Chapter Five: Discussion and Conclusions

5.1 Discussion

5.1.1 Composing Behaviour

As noted in the previous chapter, the planning stages of the writers were not preceded by written plans. This finding appears to contrast with Zamel's (1983) skilled writers who spent a lot of time in writing detailed plans and in discovering the content of their essays. In the present study, the writers seemed to have a clearly planned mental model similar to Parkhurst's (1990) nonnative subjects in her study. The content of their papers to be presented had already been decided on. The writers' concern appeared to centre on the scope and the effective presentation of the information.

The section, Discussion was found to pose problems to the writers in presenting the content. There seems to have been uncertainty among the writers as to the amount of information to display under this section. This concern with the Discussion section is consistent with studies by researchers (St.John 1987; Hopkins and Dudley-Evans 1988; Shaw 1991) who observed that this was one of the sections that was difficult for scientific writers.

Some difference is seen in the general composing behaviour of the writers. SR, SL and CL appear to fall into Reid's (1984) category of "radical planners" who develop and formulate the text prior to composing. A plan for the outline of

their paper seems to have been mentally decided before they began drafting. DN, on the other hand, appears to be consistent with Reid's (ibid.) "radical brainstormer" who works out the text through constant rewriting.

5.1.2 The Categories of Revisions

The most number of revisions was found in DN's papers. This could have been due to the fact that he started writing the paper with a broader focus and subsequently, narrowed it through rewriting. At the same time, DN was mindful of the inherent problems highlighted in previous studies with the approach that he had used. He was also aware, while writing his paper, that a well-known researcher who had found the approach wanting would be a member of the audience at the symposium. Consequently, he seems to have been anxious to ensure a very narrow focus for his paper as well as to acknowledge the constraints and limitations that were present.

The least number of revisions was found in SR's drafts. Unlike Zamel's (1983) unskilled writers who were found to revise less compared to the skilled writers, SR has had extensive exposure to the English language throughout her education as it was the medium of instruction in school as well as at university in her case. A lack of proficiency would not appear to be the cause for the fewer changes in her writing. In her interview, she stated that she had not been

overly concerned with getting the best paper out for the symposium as she had very little time to prepare it and also because it had been for a local seminar. She was of the opinion that the standard of her paper was adequate for such an event. She stressed that had the event been an international one she would have a more rigorous approach and included more content especially under the section Results and Discussion. Another possible constraint in her case could have been the fact that the study she was reporting on was a preliminary one leading up to her eventual research. As such, her content knowledge in her area of study was still in its early stages.

Fig.4.1 indicates that CL's drafts had the greatest variety of changes with revisions in twelve of the thirteen categories. DN had revised in eleven categories; SL's changes fell under ten categories while SR's were found in four categories. It was also found that both CL and DN had revisions that occurred under the category Cohesion while the others did not. Dudley-Evans' (1991) study showed that this was a category to which supervisors gave much attention in the writing of theses. It is possible that these two writers could have developed a sensitivity to the use of signalling devices and linkage through their readings.

All four writers had revised in the three categories of Formal/Readability changes, Text Conventions and Idiosyncratic changes in common with one

another. Of these, the revisions in the first category would appear to reflect the writers' concerns with accuracy of usage. The importance of correct use of language was stressed by all four writers in their interviews. At some point in their writing they were all conscious of being concerned with the use of language in their papers. Mistakes in content or form were discovered through rereading the texts as well as by cross-checking them with their supervisors and peers. Language seems to have been the important first impression that the writers were apparently intent on making. Perhaps as nonnative users of the language, the writers were keen to ensure that any shortcomings in their linguistic competence did not pose a barrier to the acceptance of their study. This could have been an important consideration especially for SL, CL and DN who were participating in international conferences.

Some of the grammatical changes made were also done to serve specific functions. For example, in introducing the microfungus that he is working on, DN uses the simple present tense, "shows" to refer to the ability of the organism to improve the nutritive value of agricultural by-products. The verb is changed to the present perfect aspect in a subsequent revision as he wanted to indicate that a lot of work had already been done on the microfungus and that it was an area of ongoing interest. The change also seems to be in keeping with Oster's (1981) finding that the "primary" use of the present perfect in

reporting past literature is to also indicate that information from the same sentence will continue to be discussed in the remainder of the text (p.83).

Another possible reason for the relatively greater focus on form and readability could be traced to the kind of training students receive in language classes in Malaysia. The received tradition in schools especially seems to emphasise form. The present writers' sensitivity to form and readability could be the product of such training. The concern with linguistic competence on the part of the writers bears a similarity with the concerns of Parkhurst's (1990) nonnative research scientists and professors of their own composing.

The concern with text conventions was manifested variously as in changes in titles, rearrangement of information under appropriate sections, division of information in the section into subsections as well as the use of suitable unit measurements in expressing quantities. The general conventions for manuscript preparation which often relate to the format of the paper to be submitted are specified beforehand by the organisers of conferences. Slight variations may be found in these specifications; for instance, CL and DN were required to submit their papers with a brief abstract at the beginning of the paper but this was not a requirement in the cases of SR and SL. All four subjects of the study indicated that they were mindful of the the manuscript guidelines in preparing their papers.

In addition to the above, input from supervisors as well as the writers' own perusal of conference papers and journal articles appear to have been instrumental in developing the "dimly felt sense" (Freedman 1990, p.101) of the genre that they were preparing. These sources gave the writers general guidelines on the type and amount of information to be reported under each section, the use of technically appropriate words such as "significant" rather than "pronounced" in referring to an increase in readings, appropriate phraseology and structures as well as an awareness of the use of tones whether for upgrading or downgrading claims in the text. This reliance on expert informants by the writers in learning the conventions of the genre recalls the behaviour of Freedman's (ibid.) subjects; however, unlike the latter, these writers were also dependent on written models as guidance. This behaviour is similar to Shaw's (1991) nonnative subjects who reported using source texts and previously written theses as models to guide their composing.

Idiosyncratic changes were found in the drafts of all four writers. However, in the cases of SL and CL, the changes were initiated by their respective supervisors. Both supervisors acknowledged that these changes reflected personal preferences of what they were used to rather than what was accepted usage.

SR's drafts were found to have two instances of idiosyncratic changes both occurring in the same sentence. She was of the opinion that the changes clarified her meaning better; however, the change did not seem to produce the intended effect in the text. DN's draft showed only one instance of a change of this nature in the use of a referential. His change was influenced by his readings of articles that had made use of the word. However, he was aware that the original word was also acceptable.

The highest number of changes overall appears to have occurred in the category of Clarifying/Specifying. The drafts of SL, CL and DN were found to have made changes under this category. Based on motivation, none were found in SR's drafts. The high incidence overall of this category of revisions seems to be consistent with findings from studies on writing for scientific purposes such as St.John's (1987) of Spanish scientists' composing. St.John found that precise, specific use of language as well as clear and unambiguoius descriptions were considered necessary to communicate findings of studies among scientists.

The category of Conciseness was also found to have relatively high, overall numbers of changes. Based on motivation, SR's drafts did not indicate changes in this category. However, SL, CL and DN had varying numbers of these changes in their drafts. The proportion of CL's revisions for Conciseness

matched those that he had done for Clarifying/Specifying. In DN's case, the number of revisions for Conciseness exceeded that of Clarifying/Specifying by two revisions. The equal importance given to both categories by the two writers was made clear in their interviews in which they clarified that their composing decisions were based on the space constraint as well as effectiveness and economy in writing.

Relatively fewer revisions in Conciseness were found in SL's drafts. This could have been due to the fact that her paper was meant for a poster presentation so there was greater allowance for space than in the case of the extended abstracts.

No revisions for Conciseness were indicated in SR's drafts. A possible reason for this is that SR began her paper with a very narrow focus: the reporting of the preliminary studies in identifying species of fungi collected. Unlike the others, she was at the beginning stage of her research and did not, therefore, have a wide domain of information from which to select her content. It is possible that this narrow focus enabled her to complete her first draft in the much shorter time of three to six hours compared to the others who took between five days to two weeks to complete their first drafts.

The above could be the same reason for SR's lack of revisions in the category of Known/Standard Information. Almost equal numbers of changes were done by the other three writers in this category. Some of the information removed in this change included the deletion of the method by which temperature is maintained in SL's study, the removal of a detailed description of the gas chromatograph in CL's study and the deletion of the process of hydrolysis in DN's study.

Differences in the number of revisions were found in the category of Claim. As stated earlier, DN was particularly cautious about the reporting of his study. Consequently, the highest number of revisions in this category was found in his drafts in referring to the approach as well as the findings of his study. Many of DN's claims were to be found in the section, Conclusion. The adjustment of claim in this section seems to accord with the findings of other researchers (Dudley-Evans 1991; Bazerman 1988). Claims that justify the practicality of the approach or the choice of organism, among others, were also included in the drafts of the other writers. The intentions of the writers seem to be similar to those of Myers' (1985) research scientists in seeking the consensus of the community.

Table 4.18 in the previous chapter indicates that the most number of revisions overall are in the categories of Formal/Readability,Clarifying/Specifying,

Conciseness and Text Conventions. The first three of these categories affect the use of language in the short papers and would, therefore, correspond to the main heading, Language, in the scheme for classifying supervisor comments employed by Dudley-Evans (1991). The preoccupation with formal accuracy has been reported in studies on the composing of other nonnative speakers writing for academic purposes (St. John 1987; Parkhurst 1990; Shaw 1991). This attention towards the use of language was also found in the composing of Dudley-Evans' (ibid.) subject who was a native speaker.

The importance of clarity, simplicity and accuracy in language of the short papers is underlined by the fact that the seminar is the first forum for the presentation of the writer's study. It is generally accepted that new findings presented at these events may be open to question or debate (Day 1983). For novice writers and researchers, these seminars constitute an evaluation of their research and their potential by experts in the field. The four writers took pains to ensure that their papers reported their studies in clear, unambiguous language without making apparent any inherent weaknesses in their studies. In the case of DN, the approach used was a point of contention. He resolved the problem by adopting a very narrow focus for his study. In CL's drafts, the term "growth performance" was substituted by "growth" because he was aware that the former term had been inappropriately used in his study and would lead to

misinterpretation among those members of the audience with an engineering background.

Barras (1978, p.25) refers to the scientific method as a "cooperative venture" in which a researcher must present a report of his/her study for others to verify it through repeated tests. The need for repeatability of a study then necessitates precise and accurate reporting of the original research. This was another consideration that governed the composing of the four writers. It was emphasised in their discussions with their supervisors who encouraged the use of standard methods of reporting measurements among others.

The category of Text Convention as referred to in this study may correspond to the sub-category, Genre Convention occurring under the main heading Organisation in Dudley-Evans' (1991) scheme. Unlike Dudley-Evans' (ibid.) subject, however, three of the writers had not had prior experience writing a paper of a similar nature. This could be the reason for the fact that these writers had relatively more revisions affecting the textual conventions of the paper among their changes.

The interviews with the writers and their supervisors as well as the examination of the revisions in their short papers have revealed some of the community-specific conventions that these novice writers have adopted in

composing these papers. The adoption of these conventions could reflect aspects of the socialisation of the writers into their discourse communities. Some aspects of the general conventions for composing texts are also evident in the processes of the writers. The two sections that follow list some of these aspects that were deduced from this study.

5.2   Aspects of Socialisation

5.2.1   Topic Selection

The topics of the papers were based on aspects of the research pursued by the four writers. The topic was decided upon through discussions with the supervisors, readings and discussions with peers. The themes of the seminars at which they were to present their papers was also a useful point of reference in deciding upon the angle of the paper.

Generally, the choice of topics for the four papers appears to have been decided by the "consensus" (Parkhurst 1990) of the academic community. SR's paper on sand fungi noted that recent work had been done on the microorganism elsewhere in the world but not in Malaysia. CL's Introduction in his paper indicated that the microalga he had chosen to study had been proven commercially useful. SL and DN focused on the local problem of palm

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oil waste. Their references showed that recent studies had found this area to be a current problem.

The selection of the angles for their papers seems to indicate the writers' awareness of the value of new information to their discourse communities. This awareness was fostered through their discussions, readings as well as through their own expectations as participants in the academic community. The role of expectations is highlighted in Bazerman's (1985) findings of physicists reading articles in their disciplines which showed that articles were chosen partly for their current value in the field. The writers in this study appear to have realised this significant point.

5.2.2 Collaborative Effort

In shaping their papers, the writers were found to rely on a number of sources. These sources included the supervisor, references in the form of monographs, journal articles and short papers published in proceedings of conferences, guidelines issued by the convenors of the seminars that they were to attend as well as peers. The input from the various sources were valuable to the writers in matters of genre requirements, content, selection and organisation of information as well as in lexical, grammatical and stylistic choice. The use of these sources would appear to have developed a keen awareness of the formal

schemata of the genre in the writers. The organisation of the information into appropriate sections is an indication of this awareness. The supervisors were the most important point of reference for all aspects of the composing and played pivotal roles especially during the revisions of the papers.

Collaboration on writing tasks have been established in a number of studies on composing for specific purposes (Selzer 1983; Myers 1985; Winsor 1989). The composing done by the experts in the studies have been found to rely on a number of texts as well as people in the same field. The final text produced is the outcome of input from sources. The writers in the present study seem to have unconsciously adapted to the notion of a paper for presentation as being a collaborative effort rather than a singlehanded endeavour.

5.2.3 Formal and Content Schemata

The content necessary for the papers was developed through the main research carried out by the writers as well as through their reading. A particular aspect of their research was then selected for inclusion in the text. The convenors of the seminars attended by these writers had imposed a page limit of four pages for these short papers. The writers conformed to these conventions by selecting only information that was new or unique to the study. This was especially so for the section Materials and Methods. These changes are

apparent in the revisions carried out in the drafts that occur under the categories of Known/Standard Information and Details Specific to Study.

The drafts of the four writers showed a keen awareness of the rhetorical considerations exploited in short papers. The development of formal schemata was made possible through the various sources stated above under 5.2.2. The influence of these sources sensitised the writers to the need for clarity and precision in their writing and led them to approximate the stylistic conventions of scientific writing as in the passivization of sentences in order to foreground certain types of information.

The writers ensured that both content and rhetorical considerations were given due attention for effective presentation of the findings of their studies according to the conventional guidelines of conferences. This was achieved through revisions which refined the overall text and, in the process, sharpened the "dimly felt sense" (Freedman 1989) that the students may have had of the genre.

5.2.4 Audience Awareness

A significant number of revisions carried out by the writers were to conform to audience expectations. The subjects were aware of the type of audience that

would receive their papers. Since many members of the audience were those with experience in the field, the writers in this study gave much attention to the preparation of their papers to ensure that their papers would be well-received.

The use of hedging was found in DN's drafts to preempt any question over his use of an approach that had been unfavourably regarded by other researchers. While there was some downtoning of language in parts of the texts of the writers, there were also some examples of the upgrading of claims in other parts. An instance of the upgrading of a claim may be found in the drafts of SL. She added an observation in the Conclusion to highlight the enhanced production of laccase achieved through her study (refer 4.3.7). She later noted in her interview that the enzyme, laccase is currently highly regarded for its commercial use.

Audience consideration is also seen in the modification of the text to match the existing schema of the members of the audience. An example of such a change is found in CL's paper. In his interview he pointed that he had given more focus to the apparatus used in his study while preparing his paper. This was because he knew that the many engineers attending the conference would be interested in the apparatus rather than in the microalga studied.

to them and time was spent in learning its conventions. The engineer and scientists who were the subjects in Selzer's (1983) and St.John's (1987) studies were experts in their field. The genres that they were composing were familiar to them. It is possible that the processes involved in the creation of the genres had become automatic in these writers as a result of familiarity with the genres.

5.3.2 Formal Accuracy

The discoursal considerations of the text such as appropriate paragraphing and the need for organisation of information moving from the general to the specific were discerned in the revising decisions of the writers. Generally, the writers ensured that the paragraphs were kept short with the discussion of one topic in each paragraph. This was part of the basic advice given by their supervisors. This advice was also applied to the construction of sentences which were requred to be short and simple.

All four students emphasised their concerns with the accuracy of the text. The language elements would appear to be considered the building blocks that support the manipulation and presentation of the content schemata. The students, therefore, revised their texts to ensure that the communication of their studies were not marred by inaccuracy in language.

The writers also seem to be aware of the functional aspects of grammar. For instance, in referring to the fast growth of the microalga, CL substitutes the verb phrase "appears to be" with "is". Upon being queried on the change, he pointed out that the simple present tense was more appropriate since the sentence was a statement of fact.

5.4 Implications of the Findings

Huckin and Olsen (1983, p.3) have pointed out that an individual's success in science and technology may be ensured through the effective use of communication skills. The intrinsic value of any research is outweighed by its extrinsic value in being made known to others. Publishing research ensures the achievement of recognition of the research as well of the researcher. Written communication skills are one of the most prevalent means by which the status of research is enhanced. The measure of a researcher's success in his chosen field is also based on his ability to use highly conventionalized and stylized forms to publicise his work for the members of his research community.

The present study appears to indicate that truth in its unprocessed form as content of a paper may reside in the mind of the writer. This content may have been arrived at through the researcher's study. However, the sociological aspects of the writer's academic environment play an important role in

processing and shaping the information to meet the needs and expectations of the community.

In the course of making this truth known to their community, the writers in the present study appear to grapple with three main problems that are related to their sense of self-worth as well as to being accepted into their discourse community. The first hurdle that the writers have to negotiate is that of general linguistic and communicative competence. All the writers expressed a concern with the correct usage of language during their interviews. This concern was also seen in their attempts at improving the linguistic realization of their meaning through formal accuracy and appropriate usage. These changes were effected unconditionally, independent of all other considerations. The fact that their papers were to be presented at international events as well as the fact that some members of the audience were experts in their field of research seem to have been some of the considerations that raised the linguistic consciousness of the writers. Accuracy in language was necessary to present a suitably academic, professional image of themselves to the discourse community.

The second problem that seems apparent in the study is the need for the acquisition of linguistic and communicative competence in the dialect of the discourse community. The writers had to have an awareness of, for instance, appropriate technical and semi-technical terms to avoid ambiguity in

reference. This knowledge is gradually developed through exposure to written texts as well as through interactions with expert informants. An acquaintance of the discourse dialect was useful in ensuring cogent, effective presentation of information encoded in appropriate form, convenient for assimilation and interaction within the discourse community. A lack of familiarity of the discourse dialect of the community could produce confusion through the inaccurate use of terms and structures.

The third problem that the writers grappled with is the use of the community dialect in conventionally appropriate forms of the genres. This includes learning the basic conventions of layout, deciding on the amount and type of information to be included as well as being aware of the rhetorical uses of each of the sections in the genre. The writers were careful to ensure that their papers were within the bounds of acceptability and appropriateness. As novice writers and researchers seeking to establish themselves, learning to use the various genres would appear to be akin to learning the protocol for communicating with the members of the community.

The four short papers presented by the writers could, therefore, be considered as the successful outcome of their negotiation of the three hurdles mentioned above. It would appear, from the study, that these concerns were concomitant rather than developmental in occurrence. The processes that the writers

iderwent in the shaping of their texts may be viewed as important milestones arking their initiation into their academic community.

.5 General Conclusions of the Study

As noted in Chapter One, English is the primary language of publications in higher education especially at the University of Malaya. It is also the language of choice when papers and articles are to be published or presented at international levels. However, an awareness of the central role of English in writing for academic purposes seems to be raised in students only at the postgraduate levels. At this late stage, students are required to intuit rules of discourse and adopt rhetorical stances in communicating their research to an audience of experts comprising more than just a subject lecturer or tutor. The content schemata developed at the undergraduate levels may be useful to students in examination situations. However, when this schemata has to be applied in real communication, questions of the efficacy of the message and its appropriateness may arise.

The above problem is further aggravated by the fact that the language of such communication is commonly English as was seen in the cases of the four writers of the present study. The novice writer, then, has to struggle to frame the rhetorical intentions of the text in a second language. And yet, interactions

and communications are an integral part of academic life. The growth and development of an individual, his/her career, the discipline and society at large among others are dependent on such interactions. The sharing of knowledge, then, is the mantle of social responsibility on the shoulders of a researcher or scholar. The question is how a nonnative novice writer may fulfil this responsiblity.

A possible solution to this problem is the implementation of support programmes in writing. While there appears to be a need to initiate such programmes in higher education, there also seems to be a place for these at the secondary level in schools. An early awareness of the realistic aspects of writing for specific purposes may be inculcated in students at school to equip them to meet future academic challenges. Ultimately, these acquired skills of communication may be for life, creating an articulate and dynamic member of society.

Studies such as the present one may be useful in charting the way for pedagogy in classes. The most important observation derived from the present study is the need to develop a sense of purpose and audience in writers. This observation could be used to influence writing pedagogy and curricula of courses. Course designs influenced in this way would then employ pedagogy emphasising real life tasks and the use of genres necessary for academic or

professional purposes. Such pedagogy, in turn, may be successful in fostering in students a sense of direction in writing. At higher levels of education these writing classes would then lead students to fit their writing to the occasion and the recipients of the message. To do so, students would need to manipulate and exploit their existing content schemata for rhetorical purposes.

As demonstrated in the present study, writing, when carried out for real purposes, is not an isolated skill that occurs in a vacuum. It is the product of interactions and discussions with peers, colleagues and superiors; it is also the result of much reading and active research. The collaborative nature of composing especially in discipline-specific writing is a necessary aspect that must be included in course design for writing. From the point of view of pedagogy, therefore, the use of integrated skills in writing classes appears to be a fundamental consideration in bringing the writing task into the dimension of reality.

The cognitivist tradition as embodied in the process approach has a place in the teaching of writing. In this approach, the individual's personality and representations take centrestage often. However, writers must also be made aware of situations in which the social norms and expectations must be given greater focus in composing. The plea here is for the teaching of genres and their social functions in particular discourse communities. At the same time, it

is impossible and indeed unnecessary to teach all the possible types of texts that a student may be expected to produce in his discipline. The point of the approach is to create a sensitivity in students towards the writing of such genres.

Designing a genre-based course raises the question of the type of person qualified to design such a course. In higher education, the course design should ideally be the product of collaboration of the subject specialist and the language specialist. In this way, a sensitivity to the social norms and frames of reference of the community as well as the parallel development of linguistic competence may be represented in a balanced manner. This type of cooperation between the specialists could pave the way for a better interdisciplinary understanding as well as an understanding of the problems that students face.

At present, courses in Research Methodology offered to the students of the MPhil programme at the Institute of Advanced Studies incorporate a component in report writing. This component which takes up one-third of the total time devoted to Research Methodology is conducted prior to the commencement of research by students. However, students who are involved in real writing tasks based on their research do not have the support of such a course. It is the belief of this researcher that students become aware of the

individual problems when they begin to write for real purposes. It is, therefore, at this point that they find the necessity of a supportive writing programme that could help them work with their composing tasks. A course of this nature could allay the fears and insecurities of the students in reporting their work. It could also lighten the burden of supervisors in editing and proof-reading the papers of their students so that they may concentrate on the content of the text.

5.6   Limitations to the Study

The most obvious limitation to the present study is the fact that it is a case study of just four writers. It would, therefore, be impossible to generalise the findings as being typical of the composing processes of postgraduate students of microbiology writing conference papers. Rather, the study gives an insight into some of the processes of four individual postgraduate students. It is possible that individual behaviours even within a discipline could vary from person to person.

As a result of being a case study, the analysis of the writers' revisions are examined mainly in a qualitative manner. There are no statistically significant findings derived from this study about the revisions of the writers. Instead, the emphasis is on subjectivity in the explanation of the findings; the motivation of the writers are given due emphasis in the analyses and discussions.

The text used represents a limitation as well. The scope of the study allowed the examination of the drafts of a single text of short conference papers only from each writer. An examination of a number of such texts written by the same writers for other conferences would have been useful in discovering if their composing behaviour varied in any way. It is possible that the impact of sociological influences would have been more obvious in the same persons's composing.

Furthermore, the present study focused only on texts written by the four writers for presentation at conferences. It is possible that different types of text written for other purposes such as publications for journals may show different processes in the writers' composing processes.

The limitation of the time period allocated to the study meant that it was impossible to chart more of the process of adjustment by which a novice writer is socialised into his/her academic community. The scope of the study as well as the time allocated were not sufficient to understand the complexities of the environment in which these writers operate. As such, the developmental strategies through which a novice writer acquires an understanding of the academic community as well as the "specialised literacy" necessary to interact within the community is not clearly seen in this study. A longitudinal study of

a number of texts over a longer time period could have revealed more of the processes of the writer's socialisation into the community.

Another limitation is related to the discipline of science that was the focus of this study. The writers of this study were all students from the discipline of microbiology. As such the processes noted in this study need not necessarily apply to the writers in the other scientific disciplines.

The interviews with the writers in collecting data required them to recall retrospectively some of the decisions taken in revising their papers and their motivations. It is possible that some of the information recalled may have been different from the actual process that the writers underwent at the point of composing.

5.7 Suggestions for Further Research

This study examines the writing of short papers mainly from the point of view of revision. It would be interesting to give greater focus to the total process of composing as experienced by the writer. Focusing on the various stages in composing could highlight the influence of community-specific norms on the decisions taken at the various points in the writing of novice writers. The findings from such a study would make more of the processes of writing

explicit for academic and pedagogic considerations. A more complete picture of the composing process may be obtained in this way.

Studies of the writing of novices may also be complemented with investigation into the processes of experts composing short papers for conference purposes. This could be a useful type of comparison in discovering the types of processes that have become automated in the writing of experts. It could also set the standard by indicating the means by which writers may achieve effectiveness in their composing.

To further complete the picture, a genre analysis of the different types of short papers commonly presented at conferences could be undertaken to discover possible, absolute norms and conventions. Such an analysis was not possible in the present study which was focused only on the writer's processes.

There appear to be many "alien worlds" that must be visited and reported on in the quest for true learning and understanding. Such ventures require a non-judgemental attitude as well as a spirit of adventure, curiosity and imagination. These endeavours may be viewed as necessary steps that foster mutual exchange and respect between worlds. The outcome of these ventures could also provide the means to empower society with knowledge necessary to meet future challenges.

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