Novice and expert writing in the medical sciences: report of a program of language assistance for a PhD medical student

This paper reports findings from a program of language assistance for a PhD medical student. The program took the form of a comparative study of the student's draft of a research article, and her supervisor's rewrite of it. The linguistic framework for the analysis was based on the “functional grammar” of Halliday (1985) and the move analysis of Swales (1981). Observed differences in the transitivity and thematic structure in the two texts suggested a greater level of self-consciousness on the part of the student in the research process. The value of this comparative approach, both as a tool for genre analysis and as a pedagogical method, is considered at the end of the paper.

1. Introduction

A useful concept in the field of literacy education is the notion of “discourse community”. Originally coined by Bizzell (1982), the term derives from the now widely held view that “discourse operates within conventions defined by specific communities”, including for example academic disciplines or professional associations (Herzberg 1986: 1). John Swales (1990), an important writer in this area, suggests that discourse communities can be distinguished by a number of characteristics, including inter alia, the possession of specific written and spoken genres which are deployed by a group “in the communicative furtherance of its aims” (p.26). Of interest to the field of literacy education are the processes by which individuals gain membership to these communities, including how they gain mastery over a community’s “specific genres”. In this regard, Swales draws a useful contrast between the term discourse community and an older term from sociolinguistics, speech community. Whereas a speech community typically has an hereditary membership augmented by “birth, accident or adoption”, a discourse community recruits its membership “through persuasion, training or relevant qualification” (Swales, p.24).

For students studying at tertiary level, particularly those engaged in graduate studies, it is possible to conceive of their enterprise in the anthropological terms suggested in the notion of the discourse community. As Gerholm (1985) points out:

any person entering a new group with the ambition of becoming a fully fledged competent member, has to learn to comply with its fundamental cultural rules. This applies also to academic disciplines (p.22).

Of these cultural rules, Gerholm identifies knowledge and command of the repertoire of the discipline’s discourses as perhaps the most important. Unfortunately however, for many graduate students, their “community training” as novitiates does not always extend to receiving explicit instruction about local discursive practices. This is perhaps most true of the scientific disciplines, which tend to place greater emphasis in their training on students’ acquisition of disciplinary knowledge and techniques of scientific experimentation. Many scientists also express a reluctance to engage in the teaching of writing matters, often insisting that “they do not know anything about language”. One reason for this view is that, as expert and fully initiated members into their particular discourse community, their knowledge of language and genres has become tacit and internalised (Vance 1995). As Bazerman (1988) suggests, scientists are so imprinted with the
rhetoric of their discipline, they believe themselves to be recording natural facts; they are not constructing or inventing elaborate persuasive pieces but "continuing business as usual" (p. 321).

Nowadays at universities, the task of providing explicit writing instruction to students in their disciplines is falling increasingly to applied linguists and literacy specialists. In the programs offered by such units as the Monash University Language and Learning Unit, the role of the language adviser is to act as an interpreter of disciplinary sub-cultures and in particular to attempt to bridge gaps between the often incomplete discursive knowledge held by novitiates in the discipline and that possessed by its experts. Although this role is often fraught with difficulty - the language adviser must operate unavoidably with a limited understanding of the content-base of their students' disciplines and also sometimes with an uncertain understanding about which textual practices are of value and worthy of emulation - the "outsider" perspective is generally acknowledged to be useful one (Ballard 1994).

The present article aims to give a sense of the type of contribution that language advising work can make to the processes of discourse acquisition in the university by describing in detail a particular program of language assistance conducted for a student working in the field of medical science. The article focuses specifically on the linguistic insights that can be gained from a close textual analysis of expert and novice writing. The value of the approach, both as a tool for discourse analysis and as a pedagogical method, is considered briefly at the end of the paper.

2. Background to the program

The program of language assistance described was for a PhD medical student, studying in the field of reproductive biology and engaged in IVF research. Whilst the student described herself as a second language speaker (LI Hebrew), she had a very high level of proficiency in English and had completed her undergraduate studies in English. At the time of the program, she had been resident in Australia for six years. The student decided to attend the program after her supervisor suggested she seek assistance to improve her writing. The supervisor was not specific about the nature of the student's writing problems, informing her only that her write-ups of several joint research projects were not of a publishable standard. This had led the supervisor to be involved in substantial rewriting of her draft articles.

The main activity in the language assistance tutorials involved comparing one of the student's draft articles with her supervisor's rewrite of it. The differences observed between the two texts were not simply thought of as "conventional" in the instance of the supervisor's text and "deviant" in the case of the student's. Instead, these differences were used to generate hypotheses about certain generic features of medical research articles - hypotheses that would require subsequent testing. This testing was performed by two means: i) by analysing particular generic features in a small corpus of articles from the medical journal to which her article was to be sent; ii) by referring to previous findings from research in the field of research article (RA) genre analysis. The enterprise was therefore conceived of not as a prescriptive one (this is how it must be done), but as a descriptive one (this is how other writers appear to have done it). The linguistic framework for the analysis was based on two sources: the "functional grammar" of M.A.K. Halliday (1985) - used to analyse language choices made by the two writers at the clause level - and the "move analysis" of John Swales (1981, 1990) - used to analyse language choices made over extended sections of text.

Before discussing the specific findings from the tutorials, a brief description of the content of the articles is provided. The student and the supervisor work together at the Centre for Early Human Development, Monash University and are involved in in vitro fertilisation research. The research project which their two articles report was concerned with investigating what effects certain chemical agents used to enhance sperm motility may have on fertilisation rates and subsequent embryo development. In particular the student and her supervisor wanted to find out whether these chemicals were detrimental to the growth of embryos. The effects on both mouse and human embryos were investigated.

The student's working title for the article was: The effect of the pharmacological reagents 2-Deoxyadenosine and Pentoxifylline, on human and mouse in vitro development, which was modified slightly by the supervisor thus: The effect of the sperm motility activators 2-Deoxyadenosine and Pentoxifylline used for sperm microinjection on mouse and human embryo development.

3. Findings

The program, and the findings obtained from it, were divided into two parts. In the first sessions, we considered linguistic and rhetorical features that ranged over the
whole texts; in later sessions the focus was on features specific to the different sections of the two texts: ie. Introduction, Method, Results, Discussion.

3. Whole Text Analysis

3.1. Grammar

The first issue to be dealt with was the perennial problem of sentence grammar. The student, in fact, conceived of her problems as essentially grammar-related and believed she primarily needed to "brush up" in a few areas - sentence structure, verb forms etc. The underlined verbs in the following sentences from her text suggested however, that simple notions of grammatical correctness would be of limited value.

(1) The results from this study indicate that 2-DOX dramatically inhibit in vitro development of mouse and human embryos.

(2) In most of the cell types studied, 2 BOX is inhibiting adenylate cyclase activity.

The verb - inhibit - in (1) is formally incorrect (omission of third person "s"). How, though, were we to deal with the same verb - is inhibiting - in (2)? This verb, in the progressive form, is not formally incorrect but is inappropriate here. The student text was found to contain a number of progressive verbs; in the supervisor text there were no such instances. The absence of progressive aspect verbs in scientific writing has been previously established (Barber 1962). The implication for the tutorials of differences like this in the two texts was that grammar had to be dealt with on at least two levels: a generalised grammar with an emphasis on accuracy and a gestic grammar with an emphasis on appropriacy.

3.1.2 Participants and Processes

There was an additional type of grammar that was employed in the text analysis in the tutorials; not a syntactic grammar of subjects and verbs but a semantic grammar of participants and processes (Halliday 1985). Below is a list of some of the entities or participants that are typically involved in medical research processes and that are likely to be depicted in a textualisation of these processes.

1. The researchers involved in the research to hand
2. Other researcher's work whose work is relevant to the research to hand
3. Objects used in the research. These might be divided into two types:
   3a. objects used to conduct the research ie. various apparatus,
   3b. objects investigated in the research (in the case of this research - "sperm", "oocytes", "embryos", "pharmacological reagents" etc.)
4. The research itself, including various scientific concepts - "experiment", "hypothesis", "effects", "results", "data", "statistical significance", "findings" etc.
5. There is another possible human participant, one not engaged in the research as such, but present in the textualisation of the research; this is the reader.

It was noted in the student's text that the first two participant types (both human participants) were given some prominence. The following underlined elements are instances of explicit reference to the researchers involved (Participant - type 1), ie. the student and the supervisor.

(3) In our IVF program modification of this protocol was used to stimulate sperm from men with obstructive azoospermia.

(4) ... it might not be the case in the hybrid used in our study and that the effects of the purine 2-DOX, is detrimental to the development of the embryos in the mouse strain we used for the research, as well as for the human embryos.

In the supervisor's text, it was noted that the researchers involved were given no specific mention, evidenced by a total absence of first person pronominals. The researchers are conceived rather as other participants: other researchers (participant - type 2) underlined in (5) or the research itself (participant type 4) underlined in (6).

(5) DOA and the phosphodiesterase inhibitor pentoxifylline (PTF) have been used separately (DOA - Imoedemhe et al, 1990; PTF - Yovich et al, 1990) or together (Trounson et al, 1989) to increase sperm motility and fertilisation rate for human male factor infertility.

(6) The present experiments explored the effect of the purine analogue DOA...
use “reporting citations” when referring to previous research, underlined in (7).

(7) Aitken et al. (1986) found an increase in cAMP levels in human sperm when exposed to 2-DOX.

In “reporting citations”, the researcher(s) is depicted as having done something, in this case finding. In contrast, the supervisor’s text shows a preference for “non-reporting citations” underlined in (8).

(8) The adenosine analogue 2-deoxyadenosine (DOA) is a potent activator of sperm motility and this property is a result of increased cAMP in sperm incubated in the presence of DOA (Aitken et al. 1986).

“Non-reporting citations” present propositions only; the activities of the researcher(s) being effectively suppressed by not being attached to a verb. The activity of the researcher is literally and figuratively “bracketed off.”

This variable treatment of human agency in the two texts suggests the research process has been conceived by the two writers in slightly different ways, as set out in Figure 1 below.

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>a research project is conceived</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 2</td>
<td>procedures are carried out (which cause things to happen)</td>
</tr>
<tr>
<td></td>
<td>−</td>
</tr>
<tr>
<td>Phase 3</td>
<td>results emerge</td>
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<tr>
<td>Phase 4</td>
<td>propositions emerge</td>
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<td></td>
<td>−</td>
</tr>
<tr>
<td>Supervisor Text</td>
<td></td>
</tr>
<tr>
<td>Student Text</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1: Different conceptualisations of research process (Supervisor text & Student text)

These phases in both texts correspond to the Introduction, Method, Results, Discussion respectively. The second phase (Method) includes much human activity expressed indirectly in the form of passive verbs as in (9) from the supervisor’s text.

(9) The wives were superovulated using the Boost protocol.

In the supervisor’s text, after these processes have been set up in Phase 2, “research” as such becomes the main participant and there is minimal reference to human agency in the ensuing sections. These last two phases are conceived of as intransitive processes. In the Discussion section, results are not so much interpreted; they speak for themselves. Gilbert and Mulkay (1984) describe this depiction of the research process as an “empiricist discourse”, a discourse, they suggest, that denies the “interpretative” nature of research and research writing and “denies that its author’s actions are relevant to its contents” (p.56).

The student’s text is not so thoroughly “empiricist”. Its latter sections contain more explicit reference to human agency, as in the underlined elements in (10a) and (11a).

Sentences (10b) and (11b), from the supervisor’s text, depict similar, though not identical, semantic content but with an absence of self-reference.

(10a) A clear significant reduction in the blastocyst formation was observed. (Student text: Results)

(10b) In the cumulus intact group, development to blastocysts was significantly reduced... (Supervisor text: Results)

(11a) Still we cannot ignore the possibility that 2-DOX can cause inhibition of adenylate cyclase activity... (Student text: Discussion)

(11b) The adenosine analogue DOA is a potent inhibitor of mouse embryo development... (Supervisor text: Discussion)

The examples from the student’s text evoke, to a greater degree, the diligent work of a medical researcher: making observations and reflecting on these observations. They suggest a greater “self consciousness” on the part of the student in the research process and a greater sense of the research being a human activity. The use of the inclusive “we” in (11a) also suggests consciousness of another participant, the readership (Participant-type 5). This is also evidenced in the tentativeness of the claim made by the student in this sentence. The supervisor will also be keenly aware of his readership (probably more so) but his text seeks not to betray this.
3.1.3. Thematic Structure

Our analysis of thematic structure in the two texts revealed a number of differences. Theme here refers to "that element which comes first in the clause" and is "that with which the clause is concerned" (Halliday 1985:38). Grammatically, the theme is all those elements that occur ahead of the main verb (see Gosden 1992 for a similar use of Halliday's notion of theme in the analysis of scientific research articles). The following selection of themes from the two texts give a sense of the differences in thematic structure. These themes are from the first sentence of each paragraph (paragraph themes or topic sentences) in the first two sections of both texts (Introduction, Method). By considering these paragraph themes in the tutorials, it was possible to observe not only "that with which the clauses were concerned", but also that with which the texts were concerned.

(12) **Student Text**


(12b) By using the pharmacological agents, human sperm...

(12c) In order to obtain a longer peak phase, combination of the two drugs...

(12d) In initial study on sperm microinjection in our IVF program (Sakkas et al. 1991), only 10% of the oocytes...

(12e) However, in a later clinical trial, as presented here, it....

(12f) The present study...

(12g) Human oocytes...

(12h) Except one case, the male partner...

(12i) Oocytes...

(12j) Sperm samples...

(12k) Mouse oocytes...

(12l) Three to 4, 10-12 week old F1 hybrid males...

(12m) A dose response...

(12n) To determine the effect of the incubation time with the drugs that can influence further development of the oocytes, sperm...

(12o) How a direct exposure of the plasma membrane to the drugs in the sperm solution will effect the oocytes... (sic)

(12p) In order to find out whether combined use of the drugs will have a different effect on the embryo development, mature, cumulus free oocytes...

(12q) One cumulus mass or about 20 denuded oocytes...

(12r) The microinjection procedure for the mice...

(12s) For the human, apart from small modifications, the procedure...

(12t) After the mouse and human oocytes were injected, they...

(13) **Supervisor Text**

(13a) The adenosine agent, deoxyadenosine (DOA)...

(13b) However, there...

(13c) A total of 26 couples...

(13d) The wives...

(13e) Semen samples...

(13f) Mouse oocytes...

(13g) Sperm...

(13h) Capacitated sperm...

(13i) Capacitated sperm...

(13j) Capacitated sperm...

(13k) The microinjection technique...

(13l) Data...

The notable feature of the thematic structure of the supervisor's text is that, in almost all sentences, the grammatical subject of the clause is thematised i.e. the grammatical subject occurs in sentence-initial position. These subjects are mainly the various objects of the research (participant 3b.), eg "sperm" and "oocytes", which together represent the dominant themes of the text; they are what the text is focussed on. In contrast, the themes of the student's text were found to be more varied in content and grammatical structure. The student, for example, chose to thematise a variety of purposive elements (12c, n, o, p), temporal elements (12e, t) and instrumental elements (12b), all of which are absent in the supervisor's text. Again, this suggests a greater "self consciousness" on the part of the student in the research process.
The uniform thematic structure of the supervisor's text, we might describe as contributing to a "discourse of precision". The supervisor's text is formally very systematic and anonymous; the student's, more haphazard and individual. About this, the student explained that the research process was not in fact as systematic and planned as is suggested in the supervisor's text, and to a lesser extent in her text. She pointed out that the experiments described (along with others not mentioned in their texts) were conducted before the actual purpose of the study was finalised; the purpose being determined in part, by the results obtained. This disparity between the realities of the research processes that operate in the lab and the realities that are constructed in research papers has been discussed in a number of studies (eg. Knorr-Cetina 1981; Latour &. Woolgar 1986). One aim of a research article then, it appears, is to create the impression that the processes of research have been entirely orderly ones. The grammar of the supervisor's text fits this aim.

(Aparicio 'et al 1979; Marrama et al. 1985; Yovich 1991) proved to increase sperm in a sample. An absence of Move 3 was also noted, the present study being introduced without explicit explanation of how it fits into previous research conducted in this field. Finally, an additional move was included in the Introduction, namely a summary of the results of the study.

However, in a later clinical trial, as presented here, it was found that the effort of the protocol used to stimulate and increase fertilisation rates by microinjection is detrimental for the embryonic development.

The supervisor's Introduction, in addition to a variety of other changes, was found to exhibit a rearrangement of information consistent with the Swalesian model. It begins with reference to generalised knowledge already established in the field:

The different tense usage in the two opening sentences was noted here - simple past in the student's Introduction (14) denoting specific findings and simple present in the supervisor's (16) denoting generalised knowledge. Furthermore the rationale of the present study (Move 3) is given prominence in the supervisor's Introduction, occurring as it does as a paragraph theme.

However there has been little attention paid to the possible detrimental effects of these motility activators.....

Reference to the results of the present study was not included in the supervisor's Introduction.

The student explained that she had no prior knowledge of the rhetorical conventions that appear to govern the construction of article introductions. As mentioned previously (3.1.3), the move sequence in the supervisor's Introduction does not correspond to the way the research was actually conceived and conducted. The student explained that the results from a variety of clinical trials were crucial in determining what the specific purpose of the research would be. It was for this reason that she chose to signal the results in her Introduction. The
supervisor's text, which is ordered more as a sequential narrative, gives the impression that the project was perfectly preconceived.

3.2.2. Method Sections

The student's Method section was considerably longer than the supervisor's. We noted that this was partly due to the student's tendency to explain the reasons why certain procedures were used. As noted above (3.1.3), her Method section includes a number of purposive elements, underlined in the examples below:

(18) How a direct exposure of the plasma membrane to the drugs in the sperm solution will effect the oocytes was found by sperm microinjection into the perivitelline space.

(19) A dose response test was done to assess what concentrations of the drugs have a negative effect on the embryonic development.

(20) To determine the effect of the incubation time of...
Sperm were incubated...

(21) In order to find out whether combined use of the drug will have a different effect on the embryo development...

(22) In this way, the critical stage that is affected by the treatments could be identified.

It was noted that these purposive elements were entirely absent in the supervisor's Method. His rewrite of this section presents only an account of the procedures that were followed. For example, (18) above from the student's text is reduced as follows:

(23) Four to ten sperm were microinjected into the perivitelline spaces.

The student, reflecting on this difference, suggested that it probably relates to the differing levels of experience and indeed authority possessed by the two researchers. She mentioned that, as a novice researcher, she felt the need to explain in detail what had been done and to justify each step to her audience. The supervisor's approach we noted is consistent with observations made by Swales (1990) - that Method sections in the physical and life sciences are becoming increasingly "enigmatic, swift, presumptive of background knowledge and not designed for easy replication" (p 170).

3.2.3. Results Sections

The supervisor's Result section again demonstrates this "discourse of precision" discussed earlier. A symmetrical, repetitive pattern was noted in the description of results for the first experiment in the study. This pattern can be seen in the thematic structure of the topic sentences in the following sub-section:

(24) Supervisor Text

Experiment 1:

(24a) A total of 150, 158, 226, 239, 189, and 215 cumulus intact oocytes were inseminated...

(24b) The development to blastocysts at 120 hr after hCG of cumulus free oocytes fertilised by sperm treated with DOA is...

(24c) A total of 80, 101, 108, 70, 81, and 65 cumulus intact oocytes were inseminated...

(24d) The development to blastocysts at 120 hr after hCG of cumulus free oocytes fertilised by sperm treated with DOA was...

In this section, the paragraph theme of the first paragraph (24a) is repeated in the third paragraph (24c); the paragraph theme in the second paragraph (24b) is repeated in the fourth (24d).

No such recurring pattern was identified in the student's text. The first four paragraphs of the equivalent section in the student's text begin as follows:

(25) Student Text

Experiment 1:

(25a) The rates of blastocysts formation from cumulus intact and free oocytes fertilised in the presence of increased concentrations of 2-DOX and PTF are presented...

(25b) A total number of 80, 101, 108, 70, 81, and 65 cumulus intact oocytes were inseminated...

(25c) Figure 2 presents...

(25d) When cumulus free oocytes were inseminated...

The student explained that she had deliberately not opted for a symmetrical pattern because she believed this would be tedious for the reader.

Further analysis of paragraphs revealed additional symmetries in the supervisor's Results section which were
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absent in the students'. For example a cyclical move structure was identified in most paragraphs as follows:

Move 1 Identification of treatment group by restating method
Move 2 Presentation of data by referring to figure or table and/or listing figures in text
Move 3 Interpretation of data by commenting on its significance.

This move structure can be seen in the following paragraph from the supervisor's text:

(26) Experiment 2: The number of oocytes inseminated with DOA (control) and incubated in 3mM for 4 to 6 hr (short incubation) and 18 to 20 hr (long incubation) were 133, 119 and 100 respectively. The percentage of fertilized oocytes were 52+3.6, 54+6.3 and 38+6.6 for the control, short incubation and long incubation, respectively, with no significant difference between the groups.

3.2.4. Discussion Sections
The complex structure of Discussions has been described in a number of studies (eg. Peng 1987; Hopkins and Dudley-Evans 1988). Hopkins and Dudley-Evans have identified the following typical moves in this section of research articles:

Move 1 Background information
Move 2 Statement of results
Move 3 (Un)expected outcome
Move 4 Reference to Previous Research
Move 5 Explanation
Move 6 Exemplification
Move 7 Deduction
Move 8 Hypothesis
Move 9 Reference to Previous Research
Move 10 Recommendations
Move 11 Justification

Hopkins and Dudley-Evans suggest that many of these moves are optional. With such a variety of potential moves, their schema was found to have limited usefulness in the tutorials. Identification of moves proved to be an overly-delicale exercise and it was also difficult to distinguish clearly between some categories.

Hopkins and Dudley Evans (1988) suggest however, that there is one quasi-obligatory move in Discussions; this is Move 2 (Statement of results). In the RA genre, this move can be seen as the bridge that links Discussion with the previous section (Results) and is the basis on which any claims are to be made. This move provided a useful focus for comparing the two Discussion sections. In the supervisor's Discussion, several paragraphs were found to be organised around this move. For example his Discussion begins with the statement of the result (Move 2) that:

(27) The treatment of mouse sperm with DOA and PTF and their inclusion in insemination did not increase fertilisation of mouse oocytes.

leading to the deduction (Move 7) of:

(28) a relatively minor influence of DOA and PTF on the fertilising capacity of mouse epididymal sperm...

The student's text was found not to exhibit the same clear use of deductive logic, making it more difficult at times to distinguish between results from an experiment and a generalised claim as in the following:

(29) The results from this study indicate that 2-DOX dramatically inhibits in vitro development of mouse and human embryos. The effect of this compound differ from that exhibited by PTF. In more embryos, their development is arrested prior to the blastocyst stage when oocytes are exposed to 2-DOX than PTF at any concentration used.

In scientific discourse, a movement from specific observation to generalisation is often signalled by a shift from past tense to present tense. In the case of the student's text, the use of present tense throughout (29) makes it unclear what is being generalised.

4. Conclusions
Contrastive studies of novice and expert writings (like the one described in this article and also in Dudley-Evans 1988) have a role to play both as a tool for analysing the linguistic and rhetorical features of specific genre and as a method for helping students to learn to write more appropriately in their disciplines. With respect to the first
of these roles, the program and its findings have made some contribution to advancing knowledge about the RA genre in the field of medical science. Specifically, the analysis of thematic structure suggested to us that uniformity of theme is an important feature in expert scientific writing, one which serves to create an impression of orderliness and precision in the scientific procedures used. Furthermore, the analysis of transitivity (participants and processes) shows a tendency towards the suppression of agency in expert writing, which, as was discussed, may be seen as a rhetorical method aimed at de-emphasising the "interpretative" nature of scientific enquiry.

With respect to the second role - the pedagogical one - it needs to be acknowledged that the approach used in the tutorials was not without its problems. I stated at the beginning of the article that the approach aimed to be more descriptivist than prescriptivist; that the guiding principle was to be that "this is how others appear to write in the discipline" rather than a definitive "this is how it should or must be done". As the analysis progressed however, this distinction became increasingly difficult to maintain. Mounted against this student's honest attempt at writing up her research - with its quirks and also importantly its own distinctive slant on the research process - were the seemingly unassailable authorities of the supervisor's redrafts and the corpus of articles already published and given official sanction. During the course of the tutorials, the student became convinced, sometimes against my reassuring words to the contrary, that on almost all counts, her supervisor's redraftings were more adequate as instances of scientific prose than her own work. At the end of the program, whilst she felt she had acquired the type knowledge that would enable to write up her research in a more systematic way, this was accompanied by a feeling of disillusion - disillusion that generic knowledge involves essentially being informed of the rules of the game and learning that one is obliged to go along with them.

The type of misgivings felt by both myself and the student on this program have recently begun to find expression in the literature on academic literacy. Kramer-Dahl (1995) for example expresses unease about her university literacy work, seeing herself on the one hand engaged in the important task of teaching "generic conventions of academic discourse so that [her] students have a better chance of succeeding"; but on the other, believing herself complicit in a process which "reproduces existing knowledge and power relations" and devalues that which does not conform (p. 22). Similarly, Bizzell (1992) discusses the struggle to develop appropriate pedagogies that are able to "initiate students into academic discourse communities, but without too forcibly imposing on them academic and disciplinary world views" (p. 223). Bizzell adds that an unreflective "genres of the discourse community" approach can lead only to "stylistic indoctrination"; and not to "initiation" but only "inculcation".

There is not the space here to go into any detail about what these "appropriate pedagogies" might be, and indeed in the case of the language program discussed above, how the approach might have been less of an inculcatory one. Perhaps at a minimum, one needs to avoid employing a naive descriptivist approach - that is to restrict one's focus solely to words on a page, and to merely identify which textual features are present and which are absent. What is needed in the process is a more critical descriptivism - one that not only helps students to identify the characteristic features of writing in their field, but also encourages them to consider why high status texts are constructed in the ways they are, and to what ends - epistemologically, rhetorically, even ideologically. To return to Gerholm's (1985) analysis quoted above, the pedagogical task would appear not be to teach students how to "comply with fundamental cultural rules" (including discursive rules) of the discipline, but rather to help them understand what might motivate these rules in the first place, and also to understand what compliance and indeed non-compliance might entail. In this regard, Ivanic (1995) suggests a socially activist role for the language adviser. Literacy programs, she argues, need to be based on the premise that "discourse types are not fixed but in a constant flux"; and that what students need is:

- a sense that there are alternatives available, that they have a degree of freedom in this respect, and that by their choices they might eventually contribute in some small way to social change (p. 28).

In response to the program described above, the student came to believe that her writing was not sufficiently empiricist. One outcome of this was that the personalised and indeed accountable voice spoken in the phrase - "our IVF program" - would in her future writing be more muted. Given the nature of her research field, and the
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broad social implications it has, this on reflection is a matter of some regret.

References


Endnotes

1. In the supervisor's text DOA refers to the reagent 2 Deoxyadenosine. In the student's text the abbreviation 2-DOX is used.

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