps. Move 1 is present in 30 Introductions and is deemed obligatory in this study. The realization of Move 1, Steps1-3 is illustrated in the following examples:

Move 1, Step 1: Commenting on the importance of the topic

It introduces the importance of a topic in general. Some frequent lexis or phrases used in Step 1 indicate the function of this step, such as, *play a role, impact, known* and so on. The present tense and the present perfect tense were found to be common in Step 1.

Examples: 1) Recently, use of information on identified genes in breeding programmes has been extensively studied. (A9)

2) Furthermore, because food allergies are potentially fatal, they are considered clinically significant and very dangerous immune-mediated disorders. (F8)

Move 1, Step 2: Making topic generalizations

This elaborates the importance of the topic in detail.

Examples: 1) Information on the genotype of an animal for such major genes plays an increasing role in future animal breeding programmes. (A9)

2) The spermatogenesis associated 1 (SPATA 1) protein is also thought to be involved in spermatogenesis. (A1)

Move 1, Step 3: Reviewing previous research

This gives background evidence from previous research to support Move 1, Step 1. The key words or frequent lexical bundles indicate the function of Step 3, such as, *reported, proposed, described,* and *have been shown to* and so on. The present perfect tense is predominant in Move 1, Step 3. This step functions to review what people have done in the relevant field before identifying a research gap. Therefore, the present perfect tense frequently occurs.

Examples:1) Polyethylene glycol (PEG) has been commonly used in studies to determine effects of tannins on silage preservation and animal metabolism (Villalba and Provenza, 2002; Ben Salem et al., 2003) as PEG binds to tannins to inhibit their biological action. (A7)

2) Many animal models to study immune and allergic responses to milk proteins are described in the literature (Li et al., 1999; Miller et al., 1999; Adel-Patient et al., 2005). (F8)

In the analysis, it was difficult to distinguish Step 1, Step 2 and Step 3 of Move 1 because the general function of Move 1 is to present the theoretical background. It shows the richness of current literature in the field of Agricultural Science. Move 1, Step 2: *Making topic generalizations* and Move 1, Step 3: *Reviewing previous research* are quite extensive in an agricultural context. According to Ozturk (2007), the reason for this might be that researchers want to provide more theoretical background to facilitate reading about the issues investigated. On the

other hand, the Step *review of previous research* was not always used in the RAs of Computer Science. Cooper (1985) indicated the reason for this omission could be that it is a relatively new discipline. Move 1, Step 1 is also invariably present in Kanoksilapatham's (2005) work which is most likely due to the fact that biochemistry and Agricultural Science are related disciplines.

Move 2: Indicating a research gap

This move elaborates a gap between existing research and previous research. Twenty-two out of thirty Introductions have Move 2. The frequency of use is 73.33%. The key words identified in Move 2 are some negative nouns or adjectives, such as, *little*, *few* and *unknown*, indicating a research gap. It should be that the present tense with active voice, the present perfect tense with passive voice and the past tense with the active voice were found in Move 2. The percentages of the three tenses were 40% (12 out of 30 RAs), 33.33% (10 out of 30 RAs) and 26.67% (8 out of 30 RAs) respectively. The realization of Move 2 is illustrated as follows:

Examples: 1) However, the effects of extruded linseed on the FA composition of beef and, in particular, dairy-origin bulls has not been extensively studied, although Barton et al. (2007) reported decreased saturated FA and increased PUFA concentrations in purebred beef heifers fed extruded linseed. (A8)

2) The mechanism underlying milk allergy is not completely understood at present. (F8)

3) Unfortunately, the limited sampling and poor resolution of the molecular

markers provided little decisive information about the actual evolutionary relationship between them. (A2)

Move 2 in Kanoksilapatham's (2005) study contains 2 steps: Step 1: *Indicating a research gap* and Step 2: *Raising a question*. But *Raising a question* was not found in the present study.

Move 3: Introducing the present study

This move consists of 3 steps in this study. Step 1: *Stating purpose(s)* describes the objective of the study. Step 2: *Describing procedures* focuses on the main features of the research methods or experiments in the study. And Step 3: *Presenting findings* reports the research findings.

Move 3, Step 1: Stating Purpose(s)

This is a conventional step, which is indicated by lexis, such as, *aim*, *goal*, *objective* and *purpose*. The past tense is commonly found in Move 3, Step 1.

Example:1).The objective of this analysis was to develop intragenic single nucleotide polymorphisms (SNPs) for the SPATA 1 gene and then to test informative SNPs for significant associations with the least square means (LSM) of the pregnancy rate per oestrus and breeding values (BVs) of the paternal and embryonic component of the pregnancy rate per oestrus of stallions. (A1)

2). The aim of the current research was to study the influence of water washing and of a treatment with PAA, 80 and 250 mgL $^{-1}$*, on the shelf-life of grated carrots as well as on their sensory quality and nutrient content (carotenoids, phenols and antioxidant capacity) throughout storage. (C6)*

Move 3, Step 2: Describing procedures

This step states the main features of the methods section of the study. The past tense is predominant in Move 3, Step 2; meanwhile the present tense is occasionally used.

Examples: 1) The required adapters and primers were synthesized de novo and were used in the method which we will refer to as random amplification of genomic end (RAGE). (C8)

2) Additionally we measured the effect of frying on the δ^2 *H- and* δ^{18} *O-composition of meat water in meat slices (as steaks and schnitzels). (F5)*

Move 3, Step 3: Presenting findings

This is an optional step but it is frequently present in biochemistry RAs. As noted by Kanoksilapatham's (2005) investigation, Move 3, Step 3: *Presenting findings* was commonly used in biochemistry Introduction sections because it was used to motivate readers to read further in order to understand the research procedure.

Example: 1) We describe studies on the expression of this promoter using a GUS reporter in the anthers of transgenic rice. (C8)

2) Further characterization of the promoter was carried out by 5'deletion analysis of the promoter in A. thaliana. (C8)

To sum up, Move 1, Step 1: *Commenting on the importance of the topic* is always present in the topic sentence. After the introductory statement, the writer provides more detailed description and introduces evidence from previous studies to support the present study. Then, a research gap is identified by key words, such as

little, *available*, *few*, *unknown* and *clear*. Finally, *aim, purpose, objective, goal* are often used to indicate the purpose of the present study. M1-M2-M3 move structure is a predominant model in the present study. This is consistent with Ozturk's (2007) study which found that M1-M2-M3 move structure is commonly employed in the hard sciences. In addition, in the 30 research articles, M1-M2-M1-M3 and M1-M3 move structures are also occasionally employed.

Some interesting aspects are found in the Introduction section. First, Move 1, Step 1 is often found with Move 1, Step 3: *Reviewing previous research* in the topic sentence. For instance, in the following example, the author introduced an important topic (Move 1, Step 1) and reviewed a previous study (Move 1, Step 3).

Immediate hypersensitivity response to food, commonly called food allergy, affects 6% of children and 3 to 4% of adults in westernized countries including the United States (Sicherer and Sampson, 2008). (F8)

Second, the passive voice or active voice with the 3rd person inanimate subject was predominant in the Introduction section. Third, the first person pronoun *we* was found to be common in Move 3. Altogether, 18 out of 25 RAs containing Move 3 have the occurrence of *we*. For instance, the author described the procedure of the study in the following example.

Here, we have characterized the function roles of DgHsp90 as a molecular chaperone. (C9)

This finding was similar to early observations in Samraj's (2008) study, which investigated the use of the 1st person pronoun in 3 disciplines, biology, philosophy and linguistics.

The investigation revealed that most of the usages of the 1st person pronoun were found in the third move of the Introduction section in all 3 disciplines.

4.1.2 The Methods Section

Table 4.3 reports the structure of Methods section of Agricultural Science RAs and frequency of move occurrence.

Table 4.3 Rhetorical Moves of the Methods Section of Agriculture Science RAs

Move/Step		N	n	%
Move 4	**Describing Materials**			
Step 1	Listing Materials	30	28	93.33
Step 2	Detailing the source of the materials	30	27	90
Step 3	Providing the background of the materials	30	15	50
Step 4	Describing the location where the study was conducted	30	4	13.33
Move 5	**Describing experimental procedures**			
Step 1	Documenting established procedures	30	28	93.33
Step 2	Detailing procedures	30	30	100
Step 3	Providing the background of procedures	30	27	90
Move 6	**Detailing equipment**	**30**	**20**	**66.67**
Move 7	**Detailing statistical procedures**	**30**	**19**	**63.33**
Move 8	**Describing the mathematical modeling of the system**			
Step 1	Detailing the mathematical methods used	30	5	16.67
Step 2	Detailing assumptions for the model	30	4	13.33

Note: **N** refers to the total number of RAs analyzed in this study, **n** refers to the number of RAs containing the specific identified move, and **%** refers to the frequency of occurrence of a move.

Altogether, 5 moves were found in the Methods section. Among the 5 moves, Move 4, Move 6 and Move 7 are conventional, Move 5 is obligatory and Move 8 is optional. Move 5, Step 2 is obligatory because this step functions to present the details of the experimental procedure.

Move 4: Describing materials

This move provides some detailed information relevant to materials used in the experimental procedure, consisting of 4 steps. Step 1: *Listing materials* describes what materials will be used. Step 2: *Detailing the source of the materials* states how the materials used in the experiment are obtained. Step 3: *Providing the background of the materials* details some features of the materials. Step 4: *Describing location where the study was conducted* is a new step, which is used to describe the location of an experimental site in an agricultural context. However, this step was not found in Kanoksilapatham's (2005) study.

Move 4, Step 1: Listing materials

The materials in the study are normally given at the beginning of the Method section, 28 out of 30 RAs having Move 4, Step 1.

Examples: *1) Within this study Chriox5 (Christeyns N.V., Ghent, Belgium) was used as a PAA-based sanitizer. (C6)*

2) Two-week-old orchardgrass, seedlings were used for abiotic stress treatments. (C9)

The illustration of the materials was described by the use of the past tense. The word *use* is the most frequent word with 500 occurrences in the Methods section. This is in contrast to the finding of William (1996)'s investigation. In his study, *use* occurred in the statement narrowing the scope of the research, as in the following example (p.190):

Simple pathologic features can be used to identify patients at high risk of early relapse.

Move 4, **Step 2: Detailing the source of the materials**

This step presents the way the materials used in the experiment were obtained. For instance, the material was purchased or given by an organization.

Examples: *1) A batch of 18 kg of carrots (Daucus carota L.) was obtained from a local wholesale business (Van Landschoot, Ghent, Belgium). (C6)*

2) Milk whey protein extract was purchased from Greer Labs (Lenoir, NC). (F8)

Move 4, Step 1 frames the introduction of the materials used in the experiment. It always occurred in the initial sentence of the Methods section with Move 4, Step 2 in a past tense. 17 out of 30 RAs have the combination of Move 4, Step 1 plus Move 4, Step 2.

Example: Orchard grass (Dactylis glomerata L. cv. Potomac) seeds were purchased from Snow Brand Seed Co. Ltd. (Sapporo, Japan). (C9)

Move 4, Step 3: Providing the background of the materials

This step details the background information of the materials using the past tense.

Examples: 1) The pH of these solutions was 5.74 and 4.42, respectively. The concentration used was selected based on their effectiveness in a screening experiment. (C6)

2) Of 151 animals with known gender, 49% (73) were females and 51%

(78) were males (Table 1). The weight of most animals (120/148) varied between 20 and 60 kg (Table 2). (F3)

Move 4, Step 4: Describing the location where the study was conducted

This step states the location of the farm or experimental field where the study was conducted. Interestingly, the present tense is also commonly used in this step in addition to the past tense.

Examples: 1) The experimental site is located on a sandy glacial outwash plain in the Cedar Creek Natural History Area, Minnesota, USA. (A5)

2) Field studies were conducted at the Experimental Farm of Faculdade de Ciencias Agrarias a Veterinarias-UNESP,Brazil, 21º 155, 48º 19'E, 605m attitude, from November 2002 to June 2003. (A7)

The key words or phrases commonly used in Move 4, Steps 1-3, are: such as, *obtained, consisted of* and *was made up of*, indicating obvious signals that a new topic is being introduced. The marker found in Move 4, Step 4 referred to a place signaling the function of this step, such as *field, experimental site, located* and so on.

Move 5: Describing experimental procedures

Move 5 consists of 3 steps. Step 1: *Documenting established procedures* reviewed the previous research methods in other articles. Step 2: *Detailing procedures* is a description of the experimental procedure used and Step 3: *Providing the background of procedures* reports an analysis of the procedures used.

Move 5, Step 1: Documenting established procedures

In Move 5, Step 1, frequent prepositional phrases, such as, *by means of, according to,* etc, indicated the evidence supported by the previous research. This realization often occurred in the topic sentence which introduced an experimental process that has already been established in previous research.

Examples: 1) The packaging configuration was designed by means of the procedure of Jacxsense et al. (1999). (C6)

2) Clinical scoring (on a scale of 0 to 5) was performed by 2 individuals according to the method described previously (Li et al. 2000). (F8)

Move 5, Step 2: Detailing procedures

Move 5, Step 2 describes what was done in the procedures for the experiment, so the past tense was commonly used.

Examples: 1) The sex of calf effect was randomly assigned to either male or female for all animals with censored records. (A3)

2) Meat slice samples and sub-samples from the meat were cut into small pieces, put into a centrifuge and centrifuged for 20 min at 6500 rpm. (F5)

Outside the theoretical background, most of the key words in Move 5, Step 2 are procedural verbs, such as, *carried out, analyzed, performed, measured,* etc, which are always used in the passive voice to allow for a better flow of information. On the other hand, when procedural verbs are collocated with a prepositional phrase fragment or reference, they performed the function of Move 5, Step 1.

Examples: 1) The packaging configuration was designed by means of the procedure of

Jacxsens et al. (1999). (C6)

2) Serum samples from the intensive blood sampling periods (Experiment 1) were analyzed for concentrations of LH by RIA using methodology described by Perry and Pery [13]. (A3)

Move 5, Step 3: Providing the background of the procedures

This step functions to state the analysis of the experimental procedure or make comments on the whole experiment, while the word *conduct, approve, or approval* which frequently occurred in this section indicates this function. This step is often used in the passive voice to introduce the subject.

Examples: 1) The experiment was conducted under the approval of Obihiro University of Agriculture and Veterinary Medicine Animal Care and Use Committee. (A9)

2) Evaluation of the microbiological quality of the carrots during the shelf-life was performed by means of determining the counts of the main groups of spoilage micro-organisms: aerobic bacteria, lactic acid bacterial, Lactobacillae and yeasts. (C6)

Move 6: Detailing equipment

This move illustrates what equipment was used in the experiment. Twenty out of thirty Methods were found to have this move. It states information related to the apparatus used for an experiment, therefore, the lexical bundles identified in Move 6 were expressed by a passive verb plus a prepositional phrase in connection with the apparatus.

Examples: 1) Finnigan MAT 251 and Finnigan Delta + XL, each of which was coupled to an automatic equilibration device equipped with pneumatic valves (manufacturer: Finnigan and Parcom). (F5)

2) The PCR fluorescence was detected using the iQ5 Multicolor Real-Time PCR Detection System (BioRad). (F3)

Move 7: Detailing statistical procedures

This step describes the statistical procedures. It is frequently used in Agricultural Science with 19 out of 30 Methods containing Move 7.

Examples: 1) Cluster analysis was used to determine area under the LH curve, average concentration of LH, and LH pulse frequency. (A3)

2) Data were analyzed using PROC GLM of SAS (2001) to evaluate main effects and significant interactions were followed-up to determine simple effects, at a 5% significance level using Tukey's test. (A7)

To be specific, this move functions to inform the readers about the procedure of the statistical analysis so that anyone who wants to check the results can repeat the process. Sometimes the reader may have doubts about the results presented. In this case, he or she may want to repeat the computational process to see whether the same result will be obtained. The statistical procedures were detailed in the past tense and in the passive voice. Move 6 and Move 7 are conventional in the present study whereas they are optional in the biochemistry RAs. One suggested reason for this difference might be that apparatuses and statistical procedures in Agricultural Science are much more commonly used.

Move 8: Describing the mathematical modeling of the system

Move 8 was found in the Agricultural Science RAs. Seven out of thirty Methods Section contain this move. Move 8 has two steps, including *Detailing the mathematical methods used* and *Detailing assumptions for the model*.

Move 8, Step 1: Detailing the mathematical methods used

This step illustrates the mathematical modeling of the system in the present tense. The function of this step is to frame the details of the mathematical model.

Examples: 1) Newborns are needed for replacement. Assuming a sex ratio of 0.5, the number of males and females sold with genotype i at time period t ($MS_{i,t}$, $FS_{i,t}$) can be calculated as: $MS_{i,t} = \frac{1}{2}O_{i,t} - MR_{i,t}$ *with i = 1 to 3*

$$FS_{i,t} = \frac{1}{2}O_{i,t} - FR_{i,t} \text{ with } i = 1 \text{ to } 3 \qquad (A9)$$

2) The objective function of mate selection is the cumulative discounted performance (CDP), which is calculated as:

$$CDP = \sum_{t-1}^{h} \frac{\sum_{i=1}^{3}(MS_{i,t}g_i + FS_{i,t}g_i)}{(1+dr)^{t-1}} \qquad (A9)$$

Move 8, Step 2: Detailing assumptions for the model

The past tense and present tenses with 3rd person subject were commonly found in this step.

Examples: 1) It was assumed that c, Pp, and R were uncorrelated. (F4)

2) It is assumed that all males in age class v to m and all females in age class w to f were used as parents for the next generation. (A10)

In conclusion, the passive voice form was found to predominate in the

Methods section in order to avoid the use of the first person pronoun. In addition, the past tense was widely used to explain the experimental procedure. The present tense was commonly used in Move 8 as well.

4.1.3 The Results Section

The structure of the Results section of Agricultural Science RAs is summarized in Table 4.4

Table 4.4 Rhetorical Moves of the Results Section of Agriculture Science RAs

Move/Step		**N**	**n**	**%**
Move 9	Stating procedures			
Step 1	Describing aims and purpose(s)	30	16	53.33
Step 2	Making hypotheses	30	8	26.67
Step 3	Listing procedures or research methodologies	30	20	66.67
Move 10	Justifying procedures or methodology			
Step 1	Detailing what methods (similar to these) that people used before	30	10	33.33
Step 2	Commenting on whether the method yielded successful results	30	10	33.33
Move 11	Stating results	**30**	**30**	**100**
Move 12	Commenting on the results			
Step 1	Explaining reasons why these results occur	30	19	63.33
Step 2	Making generalizations or interpretations of the results	30	21	70
Step 3	Evaluating the current findings against those from previous studies or with regard to the hypotheses	30	12	40
Step 4	Stating limitations	30	10	33.33
Step 5	Summarizing	30	10	33.33

Note: **N** refers to the total number of RAs analyzed in this study, **n** refers to the number of RAs containing the specific move identified, and **%** refers to the frequency of occurrence of a move.

Altogether 4 moves were identified in the Results section, namely, Move 10: *Justifying procedures or methodology* which is optional, Move 11: *Stating results* which is obligatory, and Move 9 and Move 12 which are conventional.

Move 9: Stating procedures

Move 9 describes the experimental procedures used in the research. It consists of 3 steps. Step 1: *Describing aims and purpose(s)* states the objective of the research methods or the experimental procedures, Step 2: *Making hypotheses* reports hypothetical statements, and Step 3: *Listing procedures or research methodologies* describes the details of the procedures or research methods used to collect the data.

Move 9, Step 1: Describing aims and purpose(s)

Some linguistics features can signal the function of Move 9, Step 1, such as, the use of an infinitive phrase and some key words like *aim, purpose, objective etc.*

Examples: 1) To understand the function of this monocot promoter in dicots, the model plant A.thaliana was selected. (C8)

2) Rice transformation was necessary to ascertain the functionality of the isolated putative promoter fragment. (C8)

Move 9, Step 2: Making hypotheses

It occurs in 8 out of the 30 RAs and it is an optional step.

Examples: 1) We therefore hypothesized that overexpression of various histones could protect incoming transgene DNA and that increased transgene stability was the cause of increased transgene expression. (C2)

2) It can be assumed that the elements observed arise from the glucose units of starch, OSA, etc. (F7)

Move 9, Step 3: Listing procedures or research methodologies

Verbs indicating the procedures are used to recount sampling activities. Although active verbs can be employed to report data collection procedures, passive verbs appear to be more common in experimental procedures.

Examples: 1) We performed dose-response and time-course experiments and analyzed antibody responses in mice following transdermal exposure to milk protein. (F8)

2) As a result no sensory evaluation was conducted on the unwashed carrots on day 7. (C6)

Kanoksilapatham (2005) found a Step *Stating research questions* in the Results section. However, this step was not found in the present study. The co-occurrence of Move 9, Steps 1 & 3 is quite common in the Results section.

Example: *To determine number of copies of T-DNA, (*Move 9, Step 1) *the genomic DNA was digested with EcoRI and the blot was probed with the 1.1 kb Xhol digest of the the plasmid pCAMBIA 1305.1 which is the hph gene fragment.* (Move 9, Step 3) *(C8)*

Move 10: Justifying procedures or methodology

Move 10 provides the theoretical reasons for the experimental procedures or research methods, containing 2 steps, including Detailing methods (similar to these) that people used before and Commenting on whether the method yielded successful results.

Move 10, Step 1: Detailing methods (similar to these) that people used before

The established knowledge of the experimental procedure was described in Move 10, Step 1. This step is used to explain why researchers choose a particular method in their study.

Examples: 1) The genome walking technique which we refer to as random amplification of genomic end (RAGE) is a well-demonstrated tool for the isolation and cloning of genomic regions flanking a known sequence. (C8)

2) The Universal Genome Walker kit of Clontech (Clontech Laboratories, Inc., Palo Alto, CA, USA) is the most commonly used kit for the purpose. (C8)

Move 10, Step 2: Commenting on whether the method yielded successful results

This step functions to make comments on the findings of previous research. Ten out of thirty RAs have Move 10, Step 2.

Examples: 1) The method has been previously used by other groups to isolate other promoters from other plants [14-16]. We have also used this method to isolate a stress inducible promoter from different species of wild rice in a separate study. (C8)

2) We found 39 intragenic SNPs for SPATA1 in the SNP-tables of the Broad Institute. All these SNPs were in intronic regions except for BIEC2-968877 and BIEC2-968878, which were located in the untranslated region (UTR) of exon 1. (A1)

Move 11: Stating results

Move 11 functions to present the findings of the study. Conventionally, this move is obligatory in any study. General inanimate nouns (data, Table, Figure) which

are “given” in Move 11 are useful as topic introducers. The realization of Move 11 is shown as follows:

Examples: 1) The proliferation of the main groups of spoilage microorganisms on untreated and water-washed grated carrots and on carrots, disinfected with PAA, is presented in Fig.2. (C6)

2) In addition, the chaperone activity of GST-DgHsp90 was dramatically decreased compared to that in the absence of GA (Fig. 4C). (C9)

Interestingly, the co-occurrence of Move 9 and Move 11 is quite common in this section. That is, the co-occurrence was found in 18 out of 30 RAs. The realization is shown as follows:

Example: *We tested the additive and dominance effects of BIEC2-968854 for heterogeneity among half-sib families using an extended model where the genotype by half-sib family effect was included in addition to the other effects.*(Move 9, Step 3) *Here, we included only those six families where all three genotypes were present.* (Move 9, Step 3) *The genotype by half-sib family interaction was only significant for embryonic components of BVs (P=0.0017).* (Move11) (A1)

The example shows that Move 9 bridges the Introduction section/Methods section and Results section, which restates the aims or purpose of the study and the experimental procedures before reporting the findings of the study.

Move 12: Stating comments on the results

This move has 5 steps, including Step 1: *Explaining the reasons for these*

results, Step 2: *Making conclusions from the results*, Step 3: *Evaluating the current findings against those from previous studies or with regard to the hypotheses*, Step 4: *Stating limitations* and Step 5: *Summarizing*.

Move 12, Step 1: Explaining reasons why these results occur

This step frames the explanations accounting for the results. The analysis revealed that the most frequent words used to explain reasons in Move 12, Step 1 is *due to* with 232 occurrences. The words *due to* are frequently collocated with the 3rd person subject, such as, *this difference*, *this variation*, or *this*, explaining the results presented in Move 11. Two examples are shown as follows:

Examples: 1) This is partly due to the fact that cows with mastitis get different TFM values, and so do cows without case. (A10)

2) This difference in the initial values is explained by the minced pork and the pork chunk having been taken from different carcasses. (F5)

Move 12, Step 2: Making generalizations or interpretations of the results

The most frequent verbs occurring in this step were *suggest*, *indicate*, *confirm*, framing comments on the significance of the results.

Examples: 1) This result indicates that DgHsp90 confers thermotolerance to yeast cells. (C9)

2) These results suggested that a fragment spanning up to -323 was sufficient for anther specificity of the promoter as no staining was observed in Pbkgtap200. (C8)

Move 12, Step 3: Evaluating the current findings against those from previous studies or with regard to the hypotheses

The use of *identified, consistent with, previously reported, in agreement with* in this section performs the function of this step.

Examples: 1) These results are in agreement with the results obtained by De Greef et al. (2001) and Deeb et al. (2002). (F9)

2)As previously reported, ITB2/ALA3 controls trichome shape mainly through the regulation of trichome branch expansion (Zhang et al. 2005b). (C3)

The key words identified in a move boundary perform the function of this move. The contextual analysis revealed two main functions of verbs frequently identified in Move 12, Step 2 and Step 3: to analyze the significance of the results and to cite previous research. Researchers in the field of Agricultural Science might want to compare their current findings with previous studies in the Discussion section; therefore Move 12, Step 3 was found to be common in 12 out of 30 RAs.

Move 12, Step 4: Stating limitations

This step aims to remind the reader of the limits of the research with the common use of negative adverbs or *few, only, or less*. The past tense and present tense were found in this step. The realization of Move 12, Step 4 is illustrated as follows:

Examples: 1) We could only use the four informative SNP markers for further analysis. (A1)

2) For the S^2H trends less data were available, as only the samples producing sufficient meat juice could be analyzed for this parameter. (A6)

Move 12, Step 5: Summarizing

This step concludes the findings of the experiment. It only occurs in 10 out of 30 RAs.

Examples: 1) Taken together, these findings demonstrate that the T-DNA insertion in the /TB2/ALA3 gene causes the itb2/ala3 trichome phenotype, and that the small plant phenotype observed segregating in SALK line 082157 is not caused by the T-DNA insertion. (C3)

2) Altogether, five batches of 10,000 chromosomes 1H and five batches of 20,000 chromosomes 1H to 7H were prepared for DNA amplification. (C4)

In the present study, the co-occurrences of Move 11 and Move 12 were found to be frequent. The purpose of this step is to interpret the findings more clearly. The realization of these co-occurrences is illustrated as follows:

Move 11: Stating results and Move 12, Step 1: Explaining the results

Example: The initial $\delta^{18}O$ values in the minced pork and the chunk of pork were -4.9 and -5.6‰, respectively (Fig.2). (Move 11) *This difference in the initial values is explained by the minced pork and the pork chunk having been taken from different carcasses. (Move 12, Step 1) (C6)*

Move 11: Stating results and Move 12, Step 2: Making generalizations or interpretations of the results

Example: After 5 d of storage the score for flavor was exceeding the acceptability limit (Move 11). In conclusion, a treatment with 250 mg L^{-1} PAA affected the sensory

quality of grated carrots by a change in texture and the development of a sour taste and odor, even in the early stage of the shelf-life (Fig.6). (Move 12, Step 2) (C6)

Move 11: Stating results and Move 12, Step 3: Evaluating the current findings

Example: The exonic sequences of SPATA 1 were monomorphic in the tested stallions (Move 11) and identical to the reference sequence of the horse genome assembly EquCab 2.0 (Move 12, Step 3) (A1)

The examples were consistent with previously reported findings of the same sections in Computer Science (Posteguillo, 1999), applied linguistics (Yang and Allison, 2003) and medicine (Nwogu, 1997). These studies not only report findings but also make comments on these findings. They revealed that the two variations in results sections are common moves in the hard sciences and the soft sciences.

In conclusion, two tenses were used: the past tense and the present tense. But the past tense predominated in the Results section. The word *we* was commonly used in this section and the use of *we* was found in 18 out of 30 RAs. Usually, the occurrence of *we* was displayed by the realization of Move 9, Steps 1 & 3 or Move 11. *Examples: 1). To confirm these results, we investigated the transformation susceptibility, relative to wild-type control plants, of numerous T2 generation transgenic lines containing various histone cDNAs. (Move 9, Steps 1 & 3) (C2)*

2). Using the annotated mRNA sequence of SPATA1 (Ensembl ID ENSECAT00000017259), we found an identity of 85% to the human mRNA (Ensembl

ID ENST00000263717) and of 81% to the murine (Ensembl ID ENSUMST00000029839) mRNA of SPATA1. (Move11) *(A1)*

Occasionally, *we* was also displayed by the realization of Move 10, but only in 3 out 30 RAs.

Example: The method has been previously used by other groups to isolate other promoters from other plants[14-16]. We have also used this method to isolate a stress inducible promoter form different species of wild rice in a separate study. In our experience, this is an excellent method for the isolation for promoters form plants. (Move 10, Step 2) (C8)

4.1.4 The Discussion Section

Flowerdew (1999) stated that the discussion section is the most difficult part to write. It presents a brief methodology from the Methods section and findings from the Results section, and then details the interpretation of the findings in a way that evaluates the current findings against the previous studies presented in the Introduction section. Table 4.5 reports the structure of the Discussion section. Altogether, 4 moves were identified in the Discussion section. Among them, Move 13 is conventional; Move 14 is obligatory while Move 15 and Move 16 are optional.

Table 4.5 Rhetorical Moves of the Discussion Section of Agriculture Science RAs

Move/Step		**N**	**n**	**%**
Move 13	Contextualizing the study			
Step 1	Stating what is already known from previous studies	30	18	60
Step 2	Detailing conclusions based on analyses from previous studies	30	12	40
Step 3	Restating the aims of the study	30	5	16.67
Move 14	Consolidating results			
Step 1	Restating the methodology	30	22	73.33
Step 2	Stating selected findings	30	25	83.33
Step 3	Referring to previous literature	30	23	76.67
Step 4	Explaining differences in findings	30	17	56.67
Step 5	Making overt claims or generalizations	30	30	100
Step 6	Exemplifying	30	6	20
Move 15	Stating the limitations of the present study			
Step 1	Limitations of the findings	30	10	33.33
Step 2	Limitations of the methodology	30	5	16.67
Step 3	Limitations of the claims made	30	9	30
Step 4	Limitations of previous studies	30	4	13.33
Move 16	Suggestions for further research	**30**	**10**	**33.33**

Note: **N** refers to the total number of RAs analyzed in this study, **n** refers to the number of RAs containing the move specifically identified, and **%** refers to the frequency of occurrence of a move.

Move 13: Contextualizing the study

Move 13 explains how important the study is and it includes 3 steps: Step 1: *Stating what is already known from previous studies* refers to quite specific information from previous studies; Step 2: *Detailing conclusions based on analyses from previous studies*; Step 3: *Restating the aims of the study.*

Move 13, Step 1: Stating what is already known from previous studies

Passive verbs and active verbs with inanimate subjects and references occurred in Move 13, Step 1.

Examples: 1) Crossbreeding is carried out to develop new breeds or types from foundation purebreds and to introgress genes and characteristics from one breed to another (Dickerson 1969). It is widely used in commercial animals to exploit heterosis (Swan & Kinghorn, 1992; Freyer et al., 2008). (A9)

2) A previous study on mutation detection in CRISP genes used only exotic polymorphisms for association analyses with stallion fertility (Hamann et al., 2007) and thus, mutation screening was much more laborious. (A1)

Move 13, Step 2: Detailing conclusions based on analyses from previous studies

The words *study, approach, report* occurring in Move 13, Step 2 are useful as topic introducers. Passive verbs or active verbs with inanimate subjects are dominant. Past tense and present perfect tense were found in Step 1 and Step 2.

Examples: 1) However, the immune and clinical consequence of such transdermal exposure is not completely clear at this time. (F8)

2) One previous study using BALB/c mice and a cholera toxin adjuvant approach reported that BALB/c mice are "genetically resistant" to milk allergy (Morafo et al., 2003). In contrast, others reported that BALB/c mice could develop an allergic response to milk following oral exposure to milk protein along with cholera toxin adjuvant (Adel-Patient et al., 2005). (F8)

Move 13, Step 3: Restating the aims of the study

This step restates the aims of the study which has already been described in the Introduction section. Only the past tense was found in this step and the infinitive form was commonly used.

Examples: 1) The aim was to maximize the benefits accrued from sale of animals over the planning horizon. (A9)

2) The primary objective of the current study was to evaluate the impact of a decontamination step with PAA on all quality aspects of grated carrots during storage, including physiological responses, microbial proliferation and spoilage, sensory quality and nutrient content. (C6)

There is no Step *Restating the aims of the study* in Kanoksilapatham's (2005) framework. But this finding is in accordance with the results of Dudley-Evans's (1994) study. He identified an information move (background about theory/research aims/methodology) in the Discussion section, so Peacock (2002) adopted Dudley-Evans's (1994) framework in his study and also identified this move.

Move 14: Consolidating results

As a core move in this section, comments are made on the results of the study. Move 14 is made up of 6 steps, including *Restating methodology*, *Stating selected findings*, *Referring to previous literature*, *Explaining differences in findings*, *Making overt claims or generalizations* and *Exemplifying*.

Move 14, Step 1: Restating the methodology

The experimental procedure is briefly presented before the results are reported and the findings analyzed. The word *we* was commonly used in Move 14, Step 1 and only the past tense was used to report the procedure.

Examples: 1) Experiment 3 was carried out to study long-time storage of meat in cold storages. (F5)

2) Both a series of unwashed carrots and a series of water- washed carrots were included in the study in order to distinguish between the mechanical effects of water-washing and the additional effects caused by using PAA. (C6)

Move 14, Step 2: Stating selected findings

This step highlights the findings of the research study. Some words signal the reporting of findings, such as, *found*, *observed* and *showed*.

Examples: 1) The number of mating per male was higher than per female and the genotypes of males affected the genotypes of offspring more than that of females. (A9)

2) Treatment with GnRH caused a surge release of LH during the first 6 h after treatment. (A3)

Move 14, Step 3: Referring to previous literature

This step details specific discussion on the results from the current study.

Examples: 1) The finding agrees with previous data in which exogenous GnRH caused a surge release of LH from the pituitary [17-20]. (A3)

2) Chakravarthy et al. (1980,1983) have demonstrated the selective

regeneration of β-cells of alloxan-damaged pancreas by administering a flavonoid fraction of Pterocarpus marsupium and (-) epicatechin. (F1)

Move 14, Step 4: Explaining differences in findings

This step states the differences between 2 sets of data in the current paper (e.g. treatment A vs. treatment B) or differences between results in this paper and the previous literature.

Examples: 1) The scarcity of itb2/ala3 mutants in the SALK 082157 population, as well as in other SALK lines containing T-DNA insertions in /TB2/ALA3, is easily explained by our findings that pollen containing an itb2/ala3 mutant allele grows significantly slower in vitro than wild-type pollen. (C3)

2) Under drought stress, photosynthesis is hampered mainly due to reduced stomatal conductance (Fig. 2b; Farooq et al. 2008f, 2009b, c), changes in photosynthetic pigments (Loggini et al. 1999) and decreased activities of Calvin cycle enzymes (Monakhova and Chernyadev 2004). (C10)

Move 14, Step 5: Making overt claims or generalizations

This step is found to be a core move, which functions to interpret the findings of the research study.

Examples: 1) NMR results, the solubility feature and the high dextranase resistance rate (more than 97%) suggest that these polymers are alternans. (F6)

2) The results described in this study indicate that particular histone cDNAs enhance both Agrobacterium-mediated transformation and transient transgene expression in plant cells. (C2)

Move 14, Step 6: Exemplifying

This step aims to interpret the findings through examples. Six out of thirty RAs included Move 14, Step 6.

Examples: 1) To a greater extent, this finding is strongly corroborated in the extant literature (Jas 1998; Shine et al., 1997; Baltas, 2001). For instance, this finding is in line with the contention of Jas (1998) who classifies these influences into socio-economic, biological, and psychological. (F2)

2) However, studies with different applications of SA have revealed a positive effect on photosynthesis and plant growth under drought stress (Rajasekaran and Blum 1999, Singh and Usha 2003). For example, SA application in drought stressed wheat increased the photosynthetic pigments and carboxylase activity of Rubisco (Singh and Usha 2003). (C10)

Move 15: Stating the limitations of the present study

Move 15 is made up of 4 steps, including *Limitations of the findings, Limitations of the methodology, Limitations of the claims made* and *Limitations of previous studies.*

Move 15, Step 1: Limitations of the findings

This step describes the limitations of the results, which occurs in 10 out of 30 RAs.

Examples: 1) In practice, populations of pigs have more age classes and a longer planning horizon. (A9)

2) However, the presence of outliers in Experiment 1 shows that hydrogen isotopes might be less reliable at "non-ideal" storage conditions. (F5)

Move 15, Step 2: Limitations of the methodology

This step aims to state the weaknesses of the experimental methodology.

Examples: 1) Extension to longer planning horizon requires many more parameters to be optimized and a very large computational effort. (A9)

2) This promoter was isolated using PAGE at a time when the complete genome sequence of rice was not available in the database. Today, however, isolation of promoters from a sequenced rice genome is very easy and can be carried out with a simple PCT. (C8)

Move 15, Step 3: Limitations of the claims made

This step states the limitations of the conclusion of the study.

Examples: 1) However, in practice "underdone" meat should be used for analysis to minimize the influence of frying, and it should be seal-packed directly after preparation, as evaporation at lower temperatures, e.g., on a plate, has a larger fractionation factor. (F5)

2) In the case of Arabidopsis, however, the expression of the GUS gene was throughout the anther tissue and therefore, the expression was not tapetum-specific in the strictest sense. However, sectioning of the tiny Arabidopsis flowers was a very difficult task and the picture may not be the most accurate. (C8)

Move 15, Step 4: Limitations of the previous studies

This step identifies the weaknesses of the previous studies.

Example: 1) The authors are not aware of any published studies on the importance and contamination potential of the location of L. monocytogenes contamination in live or freshly caught fish. (A5)

2) In spite of a thorough search in biomedical databases (MEDLINE, AGRIS, CAB abstracts, Biological abstracts, Inpharma database, Biological and Agricultural Index, BEASTCD, Biological Sciences, Biology Digest, Biology Digest, VETCD), few articles were found dealing with the pharmacokinetics of SCP in poultry; yet it is extensively used both alone and potentiated with TMP. (A1)

Move 16: Suggestions for further research

This move offers some valuable recommendations for further study. The frequency of this move is 33.33%. The realization of Move 16 is illustrated as follows:

Examples: 1) Development of a realistic model that includes polygenic and multiple QTL effects is warranted and this is a subject for further investigation. (A9)

2) Consequently, we suggest that future investigation on human milk allergy consider transdermal exposure to milk protein as a possibility in the pathogenesis of milk allergy in humans. (F8)

In sum, passive verbs or active verbs with inanimate subjects were dominant in the Discussion section, occasionally *we* was used to present experimental

procedures. The past tense or the present perfect tense was found to be common. Among the 4 moves, Move 14 was an obligatory move, resulting in cyclical occurrence. It reflects the main purpose of the Discussion section, which is to present results and interpretations of the findings. Meanwhile, co-occurrences of Steps 1-6 in Move 14 are very common in the Discussion section. The realization of these co-occurrences is shown as follows:

Sometimes, Move 14, Steps 1-6 co-occurred in 3 different cases:

Move 14, Step 2: Stating selected findings and Step 3: Referring to previous literature

Example: DgHsp90 strongly suppressed the heat-induced aggregation of MDH and CS. (Move 14, Step 2) This folding activity of DgHsp90 is a distinct function of molecular chaperones [29]. (Move 14, Step3) (C9)

Move 14, Step 3: Referring to previous literature and Step 4: Explaining differences in findings

Example: A significant reduction of the initial total aerobic count of about 0.5 log cfu g^{-1} *was established when shredded carrots were treated with 40* mgL^{-1} *PAA for 2 min (Ruiz-Cruz et al., 2007 a). (Move 14, Step 3) Differences between the results reported here and the ones reported elsewhere can be related to differences in the initial contamination, treatment time, produce-disinfectant volume ratio, temperature and the concentration used. (Move 14, Step 4) (C6)*

Move 14, Step 2: Stating selected findings and Step 5: Making overt claims or generalizations

Example: The inhibition of Hsp90 ATPase activity by GA decreases its chaperone activity (Fig.4). (Move 14, Step 2) Therefore, ATP hydrolysis regulates substrate binding to Hsp90 and thereby modulates its chaperone activity. (Move 14, Step 5) (C9)

Altogether, 16 Moves were found in the present study. In an agricultural context, the Step *Review of literature* occurs throughout the articles as a complete account of the study, including Move 1, Step 3: *Reviewing previous research*, Move 5, Step 1: *Documenting established procedures*, Move 10, Step 1: *Detailing what methods (similar to this) that people used before*, Move 12, Step 3: *Evaluating the current findings against those from previous studies or with regard to the hypothesis,* Move 13, Step 1: *Stating what is already known from previous studies* and Move 14, Step 3: *Referring to previous literature*. The passive voice or active voice with the 3rd person inanimate subject predominated in IMRD sections. The first person *we* was commonly found in Move 3, Move 9 and Move 11. Occasionally, *we* occurred in the Methods or the Discussion sections. The past tense or the present perfect tense was used in all the IMRD sections.

4.2 Lexical Bundles in Each Move in Agricultural Science Research Articles

In response to the second research question: What are the most frequent lexical bundles in each move in Agricultural Science RAs? The chart displays the analysis procedure used to collect data.

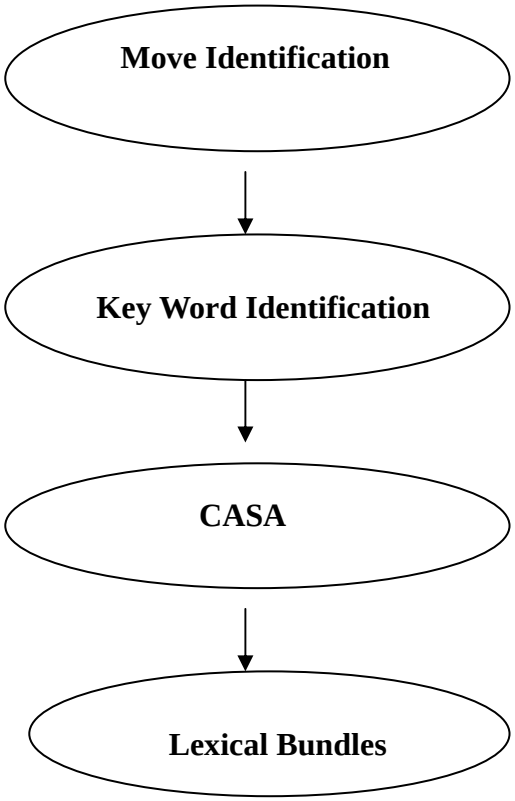

Figure 4.1 Lexical Bundles Collection Procedure

The researcher identified the moves in each IMRD section using Kanoksilapatham's (2005) framework. After move identification, the key words of each rhetorical move were identified. Then, the researcher entered the key words to search for lexical bundles from CASA. Concordance listings were utilized to analyze

the use of key words in its discourse context. Finally, lexical bundles were identified. The following tables describe the lexical bundles. The key words in each lexical bundle are in **bold**. Based on the frequency of occurrences in 30 RAs, the key words were selected.

4.2.1 Lexical Bundles Identified in the Introduction Section

To show the distribution of lexical bundles identified in the Introduction section, the results are displayed in Table 4.6.

Table 4.6 List of Lexical Bundles Identified in the Introduction Section

Introduction Section		
Move	**Step**	**Lexical Bundles**
Move 1: Stating why the topic is important	Step 1: Commenting on the importance of topic	play an essential **role** play a key role in play an important role in It is **known** that… The best known is **be known to + v.** is known to be widely involved in are known to use is known to affect are known to bind are known to improve is known to limit a wide range of It is **defined** as is now **considered** to be responsible for is **commonly** used by is commonly defined as is most commonly described as a major **component** of the an important component of have any **impact** on have a direct impact on have a significant impact on have a strong impact on have a severe impact on an **attempt** is needed to study
	Step 2: Making topic generalizations	can be **caused** by is **thought** to be It is thought that There is **concern** that There is increasing public concern

Table 4.6 List of Lexical bundles Identified in the Introduction Section (Cont.)

Introduction Section		
Move	**Step**	**Lexical Bundles**
Move 1: Stating why the topic is important	Step 3: Reviewing previous research	have been **identified** in It was **shown** by Several studies have shown that **have been shown to** **has been shown to** have been shown to cause have been shown to be influenced by has been shown to regulate have been shown to inhibit has been shown to increase have been shown to result in has been shown to interact with a has been shown to decrease has certainly been shown to be have been shown to improve have been shown to bind was early **described** by It has been **suggested** that It has been **demonstrated** that Previous studies have demonstrated that has been **studied** extensively has been extensively **studied** in It has been **proposed** that have been **characterized** in have been characterized by has been **detected** in have been detected in Many of these studies have **focused** on It is well **documented** that has been documented in has been well documented in It was **evaluated** by are commonly **encountered** in have been proposed to has been proposed to

Table 4.6 List of Lexical Bundles Identified in the Introduction Section (Cont.)

Introduction Section		
Move	**Step**	**Lexical Bundles**
Move 1:	Step 3: Reviewing previous research	Several studies have **reported** that It has been reported to We have previously reported that
Move 2: Indicating a research gap		There are only a **few** studies investigating Very few data are available on the role of have been limited to only a few There are very few reports on A few studies have examined Very few studies deal with There were few attempts to There are few studies of There are few studies on **Little** is known about We know little about There has been little discussion of have been little studied Very little is known about Relatively little is known about have received little attention in There is little information on the effect of There is little experimental evidence are currently **unknown** to It is **not clear** whether It is not clear that **No information** is available on the effect of **Little information** is available about We do **not completely** understand has not been completely elucidated
Move 3: Introducing the present study	Step 1: Stating purpose(s)	**the aim of this** The **aim** of this paper is to determine The aim of this study was to evaluate The aim of this paper was to examine The aim of this study was to determine The aim of this article is to increase

Table 4.6 List of Lexical Bundles Identified in the Introduction Section (Cont.)

Introduction Section		
Move	**Step**	**Lexical Bundles**
Move 3: Introduc-ing the present study	Step 1: Stating purpose (s)	The aim of this work was to compare The aim of this study was to investigate The aim of this paper is to study The aim of this work was to gain The first **objective** of our study was to assess The objective of this study was to quantify the importance of A second objective of current experiment was to characterize The primary objective of this research was to determine The objective of the present study was to establish The objective of the present study was to determine The objective of this work was to determine The objective of this study was to investigate The objective of the present trial was to study The objective of this study is to describe The objective of this work was to evaluate The objective of this paper was to evaluate The objective of this study is to identify The objective of this study was to examine The objective of this work was to develop The objective of this research was to study The main objective of this study was to show The objective of this study was to propose The objective of this study was to verify This study mainly **focused on** The purpose of this study was to investigate The main purpose of this work was to study The main purpose of our investigation was to determine The overall **goal** of this study was to examine The main goal of this study was to determine The results will be analyzed in an **attempt** to **in an attempt to** in an attempt to reduce in an attempt to increase in an attempt to deduce in an attempt to select in an attempt to promote in an attempt to manifest in an attempt to delay

Table 4.6 Lexical Bundles Identified in the Introduction Section (Cont.)

Introduction Section		
Move	**Step**	**Lexical Bundles**
Move 3: Introducing the present study	Step 2: Describing procedures	can not be **applied** to are **synthesized** by was synthesized with
	Step 3: Presenting findings	This article **describes** the This paper describes the

A total number of 137 lexical bundles were identified in the Introduction section, among which 65were found in Move 1, 25 in Move 2, and 47 in Move 3. The word *role* has the highest frequency of occurrence. Three lexical bundles containing “role”, including *play an essential role*, *play an important role* and *play a key role in* are common expressions of the importance of the topic.

4.2.2 Lexical Bundles Identified in the Methods Section

The overall distribution of lexical bundles identified in the Methods section is summarized in Table 4.7.

Table 4.7 List of Lexical Bundles Identified in the Methods Section

Introduction Section		
Move	**Step**	**Lexical Bundles**
Move 4: Describing Materials	Step 1: Listing Materials	was **used** as was used as were used as were used in this study can also be used in experiments The sample **consisted of** are **listed** in Table is **made up** of
	Step 2: Detailing the source of the materials	is **obtained** from a/the were obtained from the were **purchased** from a samples were **collected from**
	Step 3: Providing the background of the materials	were selected **based on**
	Step 4: Describing location where the study was conducted	The production **site** was selected for The experimental site is located on The experimental site was located in The **field** was located in The field plot was located in The field plot had It is **located** about
Move 5: Describing experimental procedures	Step 1: Documenting established procedures	was measured by using a modified **method** of was measured using the methods of **using the method developed by** were extracted using the method developed by **using the method described by** was measured using the method described by using a method adapted from following the method of

Table 4.7 List of Lexical Bundles Identified in the Methods Section (Cont.)

Methods Section		
Move	**Step**	**Lexical Bundles**
Move 5: Describing experimental procedures	Step 1: Documenting established procedures	using a modified method of by a method modified from that of were determined by the method of was determined by the method described in following the method used by following the method reported by **according to** previously established methods and procedures according to the recommended station methodology was extracted according to the procedure described by according to the manufacturer instructions was extracted according to the method of was/were measured according to according to published procedures **was /were performed according to** was performed according to the method described by was performed according to the method of were performed according to the protocol described previously was performed according to a published protocol was conducted as **described by** the procedure described by was performed as described by was measured as described by in accordance with that described by were extracted as **described previously** were performed as described previously followed the **protocol** of using the protocol of according to the protocol reported by with a previously described protocol according to the protocol described in following the manufacturer **instructions** following the instructions proposed by was/were measured as **previously described** according to the manufactures protocol as previously described

Table 4.7 List of Lexical Bundles Identified in the Methods Section (Cont.)

Methods Section		
Move	**Step**	**Lexical Bundles**
Move 5: Describing experimental procedures	Step 1: Documenting established procedures	followed the classical **approach** following the approach of **by means of** the following procedure by means of a randomization test with the aid of using the Methodology of using the same **methodology** described above
	Step 2: Detailing Procedures	was **performed** under the following conditions The experiments were performed were **measured** by comparing was measured by plunging into was randomly **collected** from was then **added to** was commercially **prepared** from treatments were **carried out** were randomly **placed** in was placed on the were placed in a were **determined by** plating was determined by measurement of was determined by measuring was determined by the difference was determined by drying was determined by the rate of was determined by the following calculation were **washed** extensively with Samples were **taken** from were **removed** from the was randomly **selected** from were randomly **transferred** to were **transferred** back to Samples were **centrifuged** to can be **estimated** from were **adjusted** weekly to Sample was **mixed** with

Table 4.7 List of Lexical Bundles Identified in the Methods Section (Cont.)

Methods Section		
Move	**Step**	**Lexical Bundles**
Move 5: Describing experimental procedures	Step 2: Detailing Procedures	were **weighed** individually to was **dissolved** in a solution of were previously **isolated** from was/were randomly **sampled** from were tentatively **identified** as were randomly **assigned** to were surface **sterilized** by was **inserted** into the was **exposed** simultaneously to were randomly **labeled** with were fully **immersed** in The reaction was **stopped** by was **operated** under the following conditions were **cleaned** frequently to
	Step 3: Providing the background of the procedures	**be used to + v.** was used to assess were used to obtain was used to estimate were used to amplify were used to calculate were used to generate were used to determine This study is **based on** were chosen based on were identified based on were checked based on were designed based on were selected based on were designed based on were grouped based on were compiled based on were estimated based on were calculated based on were determined based on This examination was based on were assigned randomly based on The study is based on the result of

Table 4.7 List of Lexical Bundles Identified in the Methods Section (Cont.)

Methods Section		
Move	**Step**	**Lexical Bundles**
Move 5: Describing experimental procedures	Step 3: Providing the background of the procedures	The experiment was **conducted** as The experiment was conducted under the approval of **be applied to + v.** was applied to estimate was applied to determine were applied to investigate protocol was applied to quantify was **approved** by the were performed under protocols approved by **be designed to +v.** were designed to span were designed to hybridize were designed to correspond to
Move 6: Detailing equipment		Samples were **analyzed** by were immediately **subjected to** was **performed using** were **performed with** **by means of + n.** by means of air heaters by means of PCR was **carried out using** were **measured with**

Table 4.7 List of Lexical Bundles Identified in the Methods Section (Cont.)

Methods Section		
Move	**Step**	**Lexical Bundles**
Move 6: Detailing equipment		was directly **connected** to were **carried out with** was **prepared using** was **assessed using** were **detected using** was **examined under** was **marked using** were **synchronized using**
Move 7: Detailing statistical procedures		All data were **analyzed** using Data were analyzed by means of Significant differences between means are analyzed The least **significant** differences A significant difference between the Statistical significance was accepted at the general **linear** model All **statistical analyses** were processed with All statistical analyses were done with All statistical analyses were computed on Other statistical analyses were done using were compared using chi-square statistical tests The statistical analysis found that All data were **subjected to** analysis of were analyzed using **analysis of variance** was determined by analysis of variance were assessed by analysis of variance were evaluated using two-way analysis of variance were compared using one-way analysis of variance were identified by analysis of variance was tested using one-way analysis of variance were **calculated using** was used to **compare** differences between the **mean values** of Mean values were compared using

Table 4.7 List of Lexical Bundles Identified in the Methods Section (Cont.)

Methods Section		
Move	**Step**	**Lexical Bundles**
Move 8: Describing the mathematical modeling of the system	Step 1: Detailing mathematical methods used	The corresponding **model** is A model was used to calculate The new model takes into account the The first model was used to estimate as a **function** of The **parameter** was calculated as
	Step 2: Detailing assumptions for the model	can be **estimated** from It was **assumed** that were assumed to the

Altogether, 191 lexical bundles were identified in the Methods section: 20 for Move 4, 122 for Move 5, 16 for Move 6, 25 for Move 7 and 9 for Move 8, respectively. Among the 191 lexical bundles, the most frequent word is *use* with 500 occurrences, which is frequently identified in Move 4, Step 1 to signal materials used in an experimental procedure.

4.2.3 Lexical Bundles Identified in the Results Section

Table 4.8 displays 238 lexical bundles identified in the Results section, which are listed according to different moves used in this section.

Table 4.8 List of Lexical Bundles Identified in the Results Section

Results Section		
Move	**Step**	**Lexical Bundles**
Move 9: Stating procedures	Step 1: Describing aims and purposes	The method was **applied to** the analysis of to further **investigate** the to better **understand** the to further understand the to **ascertain** the rate of to ascertain the impact of to ascertain the cause of The experiment **aimed** to with the main **aim** of
	Step 2: Making hypotheses	It was **assumed** that We can assume that It is reasonable to assume that It was **hypothesized** that can only be **speculated** upon It has been speculated that

Table 4.8 List of Lexical Bundles Identified in the Results Section (Cont.)

Results Section		
Move	**Step**	**Lexical Bundles**
Move 9: Stating procedures	Step 3: Listing procedures or methodological techniques	was **calculated** by using were **analyzed** using We analyzed the expression of was **performed** using was performed with we **examined** the expression of we examined the effect of were **isolated** from were **selected** based on were randomly selected from We have further **characterized** were commonly **transferred** to were **collected** from the were **carried out** with was consistently **constructed** using Similar experiments were **conducted** with An analysis was conducted to examine were **chosen** according to was **detected using** the
Move 10: Justifying procedures or methodology	Step 1: Detailing what methods (similar to these) that people used before	It was **known** that are known to be are **commonly** found in is commonly used in This **approach revealed** differential expression of
	Step 2: Commenting on whether the method yielded successful results	The **method** was chosen for The method is suitable for The method described here avoided The method described in this paper can used for The method gives The method also yields The method was applied to

Table 4.8 List of Lexical Bundles Identified in the Results Section (Cont.)

Results Section		
Move	**Step**	**Lexical Bundles**
Move 11: Stating results		Sequence comparison showed that As can be **observed** It was observed that No difference was observed in a similar reduction was observed in **had** the lowest values had a large increase in had higher expression in had a moderate increase in had a higher percentage of had the lowest performance had an average expression in had higher concentrations of had the largest relative increase in had significantly higher levels of had slightly higher correlations than are given in **Table** is shown in Table as shown in Table are shown in Table as indicated in Table are detailed in Table are reported in Table are included in Table are displayed in Table are summarized in Table was significantly **increased** by significantly increased expression of Significant differences were **found** in were found to be were found in the A positive correlation was found between

Table 4.8 List of Lexical Bundles Identified in the Results Section (Cont.)

Results Section		
Move	**Step**	**Lexical Bundles**
Move 11: Stating results		had a significantly **effect** on had no effect on a main effect of had little effect on The positive effect of the dominant effect of had a negative effect on have a similar effect on revealed a strong effect on was **decreased linearly** by was significantly **reduced** by caused a **decrease** in a slight decrease in are highly **expressed** in were positively **identified** in are **presented** in Table1 As seen in Figure are presented in Fig as presented in this study . The data presented in Table are It can be **seen** that As can be seen from As can be seen in Figure An example can be seen in **There was** a reduction in There was no effect of There was no difference There was a significant effect of There was only a minor effect on There were no detectable differences There was no direct relationship between were **detected in** the The increase **ranged** from were **below** the detection limit

Table 4.8 List of Lexical Bundles Identified in the Results Section (Cont.)

Results Section		
Move	**Step**	**Lexical Bundles**
Move 11: Stating results		It should be **noted** that It can be noted that was **significantly higher** than as **illustrated in** Figure is illustrated in Fig was **significantly lower** than are correctly **localized** in Figure 3 **summarizes** typical results from were **detected by** the are not **statistically different** are illustrated in Fig
Move 12: Commenting on the results	Step 1: Explaining reasons why these results occur	This difference could be **due to** This fact was due to This might be due to This was probably due to This variation may be due to This effect was probably due to This is partly due to the fact that … This difference could be **explained** by could be explained on the basis that was mainly **attributed to** might be attributed to could be mostly attributed to The main **reason** is might be the reason for It might be the reason that The reason for this might be that One possible reason could be that The suggested reason for the observed results is This **explanation** is in agreement with These results **coincide with** the fact that

Table 4.8 List of Lexical Bundles Identified in the Results Section (Cont.)

Results Section		
Move	**Step**	**Lexical Bundles**
Move 12: Commenting on the results	Step 2: Making generalizations or interpretations of the results	**had** a negative correlation with had little impact on had a marked effect on had a negative effect on had a beneficial effect on had a significant influence on had a highly significant overall effect on appeared to be negatively **associated** with may be associated with is strongly associated with was tightly associated with was mostly associated with are similarly associated with was significantly associated with was predominantly associated with These data **indicated** that These results indicated that This finding indicated that The analysis indicate that were significantly **affected** by was most affected by was largely affected by is negatively affected by was similarly affected by was severely affected by was only slightly affected These findings **indicate** that The results indicate that This would indicate that These values indicate that

Table 4.8 List of Lexical Bundles Identified in the Results Section (Cont.)

Result Section		
Move	**Step**	**Lexical Bundles**
Move 12: Commenting on the results	Step 2: Making generalizations or interpretations of the results	These results **revealed** that This analysis revealed that was closely **related to** may be related to are strongly related to was linearly related to were highly related to This may be related to was positively related to was significantly related to was strongly **induced** by were **estimated** to be This data is **consistent with** These results are consistent with These data **demonstrated** that These results demonstrated that These results **suggested** that It is suggested that This is suggested that It has been suggest that All these observations suggested that was further **confirmed** by These results **exhibited** that were nearly **identical** to are virtually identical to This finding **suggests** that These data suggest that The result suggests that This strongly suggests that This observation suggest that were not significantly **different from** were more **detectable** in were positively **correlated with** was negatively correlated with was significantly correlated with were not significantly correlated with

Table 4.8 List of Lexical Bundles Identified in the Results Section (Cont.)

Results Section		
Move	**Step**	**Lexical Bundles**
Move 12: Commenting on the results	Step 2: Making generalizations or interpretations of the results	was also strongly **influenced** by **seem to** positively correlated with seem to be important seemed to be less affected
	Step 3: Evaluating the current findings against those from previous studies or with regard to the hypotheses	have been **identified** in have identified as as was previously reported as those **previously** reported by we have been previously seen that have previously been reported were **consistent with** previously reported results is consistent with the results of was consistent with the findings of These results are in **agreement with** findings of This finding is in agreement with These results are in agreement with the results obtained by These results are in agreement with other studies showing has been **documented** in It is well documented that
	Step 4: Evaluating the current findings	was not **sufficient** to control is not sufficient to stabilize was not always sufficient to cover is not sufficient to be translated to is not sufficient to effectively prevent did not provide sufficient information for
	Step 5: Summarizing	**Together**, these data indicate that Together, these results indicated Together, these data demonstrated that Together, these data strongly suggest that

To sum up, 238 lexical bundles were found in the Results section: 34 for Move 9, 12 for Move 10, 77 for Move 11 and 115 for Move 12, respectively. An interesting phenomenon is that the most frequent words in this section all belong to Move 11. Probably this is because Move 11 is the most important move in the Results section.

4.2.4 Lexical Bundles Identified in the Discussion Section

Table 4.9 below shows the distribution of lexical bundles in the Discussion section. They are listed according to different moves.

Table 4.9 List of Lexical Bundles Identified in the Discussion Section

Discussion Section		
Move	**Step**	**Lexical Bundles**
Move 13: Contextualizing the study	Step 1: Stating what is already known from previous studies	We have **shown** that It has been shown that **have/has been shown to +v.** has been shown to cause have been shown to bind has been shown to reduce has been shown to activate has been shown to act as a has been shown to increase has been shown to suppress has been shown to be present have been shown to improve have been shown to be induced have been shown to be involved in in the **recent** study a recent study on a recent study of More recent evidence indicates that More recent evidence suggests that

Table 4.9 List of Lexical Bundles Identified in the Discussion Section (Cont.)

Discussion Section		
Move	**Step**	**Lexical Bundles**
Move 13: Contextualizing the study	Step 2: Detailing conclusions based on analyses from previous studies	can be **determined** by This comprehensive study has **provided** This conclusion is **supported** by are currently **unknown** to This **approach** brings with This systematic approach reduced This systematic approach reduced the This approach can have implications for This approach can also be very useful in Such an approach has recently been employed to It is of **interest** to **It is important to** It is important to note that provides a useful model for It is important to point out that It is important to emphasize that It is **not clear** if It is not clear whether It was **recently reported** that
	Step 3: Restating the aims of the study	The intended **purpose** of using The purpose of the experiment was to provide The purpose of the experiment communicated in this paper was to provide The **aim** of this work was to study

Table 4.9 List of Lexical Bundles Identified in the Discussion Section (Cont.)

Discussion Section		
Move 14: Consolidating results	Step 1: Restating methodology (purposes, research questions, Hypotheses and procedures)	We mainly i**nvestigated** the This study also investigated was performed **according to** was calculated according to according to the manufacturer instructions was measured by the **method** of were **designed** to explain The **purpose** of the experiments was to provide
	Step 2: Stating selected findings	has been **found** to bind It was found that We found that the has been found in have been found to be is also **observed** in We also observed that was considerably **higher** than is slightly higher than It was **shown** that The results **showed** that the data showed that Our analysis showed that was significantly **reduced** by was gradually reduced from were much l**ower** than It seems **likely** that It is likely that It appears likely that

Table 4.9 List of Lexical Bundles Identified in the Discussion Section (Cont.)

Discussion Section		
Move	**Step**	**Lexical Bundles**
Move 14: Consolidating results	Step 2: Stating selected findings	It **decreased** significantly with has also been **obtained** from was positively **related to** has been **detected** in was easily detected in was successfully detected in This result **appears** in contrast with Our analysis **revealed** that These data reveal strong evidence that The findings of this study reveal that was strongly **inhibited** by We were able to **identify** was best **seen** in case of This can be seen in It is interesting to **note** that It should be noted that It is **worth** noting that It is **noteworthy** that
	Step 3: Referring to previous literature	The authors **found** that have been found to It has been **observed** that It has been **reported** that has also been reported to is **similar** to that found by were very similar to those reported for The result was similar to a previous study It was **shown** that It has been shown that We have shown that As has been shown by Many studies have shown that A few reports have already shown **have/has been shown to + v.** have been shown to bind has been shown to affect have been shown to occur

Table 4.9 List of Lexical Bundles Identified in the Discussion Section (Cont.)

Discussion Section		
Move	**Step**	**Lexical Bundles**
Move 14: Consolidating results	Step 3: Referring to previous literature	has been shown to heighten has been shown to activate have been shown to possess have been shown to improve have been shown to be required have been shown to reliably induce have been shown to have increased has repeatedly been shown to be related to performed as described **previously** has previously been reported have been previously reported have previously proved to be a have been identified previously has been previously characterized by Among previously published studies of It has been previously demonstrated that in accord with the previously published results in accord with the previously published results is also **known** to It is known that Little is known about Much less is known about It is generally known that A **previous** study showed that In a previous study the previous reports of in accordance with our previous study In **contrast** to the study of Our findings are in contrast to the This is in contrast with a review by This is in contrast to the finding of In contrast to previous findings with

Table 4.9 List of Lexical Bundles Identified in the Discussion Section (Cont.)

Discussion Section		
Move	**Step**	**Lexical Bundles**
Move 14: Consolidating results	Step 3: Referring to previous literature	These results are **consistent** with Consistent with previous studies on This is consistent with the work of are consistent with our previous results These results are consistent with early observations in These findings are consistent with a previous report that This has been **demonstrated** for A related study also demonstrated in **agreement** with the results of in agreement with results from **according to** previous findings This conclusion is **supported** by This finding is supported by in **accordance** with the results of in accordance with these previous reports has been well **documented** It is well documented that It is well documented in the literature that This result is **contrary** to This finding **agrees with** previous reports This **corresponds with** a study by These results are **in line with**
	Step 4: Explaining differences in findings	This is probably **because** It may be because of These differences could be **due to** was probably due to This is probably due to This may be due to the fact that This difference is probably due to as a **result** of probably the result of This may be a result of the It is **possible** that Differences in these results may be **explained** by This may explain why

Table 4.9 List of Lexical Bundles Identified in the Discussion Section (Cont.)

Discussion Section		
Move	**Step**	**Lexical Bundles**
Move 14: Consolidating results	Step 4: Explaining differences in findings	This would explain why This might explain why These effects can explain This can be explained by This may partly explain the This finding could explain why This may explain the observation that This may explain the significant difference in These results **support** the idea that Our results provide support for These results support our findings that These data support the hypothesis that One **possibility** is that can be **caused** by may have been caused by The above differences are mainly caused by This finding may have been caused by This may be **why** This may **contribute** to an alternative **explanation** of A possible explanation for this is Another possible explanation of An explanation for this might be that can be **attributed** mainly to This effect might be attributed to the These differences may be attributed to These differences might be attributable to This fact may **reflect** This result may reflect as a **consequence** of This may be a consequence of may **account for** the These differences probably account for the fact that

Table 4.9 List of Lexical Bundles Identified in the Discussion Section (Cont.)

Discussion Section		
Move	**Step**	**Lexical Bundles**
Move 14: Consolidating results	Step 4: Explaining differences in findings	The likely **reason** why This might be one reason One possible reason for this is that appears to be a major reason for the This is also probably the **case for**
	Step 5: Making overt claims or generalizations	These results **suggested** The results of this study **indicate** that Our results indicate that This could indicate that These data indicate that These findings indicate that Experimental data indicate that The present study would indicate that These observations together indicate that We have **demonstrated** that This study demonstrated that These studies demonstrated that This research demonstrated that Our experiments demonstrated that can be **expected** to influence was less **affected** by may be affected by is greatly affected by was strongly affected by **seemed to** indicate that seemed not to be affected seems to be associated with seemed to be less frequent than may have **resulted in** This finding may result in The result **confirmed** that may be **sufficient** to

Table 4.9 List of Lexical Bundles Identified in the Discussion Section (Cont.)

Discussion Section		
Move	**Step**	**Lexical Bundles**
Move 14: Consolidating results	Step 5: Making overt claims or generalizations	**led to** the loss of led to a decline in led to the poor expression of led to significant improvement It might **imply** that This would imply that These results implied that This may **highlight** differences in the These results might be more **reliable** compared to
	Step 6: Exemplifying	an **example** of the An example is the
Move 15: Stating the limitations of the present study	Step 1: Limitations of the findings	may not **necessarily** reflect It can be **excluded** that We can not exclude the possibility that It cannot completely be excluded that… was not **enough** to be detected
	Step 2: Limitations of the methodology	was not **available** for must be made with **caution**
	Step 3: Limitations of the claims made	may not have been **sufficient** to do not **necessarily** confirm may not be necessarily strongly correlated with
	Step 4: Limitations of previous studies	**Few** articles were found Few studies have been conducted to Only a few of the studies on the effect of We are not **aware** of any published estimates of The authors are not aware of any published studies on

Table 4.9 List of Lexical Bundles Identified in the Discussion Section (Cont.)

Discussion Section		
Move	**Step**	**Lexical Bundles**
Move 16: Suggesting further research		**Further** research is needed to may further elucidate the will be further investigated This would further indicate Further studies are required to We may further speculate that Future studies should increase Further research is necessary to This may anticipate a further These findings further support Further study is needed to elucidate Further studies are clearly needed to Further experiments will be required Further research is needed to determine Further research is required to identify Further studies are required to determine Future studies are needed to clearly define Further analysis is therefore needed to determine It **would be** interesting to explore It would be interesting to investigate Further work **is needed** to verify More research is needed to evaluate Additional studies **are needed** to examine

In conclusion, the key word *shown*, which occurred 498 times, is the most frequent word found among 283 lexical bundles identified in the Discussion section. The lexical bundles *have/has been shown to* were frequently used to state what is already known from previous studies.

4.3 Summary

In this chapter the results of rhetorical moves in Agricultural Science RAs and lexical bundles of each move were presented. The discourse structure of 30 RAs was analyzed based on Kanoksilapatham's (2005) framework. Altogether, 16 moves were found in the present study: 3 for the Introduction section, 5 for the Methods section, 4 for the Results section and 4 for the Discussion section. Some new moves were found, including Move 4, Step 4, Move 8, Steps 1& 2, Move 13, Step 3 and Move 15, Step 4. Meanwhile, the linguistic features were also investigated.

On the basis of move boundaries, frequently used lexical bundles were identified. These lexical bundles often performed different functions in a discourse. Furthermore, as opposed to pragmatic function, they were used to organize, construct or signal the discourse. The following two chapters will discuss the results in detail and summarize the findings.