CONCORDANCING AND THE TEACHING OF THE VOCABULARY OF ACADEMIC ENGLISH*

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ABSTRACT

The project described in this article has used the concordancing program, Microconcord, with the Microconcord Corpus of Academic Texts (1993) to introduce students unfamiliar with the language of academic discourse to some of the most important, frequent and significant items of the vocabulary of academic English. The project has developed materials for classroom use and independent learning intended for native speakers of English as well as students of non-English speaking background. The materials deal in detail with frequently used words which are common to all fields of academic learning, not attempting to include specialized or technical vocabulary items associated with specific disciplines. Those working on the project are convinced of the value of concordancing in the development of teaching materials focusing on vocabulary and grammar and the line between them. This article describes the approach used and deals with the rationale behind that approach.

KEY WORDS: Academic discourse, English vocabulary, concordancing, independent learning, lexical frequency.

RESUMEN

El proyecto descrito en este artículo ha utilizado el programa de concordancia *Microconcord*, con el *Microconcord Corpus of Academic Texts* (1993) con el fin de ofrecer a aquellos alumnos que no estén familiarizados con el lenguaje del discurso académico algunos de los elementos más frecuentes y significativos del vocabulario del Inglés académico. El proyecto ha desarrollado una serie de materiales para su uso en el aula y para el aprendizaje independiente, indicado tanto para hablantes nativos de inglés como para estudiantes no nativos de inglés. Los materiales abordan de forma detallada palabras muy frecuentes comunes a todos los campos del aprendizaje académico, y no intentan incluir términos especializados o técnicos asociados a disciplinas específicas. Los participantes en el proyecto están convencidos del valor que tiene la concordancia en el desarrollo de materiales didácticos centrados en el vocabulario y la gramática, y de la línea entre ellos. El presente artículo describe el enfoque utilizado y examina la lógica de ese enfoque.

PALABRAS CLAVE: discurso académico, inglés, vocabulario, concordancia, aprendizaje autónomo, frecuencia léxica.

1. INTRODUCTION

Since concordancing programs have become available to teachers and students, their possibilities have been seen as offering new and exciting directions for developing teaching materials, enabling students themselves to make direct discoveries about language (Johns, 1991a, Tribble and Jones, 1990) and as an aid in course design (Flowerdew, 1993). This particular project[1] has used the concordancing program, Microconcord, and the Microconcord corpus of academic texts (1993) to develop teaching materials for independent study of the vocabulary of academic English.

It was decided to develop corpus-based learning materials that would be of assistance to students from any discipline, focusing on lexical items shared across various disciplines. Li and Pemberton (1994:184) point out that tertiary students do not necessarily find discipline-specific technical vocabulary difficult,

> Rather, it is the vocabulary with a middle frequency of occurrence across texts of various disciplines that students find most problematic.

Nation (1990) refers to this range of vocabulary items as "academic vocabulary".

2. RATIONALE

The features of this project which require preliminary explanation are firstly, the decision to focus in detail on a restricted set of vocabulary items, and secondly the use of concordancing techniques to provide the student with intensive exposure to the use of these items.

In choosing the vocabulary items to be dealt with in this project, we began with the extensive University Word List cited in Nation (1990). Using this list, we developed categories of vocabulary items according to the various rhetorical purposes they can serve in academic writing. We then selected items according to frequency of use cited by Nation and our own perception (based on having marked many hundreds of student essays and in consultation with teachers of English for Academic Purposes) of the extent to which their investigation would be helpful to students. In this way we created a list of about 150 examples (see appendix), attempting to group them according to purpose. We will refer to these purposes as

rhetorical functions. Further selection was based on frequency counts provided by Microconcord, using the Microconcord Corpus of Academic Texts. The main rhetorical functions we identified, and the key words for each function on which the project finally focused were:

– Stating the topic of your writing
> factor
> issue
> concept
– Referring to the research literature
> evidence
> research
> source
– Reporting the research of others
> according to
> suggest
> claim
– Expressing opinions tentatively
> may
> possible
> unlikely
> probably
– Explaining procedures undertaken in a study
> identification
> analysis
> criteria
– Drawing conclusions
> conclude
> summarize
> it is clear
> thus

Such a focus on particular rhetorical functions provides a purposeful basis for learning and potentially some structuring for the teaching of academic writing skills. The intensive focus on a limited number of vocabulary items is characteristic of concordance-based materials and is supported by the experience of Tim Johns (University of Birmingham, UK, personal communication). As with Li and Pemberton (op.cit.), students in his view do not necessarily need to master a wide range of academic terms in order to write acceptable academic essays. They do, however, need to be competent users of a restricted set of "semi technical" vocabulary items. Pickard (1994: 218) suggested that, when preparing concordance-based material, there is:

> a potential tension between the aims of wanting to expose students to a variety of vocabulary as a means of encouraging variety in their writing, and using a

concordancer to search for a key word. Through selection of key, frequent words how does one encourage variety?

Variety, however, is not necessarily an end to be pursued for its own sake in the teaching of academic writing, and Pickard goes on to point out that, by drawing students' attention to collocates of the key word, concordance-based study has considerable potential for expanding student vocabulary while dealing in detail with selected items.

Academics from four Australian universities responded in a recent study (Bush, Cadman, de Lacy, Simmons and Thurstun, 1996) to questions about their expectations of student writing. Results indicated that accurate and appropriate use of academic vocabulary is considered to be extremely important, but there is much more concern that students convey their ideas clearly than that they attempt to rely on jargon.

These comments and studies supported our view that the most useful approach to helping students unfamiliar with the vocabulary required in academic writing would be to focus on intensive work on a few of the most useful lexical items selected as typically realising each of the rhetorical functions listed.

These three or four selected words for each rhetorical are all frequently used, most appearing more than once every 6,000 words in the corpus. Words such as "unlikely" and forms associated with "summary" are not used quite so frequently in the corpus of professional, published work, (appearing with a frequency of 1/12,600 and 1/13,254 respectively) but were nonetheless included given their usefulness for student writers, particularly for dealing with modality and the creation of final statements. A range of grammatical forms of each word in question was included where appropriate.

Concordance based materials offer the learner a rich experience of language (in this case the language of academic English). Concordancing has been used in this project to present students with the opportunity to condense and intensify the process of learning through exposure to multiple examples of the same vocabulary item in context, and to promote awareness of collocational relationships. According to Nattinger (1988: 63):

> guessing vocabulary in context is the most frequent way we discover the meaning of new words.

Johns (1991b) has argued that the central justification for using concordance-based materials is that they can help to develop this ability to guess the meaning and use of unknown words from context. In our materials, exposure to concordances for the purpose of discovering meaning focuses learner attention on the central importance of collocational relationships in connection with the key words. The broad objective of the materials is to develop the writing competence of students by promoting discovery of meaning and by making students aware of representative patterns of language use and to selected grammatical structures. This awareness is accompanied by guided opportunities for research, practice and improvisation.

At various stages in the preparation of this material, as with Flowerdew (1993: 240) who found "areas where concordancing has revealed a discrepancy between published materials and the specialist corpus," we also encountered language use which questioned the standard patterns usually recommended to EAP students by teachers and grammar books. For example, it was found that the plural form, "researches," occurred in the corpus on ten occasions, indicating that it is, in fact, accepted practice in published texts though usually not accepted by markers of student essays. Although we did not draw student attention to this specifically, we decided to modify questions about the use of this form so that students were not obliged to understand that it is never used in its plural form. Likewise, the standard advice to students to use the past tense of the reporting verb for author prominent statements (see Weissberg and Buker, 1990: 45, who advise students that "in these citations the simple past tense is used in the verb of report") was not supported by the corpus, these reporting verbs being shown to be used more frequently in the present tense.

3. METHOD

The Microconcord corpus of academic texts contains approximately 1.016.000 words taken from academic texts (books, chapters and articles written by academics for academic audiences) in the fields of arts, belief and religion, applied science, science and social science. The concordancing program, Microconcord was used to establish the frequency of use of particular items in the corpus. Concordances of 100 characters were obtained for the student research activities, concordances of 400 characters for use in exercises and improvisation activities.

The material is being prepared for publication at this stage (in hard copy) and is primarily intended for independent study, although it is also appropriate for classroom and workshop use. Initial small-scale piloting in Australia showed that some students were puzzled by the cut-off sentences of the one-line concordances (see page 00 for example) and daunted by the difficulty of the authentic academic texts. Since this mode of learning is quite new to most students, we included notes explaining that all the examples used are taken from authentic academic texts from a wide range of disciplines, with which students may not always be familiar. We endeavoured to emphasize that they are not expected to understand every word or every idea presented, but that the materials are intended to familiarize them with the use and meaning of the key words, helping them to develop insights into the collocations and grammatical structures with which the key words are associated.

4. THE MATERIALS

Students are first presented with multiple examples of the vocabulary items in context. The student examines these one-line concordances, highlighting word groups surrounding the key word to discover how they are used, and then answers questions on their use in context. The presentation of concordances and these guided

research tasks are followed by exercises enabling students to ensure that they are using the item appropriately. These tasks are then followed by creative and improvisational activities. Answer suggestions are provided for each unit. In the instructions for students, the term "meaning" is used to describe lexical and contextual significance, and the term "patterns of language" is used to describe collocations.

The learning pathway for students provides a chain of tasks or activities in which the successful completion of each task facilititates the completion of the succeeding activity, thus providing task continuity as defined by Candlin (1987) and Nunan (1989) and reflecting Johns's approach of Research-Practice-Improvisation. This chain of activities, repeated for each key word, is as follows:

– Look at concordances for the key term and words surrounding it, thinking of meaning.
– Familiarize yourself with the patterns of language surrounding the key term by referring to the concordances as you complete the tasks.
– Practise key terms without referring to the concordances.
– Create your own piece of writing using the terms studied to fulfil a particular function of academic writing.

For example, in the unit explaining procedures undertaken in a study, the rhetorical function is first introduced, vocabulary items which typically fulfil this purpose are mentioned and a number of sample texts which use these items are provided. The student is then presented with a full page of one-line concordances for familiarization with this item, as follows:

UNIT 5A
LOOK
Study these concordances, underlining the central group of wods which can stand alone, as has been done in the first example. Then answer the questions below. You may like to look at question 1 before you start. (Don't worry that these are cut-off sentences - just familiarize yourself with the key words).

GROUP 1
e seen at puberty. The isolation and chemical identification of several sex hormones in the late 192
akhtin's method lies not simply in the formal identification of a genre or a subgenre or a chronotop
established only after much controversy. Its identification was an early success of X-ray crystallo
o the production of muscle-specific proteins. Identification of the new muscle proteins was made pos
loration of their difficulties had led to the identification of two additional problems: <list> <ite
GROUP 2
ure of construction as a whole; the facts are identified by the principles that result. In
erapy, and that such attitudes can usually be identified by carefully analysing the patient's attemp
occurrence of a linguistic form which can be identified as Arabic. Christianity had a similar cohes
existence. <p> Another of many criteria to be identified could be the subsequent or continuing costs
2 BC), who rejected the idea that time can be identified with any form of motion or change. For, he
l Greek literature, can nevertheless still be identified as a distinctive and possibly definitive ge
operties. <p> Many more carcinogens have been identified since then. Some are mainly of laboratory i
runs of mutual recrimination. <p> So, we have identified two characteristics of winning strategies:
ver the last three hundred years or so. It is identified by a series of political causes espoused by
orerunners of Islam. A later Muslim tradition identified the Rock as the point from which Muhammad a
ed by Levene's tetra-structure. The sugar was identified as either ribose or deoxyribose: for a time
random). Forty years later these factors were identified as bits of chromosome, and a century later
er supply 20 years or so before bacteria were identified as causing the disease. Lime juice was reco

Up to five stages in the life cycle could be identified, each of which might respond to a different
r estimated eight hundred buildings have been identified. Her techniques and their results were by n
GROUP 3
ey do not rejoin. If we knew enough and could identify all the individual animals alive, say, one hu
st, policies must be changed. <p> We can only identify the proper criteria correctly if we accept th
the therapist's role is to help the partners identify the problems that they face as a couple and t
ood is out of bounds in politics. It tr.ies to identify the reasons which lead people to embrace this
hough less widely researched. Here, I want to identify one feature of that relationship which seems
r separate effects. Research was essential to identify the ill-effects attributable to each substanc
tion relative to that tradition. They hope to identify a coherent body of ideas which places them so
ndon School of Hygiene, where he continued to identify the chemical constituents of fungi and discov

FAMILIARIZE
1) Which of the following statements do you think are true? Tick your answer in the box.

TO IDENTIFY involves naming	true o	false o
TO IDENTIFY involves describing	true o	false o
TO IDENTIFY involves imagining	true o	false o
TO IDENTIFY involves deciding what something is	true o	false o
TO IDENTIFY involves recognizing	true o	false o
TO IDENTIFY involves criticizing	true o	false o

Students are encouraged to become sensitive to the patterns of language frequently surrounding the key word. The following exercises are designed to develop awareness of the appropriate preposition and the linking of the key word with its anaphoric referent (by the creation of lists).

2) Which preposition most frequently follows the word IDENTIFICATION?

identification ....

3) Look at the second group of concordances with the key word IDENTIFIED. Notice that many of these use part of the verb TO BE (is, are, was, were, been, be) as auxiliaries. Circle the concepts/ objects identified in these concordances and write them down. Decide whether the singular or plural form of TO BE should be used.

.... the facts .... (is/are) identified
.... (is/are) identified
.... (is/are) identified
.... (is/are) identified
.... (is/are) identified
.... (is/are) identified
.... (is/are) identified
.... (is/are) identified
.... (is/are) identified
.... (is/are) identified
.... (is/are) identified
.... (is/are) identified
.... (is/are) identified

4) Now look at the the concordances in Group 2 which do not use part of the auxiliary TO BE and circle the objects identified. Who or what are the identifiers in these concordances? What are the concepts or objects they identify?

IDENTIFIER	OBJECT
..... we	identified ...*two characteristics*.
....	identified
....	
....	identified
....	

This section is followed by exercises using complete sentences taken from the corpus, and then by exercises involving students in their own improvised writing using the key word. As the Unit progresses, including the study of two or three other words, the exercises become cumulative, including all items studied, and allowing the introduction of more interesting, innovative exercises using concordances. Concordancing provides opportunities to create innovative tasks for students, but gap-filling exercises continue to be useful because, as Pickard (1994) points out, they are easy to prepare and students have a sense of familiarity with this format. The following are some examples of representative exercises within the Units of the materials.

PRACTISE
In each group of concordances below, one of the words you have studied in this unit is missing. The same word is missing for a particular group. Decide which word has been eliminated from each group.

GROUP 1

the deathbed, so is it time for critical	to pay attention to real people's lived
t nutrition is probably just a very basic	of an extremely complex process. However
alled it 'the most exciting and brilliant	of the ideological forces in conflict to
the patient's feelings develop. Detailed	of this kind should enable the most appr
, demonstrating its purity and getting an	of the elements present. He named it 'nu
s. <p> In this chapter we will present an	of the colliding wave problem using a me
to a new environment. In fact, genetical	of plant "ecotypes" (i.e. populations ad
erative ability. The need for theoretical	of many more cases such as the lion is c
m and dualist self-description) which, on	, simply appear as inherent properties of

The missing word for Group I is ....

GROUP 2

one who by reference to purely biological	is undoubtedly of the male sex at birth
down some, though not all, of the medical	for determining sex, and resolves that t
ng pus cells in the urethra, but the same	cannot be applied to the woman. One is l
al evidence is that where the two sets of	clash, the only effective treatment is t
that sensible qualities are not the sole	of perceptibility and that time is perce
re the biological criteria. Psychological	are thus given no weight, despite the fa
the relative importance of solely medical	, without giving any justification for his
countries would meet either of these two	, and that the total resources needed woul
ent would be only one of several relevant	. On this view, a doctor could avoid liabi

The missing word for Group 2 is ....

GROUP 3

receptors for retinoic acid have now been	in the cells in the progress zone. All o
om). Forty years later these factors were	as bits of chromosome, and a century lat
upply 20 years or so before bacteria were	as causing the disease. Lime juice was r
y concerned with molecules which could be	at the time, i.e. with molecular weights
otal number of attempted suicide patients	on the basis of general hospital referra
y, and that such attitudes can usually be	by carefully analysing the patient's att
d. In some of the cases new problems, not	at the outset, emerged during the course
ll vary according to the types of problem	and the therapeutic approaches favoured
oup at the Lederle laboratories which had	the structure of folic acid. The substan

The missing word for Group 3 is ....

Johns (1991b) calls exercises of the above type "gapping using multiple contexts". They involve forming and testing hypotheses while noticing meaning and collocation.

Decide which verbs or adjectives to use in the blanks in the following examples. Choose from the lists below. (The following are extension exercises, not necessarily related to the concordances)

ADJECTIVES: legal, mental, modern, definite, new
VERBS: to defend, to form

• Our .... concept of history, however rationalized and secularized it may be, still rests on the concept of historical time which was inaugurated by Christianity.

• The capacity .... a concept of one's own identity and a process of comparison allowing an estimation of one's esteem among one's fellows that affects one's view of oneself are central features of humanity.

• According to this definition, time has no substantive existence but is a .... concept or means of measurement - a point of view that strikes us today as being remarkably modern.

• One may even say that the whole purpose of this book is .... a concept of political freedom.

• If this is the case, rather than attempt to invent a .... conceptual framework, there is much to be said for turning to marriage as the one, already existing .... concept which has the obvious potential for expansion so as to provide the institutional framework for such a union.

• As S.G.F. Brandon has pointed out, the great popularity of the cult of Osiris meant, in effect, the adoption by the Egyptians of a .... concept of time, although this may not have been consciously recognized.

Draw lines matching parts of the sentence on the left hand side with the appropriate part on the right.

Piaget does not believe that concepts	factor governing the doctor-patient relationship.
The other single most important	of God and Nature used to evoke a poetic response in the nineteenth-century reader, the modern poets rely on sex and myth to produce the same effect.
The issue here is	whether provocation should remain a qualified defence to murder and, if so, how far it should extend.
Another unifying principle is said to be the concept of trust. This, it is said, is the key	take their origin from linguistic structures.
Where the concepts	issue in the early years of the war.
With the conduct of hostilities the paramount concern for both the USA and Britain, civil aviation remained a minor	factor responsible for raising the standard of care was the recognition of venereology as a clinical specialty in its own right.

DECIDE WHETHER THE MISSING WORD IN THESE CONCORDANCES IS RESEARCH, EVIDENCE OR SOURCE(S). THE FIRST HAS BEEN DONE FOR YOU

1.unreasonably see in these actions the ....EVIDENCE....of communal meal-taking in man and its im
2.experiences of human beings as valid .... for studies of consciousness. Contemporar
3., who like myself had conducted field .... in Africa, I undertook a survey of existi
4.st clearly be expanding international .... and monitoring efforts. But this should n
5.helpful, however, in a search for the .... and significance of our social organizati
6.boration in mammals comes from recent .... by Olwyn Rasa (1977) on the dwarf mongoos
7.d countries unable to borrow from any .... without the IMF "seal of approval" must u
8.ere as N20 </i>) <p> While much more .... needs to be done to determine which ferti
9.on fossil fuels as a principle energy .... in the future, along with continued defor
10.y relatively little has been spent on .... and development on these technologies,
11.marked the effects of starvation. The .... of the great ecologist David Lack (1954)
12.strially developed world are the main .... of greenhouse gases and therefore bear t

Gapping and matching exercises of the above types are familiar to most students and have been included, partly to provide this sense of familiarity given the novel nature of the materials with which they are associated. Concordancing allows a materials developer enormous possibilities for the creation of such exercises from authentic texts.

CREATE
NOW USE THE WORDS YOU HAVE LEARNT IN THIS UNIT YOURSELF
READ THE FOLLOWING PASSAGES, THEN SUMMARISE THEM WITHOUT MENTIONING THE ACTUAL STUDIES, USING THE GUIDES PROVIDED.

Generally he (Marx) seems to have synthesized the Inca and oriental data, and he used information from Prescott to explain the working of the "Asiatic" mode of production.

• Marx used Prescott as a ....
....

One further method of tension reduction which is of interest has been described by Graff and Mallin (1976). They found that in some patients, self-cutting could be prevented by the provision of physical contact by a therapist, such as in putting an arm round a patient.

• There is .... that ....
....
....

In Sumatra, MacKinnon (1974) found that the orang-utangs of an area moved into the near-by hills when the largest calling male did so.

• MacKinnon's (1974) .... produced .... that ....
....
....

In this final group of exercises, students are provided with prompts and outlines to facilitate their own use of the vocabulary studied. Piloting inticates that a number of students find these exercises more demanding than the preceding exercise types.

Ability on the part of the teacher to select appropriate, representative concordances improves with experience. A useful technique is to use the delete key on all concordances of a particular word, looking at the words and word groups on each side of the key word which can be shown in alphabetical order, and then inserting and saving concordances which provide a representative sample of frequently used contexts.

The word ISSUE/S, for example, appeared once every 3,019 words (338 times), eliciting nine densely packed pages of one-line concordances. As a basis for selecting concordances for student research that fit onto one page and provide a representative sample of the use of the word in context, the words preceding and following the key word were examined. It was found that some adjectives (e.g. environmental, moral, political) appeared with noticeable frequency and so needed to be included, and that frequent post-posed prepositions (e.g. for, of, in) also needed to be brought to students' attention. The exercises developed for students to familiarize themselves with frequent patterns suggested their own further questions. These led the student

to explore, on the basis of the primary source of the language itself, with no mention of rules or need to resort to pedagogic grammar, the contexts in which the different prepositions are used. This section of the materials is provided below.

4) Now list some of the words and phrases which can come after these prepositions.

```
        the issue for
the issue for ..all of us ..............
the issue for ..............................
the issue for ..............................
the issue for ..............................


the issue in ................................
the issue in .cell differentiation
the issue in ................................
the issue in ................................
the issue in ................................
the issue in ................................


  the issue of.
the issue of ..contention ...........
the issue of ................................
the issue of ................................
the issue of ................................
the issue of ................................
the issue of ................................
the issue of ................................
the issue of ................................
the issue of ................................
```

7) Which of these prepositions is often followed by

• people affected by the issue
   the issue .... (people affected)
• general abstract topics
   the issue .... (general topics)
• topics within which a number of issues are found
   the issue .... (a topic containing more than one issue)
• time or place
   the issue .... (time/place)
• thinking and speaking processes
   the issue .... (thought/speech)

The possibilities of leading students to grammar-in-context discoveries of this type using learning materials and with direct student access to the computer, have been investigated by Johns (1991 b: 31). He promotes the idea of "the teacher abandoning the role of expert and taking on that of research organiser", allowing students access to a computer equipped with a concordancing program and a relevant corpus as the primary source of information, language itself. A similar proposal was presented in Leech and Candlin (1986: XVI) where in their Introduction the editors advocated a classroom with online links to just such a corpus resource:

We need, in short, comprehensible input tailored to our learners' needs and abilities.......... we need .... classroom access to language databases, lexicographic

and grammatical corpora, oriented to learners' interlanguages and displayed in terms that learners (not only lexicographers and grammarians) can understand. .... What of the process tasks to be made available as problem-solving exercises for learners to apply to text? Two characteristics will predominate: they will have to involve learners in solving problems and experimenting with language learning, and they will need to be differentiated in terms of offering alternative routes, varying levels of demand and attainment, and alternative possibilities of solution. In short, they will need to mirror the cognitive requirements of language learning.

5. CONCLUSION

Teachers and students who have piloted the materials have commented that they provide a helpful, very different and innovative approach to vocabulary learning. They confirm our opinion that the words chosen are those that students need as basic tools for academic writing. In a real sense, materials of this type provide more than just vocabulary learning. They provide a rich experience of the language with insights into collocations and contextualized grammatical structures linked to opportunities to develop students' analytical abilities.

Although students have overwhelmingly indicated that they find all exercises "very helpful" or "helpful", and teachers involved in piloting (in Australasia, Canada and Spain) have commented, for example, that "the material has provided structure for my whole course", some student reservations should also be mentioned. To their comment that "there are many exercises for just three words" we direct them to the point that although the focus is on a restricted number of words, learning extends far beyond the particular items around which the material is based. The rich context of language within which these vocabulary items are studied provide considerable opportunities for students to broaden their lexical and grammatical awareness.

Over-exposure to concordance lines can conceivably tire students if teaching of this type depends solely on deduction from concordance lines. We have therefore provided a variety of different activities, all based on concordanced texts but demanding different problem-solving techniques from the student.

There is some evidence from piloting that some students may benefit more from the material if it is presented in teacher-mediated workshop format, while others may find it valuable for independent study.

APPENDIX

The University Word List cited in Nation (1990) provided the basis for the development of categories. Items were selected according to frequency of use and our perception of the extent to which their investigation would be helpful to students. Some vocabulary items of frequent occurrence in the Microconcord Corpus of Academic Texts were added. Our list after initial selection, grouped according to rhetorical functions, was as follows:

Stating the topic of your writing

concept
factor
hypothesis
hypothesise
issue
premise
proposition
thesis
to consist
to predict
to speculate
topic

General vocabulary of research

argument
academic
anecdotal
anomaly
assimilate
cogent
conform
consequent
controversy
debate
empirical
evidence
exception
explicit
feasible
findings
homogeneous
implicit
issue
norm
pertinent
principle
relevance
reliable
research
source
study
subsequent
survey
tentative
theory
to equate
trend
valid

Verbs of reporting

to add
to affirm
to agree
to argue
to assert
to assume
to challenge
to claim
to clarify
to comment
to consider
to contend
to contradict
to demonstrate
to deny
to describe
to determine
to disagree
to discern
to discuss
to dispute
to emphasise
to enumerate
to explain
to imply
to infer
to maintain
to point out
to postulate
to query
to question
to recommend
to refute
to reject
to remark
to report
to repudiate
to say
to suggest
to stipulate
to view

Using tentativeness

may
possible
probably
unlikely

Linking ideas correctly

also
although
as
however
moreover
on the other hand
since
so
therefore
whereas
while

Indicating writers' references to the work of other people

according to
to cite
to claim
to quote
to refer to
to suggest

Drawing conclusions

conclusion
evident
It can be seen that
It is clear that
outcome
summary
therefore
thus
to reveal
to signify
to verify

Words with different meanings in different contexts

appreciate
aspiration
attribute
complex
conceive
concentrate
constant
construct
function
manifest
objective
potential
radical
stress

Explaining processes undertaken in a study

administer
analyse
conduct
correlate
criterion
data
process
to denote
to derive
to design
to elicit
to establish
to evaluate
to identify
to integrate
to interrelate
to investigate
to modify
undertake

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