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ABSTRACT

The value and role of concordancers (simple computer programs that can quickly analyze electronic texts to find occurrences of a given word, part of a word, or phrase and display it within its immediate context) in secondary school English-as-a-Second-Language (ESL) teaching are examined. First, their use in higher education is discussed, including their role in syllabus design, evaluation of existing course materials, preparation of print instructional materials, and classroom use by students. The kind of language corpus needed for secondary school instruction is then considered, and factors, both instructional and technical, in compilation of an appropriate corpus are noted. Finally, advantages and constraints of use in secondary level instruction are outlined. The primary advantage is seen as the concordancer's potential role in student empowerment and as a tool for autonomous and advanced learning. Constraints identified include cost, limited space for computers, classroom time limitations, and need for change in student and teacher attitudes toward computers. It is concluded that concordancers can be useful at the secondary school level, with careful planning and appropriate teacher training. Contains 26 references. (MSE)

CONCORDANCING FOR SCHOOLS: PROBLEMS AND POTENTIAL

VALERIE PICKARD, KENNETH CHAN AND JANICE TIBBETTS

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Valerie Pickard, Kenneth Chan and Janice Tibbetts

Introduction

Since the publication of the Collins Cobuild English Language Dictionary (Sinclair et al. 1987) based upon the Collins Birmingham University Language Database, there has been steadily mounting enthusiasm in tertiary education for the use of language databases or corpora for both research and teaching. A powerful means of exploring the language in a corpus (collection) of electronically stored texts is by using a concordancer. Concordancers are simple computer programs which can quickly analyse electronic texts to find any occurrence of a given word, part of a word, or phrase and display it within its immediate context. This paper will:

* suggest the potential of concordancers by providing a brief overview of how they have been used in tertiary education
* discuss the criteria necessary for developing corpora suitable for secondary school
* assess the feasibility of introducing concordancing into schools.

Concordancers in tertiary education

Valerie Pickard

So far, concordancers have been used in tertiary institutions for syllabus design and evaluation, materials preparation and interactive concordancing with students using the computers in the classroom. This section of the paper illustrates some of the benefits of using concordancers within these relatively privileged teaching and learning environments.

1. Syllabus Design and Evaluation

In the field of syllabus design concordancers have been used in two distinctly different ways. First, it is possible, using a corpus of learner English, to analyse the problems students have with the language. Various institutions are building large databanks or corpora of learner writing. In Europe, the Catholic University of Louvain is directing an international project to assemble and analyse one million words of writing by advanced learners of English from various language backgrounds (Granger, forthcoming). At the Hong Kong University of Science and Technology (HKUST), researchers are currently compiling and tagging a one-million-word corpus of the interlanguage of Chinese learners of English from the

Hong Kong Use of English examination and first year university assignments (Milton & Chowdhury, forthcoming). However such huge corpora, though potentially extremely valuable, are not essential to analyse the needs of a specific group of students. At The University of Hong Kong (HKU), Bruce (1991) analysed a 25,000-word corpus of student reports on the subject of Hong Kong's identity in order to investigate first year social science students' problems with logical connectors, reference and advanced level sentence structure. The results of his analysis were included in course material advising students on how to improve their English.

Instead of assessing students' problems with writing, the course designer may choose to use a concordancer to analyse the authentic target language in order to identify frequent words and phrases in addition to common syntactic patterns. For example, Ma (1993), teaching business writing at City Polytechnic of Hong Kong (CPHK), analyzed a corpus of 50 direct mail sales letters and observed the use of the imperative and modals in the various parts of the letters. His results will be of use to those developing courses with a business writing component.

Concordancers have also been used to evaluate existing course materials. Fang (1991) using a concordancer and word frequency analyzer he had designed himself was able to compare the vocabulary load in the five English Language textbooks commonly used in China. In three cases, the books compiled in China, he found that the vocabulary selection was generally unsystematic, whereas the other two textbooks, published abroad, adhered to certain principles of vocabulary selection and control.

Flowerdew (1991) found that ESP textbooks present a "distorted picture of syntax" when he used a concordancer to compare the language which first year biology students were actually exposed to with the language presented in ESP textbooks purporting to teach the language of the subject.

Pickard (1993a) used a concordancer to investigate the instances of refutation in academic writing and on finding very few examples, questioned the specific teaching of the language of refutation in EAP courses.

2. Materials Preparation (paper-based concordances)

Concordanced teaching materials can easily be prepared by the teacher and brought into the classroom. Students quickly get used to the appearance of concordanced exercises with their truncated sentences (see appendix 1 for an extract from a sample exercise). These materials are ideal for practising grammar and vocabulary items which students have difficulties with. At the same time they encourage an analytical and cooperative approach to learning. The teacher's role changes as students look for their own patterns and interesting points in authentic language. Johns (1991) calls this Data Driven Learning.

Concordanced exercises may take various forms, for example:

a. concordance : lines with the key word in context (KWIC) with guiding questions for discussion

b. gapfill (.here may be one or more gaps for each word)

c. nonsense words instead of a gap

d. matching two halves of a sentence - before and after the key word

The above exercises may be used in a fairly structured, teacher-led discussion situation, or freer group discussion situation. Wu (1992) compares these two strategies which she used with two different groups of engineering students - those with 'A' level English were given more freedom than those with only 'O'level English. In addition, such exercises have been successfully exploited in a self-access system (Pickard, forthcoming).

3. Interactive Concordancing (students using a concordancer in the classroom)

When students are given the opportunity to use the actual concordancer program there is undoubtedly increased motivation as students are able to choose their own words or phrases to investigate. These choices may come as a surprise to teachers and will perhaps not have been anticipated by course book writers. For example, one pair of students using a concordancer in a class at HKU made their own gapfill exercise of words beginning with 'celebr' and found they knew 'celebration' but not 'celebrity'. In the same lesson a search for *prod** lead to a discussion about the difference between a 'productive manager' and a 'production manager.' In this way control of the learning is placed firmly in the students' hands. This by no means suggests that the teachers become redundant but that they are there to advise and facilitate; for instance, they might encourage students to sort the data in different ways, or suggest which dictionary or grammar books could be useful in order to help in the task of analysing the data.

Interactive concordancing has already been tried in some very different tertiary settings and for a variety of reasons. In England, Tribble (1991) has used a concordancer on EAP courses to analyze English writing across a variety of disciplines. In order to open students' eyes to the differences in style, he had them compare features such as noun phrases and post modification, verb phrases and grammatical structures of an economics textbook and an informal autobiography. After working on this, students were able to describe and identify various features of academic writing.

In the Middle East, working with students in Sultan Qaboos University, Oman, Stevens (1991) describes the steps he takes to introduce concordancing to first year

university students with little or no computer experience or previous experience at discerning patterns in raw data.

At the University of Zimbabwe, teachers from the Communications Skills Centre have used interactive concordancing with students from a typically "teacher-dominated, rule-based learning system" to guide students to a better understanding of their new discourse communities by working on economics, geology and philosophy corpora (Mparutsa et al. 1991).

Closer to home for this Conference, Ma (1993) included an interactive concordancing component in a CPHK course teaching Computer Studies students how to write computer manuals. He observed the variety of learning strategies and techniques used by the students when using the computer program. A major recommendation he makes is that students should be made aware of the potential and limitations of the corpus.

Two short voluntary courses held at HKU trained students to use the Longman Mini Concordancer (Chandler 1989), provided them with teacher-developed concordanced exercises and concluded with students running their own mini-lessons or seminars using exercises they had developed themselves (Pickard 1993b).

Though mostly used so far for ESP or EAP at tertiary level, it is possible with the right corpus to have students in school English classes using a concordancer and concordanced-developed materials. The next section of the paper will consider what "the right corpus" for Hong Kong schools should comprise.

A Corpus For Hong Kong Schools

Kenneth Chan

If we assume that a specific rather than general corpus is most beneficial for concordancing in Hong Kong schools, one of the first questions to ask is "What sort of corpus is needed?"

In corpus design, 'representativeness' is important as it is in this (difficult to measure) quality that the usefulness of the corpus will reside. For the Hong Kong school situation, in order to tackle the above question we need to ask ourselves what kinds of writing our students are exposed to during their school lives. This includes exposure to writing outside school times, which could encompass, for example, any leisure reading that is not part of normal school work.

At school, a student's exposure to the written language is largely bound to the subject texts that are in use at different times; the texts may change at different stages of school life and so will the level of the language to some extent. Outside school, the non-subject related texts read by the student would include newspapers, magazines, story books, informal/formal correspondence, and instruction manuals of various descriptions.

1. Corpus Compilation

As indicated above, there are two main areas from which material for the corpus can be extracted, namely, (curriculum) subject-related texts, and non-subject related texts.

For subject-related texts, one way of building up this part of the corpus is to divide it into subject areas, i.e. English, Geography, History, etc., and extract portions from standard text books in use. These portions can be combined to form a larger archive of say, 50,000 words. Hence a small corpus on each subject can be built up and these corpora can, according to particular needs, be further and flexibly combined to form larger corpora. The advantage of this modular construction approach is that the subject corpora can be easily expanded, and integration of these into a larger, general or specific 'customized' corpus can be achieved simply by 'pick and mix.' For example a larger corpus of science can be made by merging smaller subject corpora of chemistry, biology, physics etc. Another advantage of this approach is that the substantial work involved in compiling can also be easily divided, as each subject corpus can be compiled independently from the others by teachers in a number of schools, provided that guidelines for selecting texts are well laid out.

For non-subject related texts the criteria for selection seem to be less clear-cut, and more research is still needed for a more accurate picture of this part of the corpus. Experience in working on a prototype corpus for HKUST students has shown that the following points are worth noting when compiling: the texts chosen should be:

* likely to be of general interest to students
* related to Hong Kong, or concerning affairs the students can identify with
* not highly analytical or over-technical
* not unduly restricted in their topicality (e.g. not about ephemeral news items)

2. Overcoming Difficulties

In the past, the process of extracting a source text, transcribing it using a wordprocessor and checking the accuracy of the copied version with the original took a great deal of time. Not only was this labour intensive but the technical difficulty was discouraging, especially to busy teachers in schools. However, now that computers are more technically advanced and affordable, as well as easier to use, and with more and more publications becoming available in electronic form, the work of compiling has become much more feasible.

Copyright concerns are never far away with this sort of work, and time and patience will be required in contacting and obtaining permission from publishers. Once complete, though, the product will be useful to many teachers and students in concordancing for a long time to come.

Concordancers in Secondary Schools

Janice Tibbetts

So far, this paper has outlined the teaching potential of concordancers and the criteria to follow in building up a corpus suited to work in secondary schools. All this effort would, however, be wasted where schools are concerned if teachers and students did not make use of the outcomes.

A concordancer is one of a number of CALL options which can be of use in secondary schools. Using computer concordancing shares many of the same advantages as other aspects of CALL. Learning with a computer has the advantage of being considered a "fun" way of learning, as opposed to what is rightly or wrongly regarded as the dreariness and boredom of traditional tools. Indeed, many an exercise that would be considered boring in a textbook becomes fascinating if done on a computer. But there are special advantages to concordancing that other CALL applications do not have.

1. Advantages

Perhaps the major advantage is that a concordancer can help in the empowerment of students in that it can be used as a tool for autonomous learning. It liberates students from teacher directed learning and brings them to the freedom of exploring language for themselves. For secondary school students, concordancers give opportunities to undertake serious research into areas of language they are having difficulties with or simply to play around and make discoveries for themselves. In Hong Kong this is especially useful at advanced level because of the fundamental change in the type of work required by advanced level examinations compared with the Hong Kong Certificate examination, which is taken at the end of fifth form.

As Mak (1990) has pointed out, this change in schooling marks a move from general and social English to a more academic type of language, and even an introduction to English for Occupational Purposes in that the examination has a section dealing with simple business English. Of course, it is not only in Hong Kong that this change occurs. There is traditionally a wide gap between the levels of examination at sixteen-plus and at eighteen plus. However, in Hong Kong, as in many parts of Asia and the developing world, this gap is extremely wide. The traditional language classroom has students working on the same materials at the same pace. There is little real communication, a lot of drilling and even the memorising of set vocabulary (often printed, helpfully, in a different colour in the

reading passages of the textbook). Language is seen by most students and, sadly, by many teachers as only a **content** subject. The advanced level examination is, however, less concerned with content and more concerned with process. It is task-based, requiring candidates to handle large amounts of information at speed, to classify and make use of this information in order to identify and solve problems.

In this situation a concordancer used as a **resource** rather than a **course**, has real potential. It can lead to an increase in learner autonomy since students can look at what interests **them** or what **they** feel they need to find out. In doing this, they are receiving an early introduction to research skills. They have an opportunity to check their own use of language and to compare their personal language against authentic text. Wu (1992) found that students working on concordance exercises became actively involved in discussion to negotiate meaning and corrected each other whether the teacher was there or not. With the large classes of increasingly mixed abilities that exist in Hong Kong secondary schools this is clearly an advantage.

2. Constraints

In the long term the use of computers as cross-curricular learning tools is not merely feasible but inevitable. In the short term, however, the practical problems loom extremely large. These problems fall into four categories:- money, space, time and attitude. In Hong Kong the constraints are stronger than elsewhere, even than some places in the third world. (e.g. I found schools in Papua New Guinea were better designed and equipped.)

2.1 Money

One example will show the problem here. My own school's budget of $3,500 for forms six and seven covering about two hundred and thirty students is clearly inadequate, so the money will be spent on more books for teachers to use when setting examinations. If computers were available for language teaching, buying a concordancing program and license for multiple use would be feasible. But computers are themselves not available for reasons of space and time.

2.2 Space

Schools are overcrowded with too few, too small classrooms, leaving no space for a computer. Computer rooms may be located in rooms formerly judged unsuitable for teaching: these prove inadequate as both computer rooms and as language classrooms.

2.3 Time

Despite the disadvantages, the typical computer room is fully utilised every period of the school day for the teaching of computer studies, so the possibility of locating language classes there is, in any case, minimal.

2.4 Attitudes

Problems of attitude will be considered more fully. Experience and observation in schools can offer insights, with occasional surprises, into student and teacher attitudes in this area.

Student attitudes

Students' attitudes to concordancing or any use of computers in language are not a major problem given a good teacher and the right corpora. Most students seem to have a built-in aptitude for computers and find any work done on them highly motivating. The fact that they have more control over what they read and do with a concordancer is also a plus in their eyes.

When I took a party of sixth form students to Hong Kong University Practice Lab (a rather formidable term for a self access learning centre), I was able to observe student reactions to concordancing. They worked in pairs on the computers as this gave mutual support and the opportunity for discussion. It was eye-opening to see the different ways each student approached the situation and what each chose to do. All began by using the concordancer as a substitute dictionary, to find the meaning of words. They soon realised, however, that as a provider of meaning in the sense of definition the concordancer was inferior to a good dictionary. They then went on to investigate, or in some cases to discover, other aspects of language.

I would like to give just a few examples of the work done on this occasion. One student pair became interested in polysemy (the multiple related meanings of a word form) and in homonyms (identical word forms that carry unrelated meanings). They became very involved in this and found their explorations both useful and interesting. Another pair used the concordancer to study collocations and engaged other pairs in lively discussions on whether certain combinations of words were in fact collocations or not. They found much that interested and surprised them. Others concentrated on morphology, and enjoyed using the wild card marker to give a part of a word to see what forms the concordancer came up with. But possibly the most interesting point to come out of this very small scale trial was the discovery by students that the concordancer could show them different usages for words that they thought they knew. One pair, both girls, were initially somewhat dispirited by the exercise. They did not have the other students' enthusiasm for technology and were less adventurous in their use of the concordancer. Because there was no large corpus suitable for sixth form students, they found that the concordancer frequently reported that it did not have an example of the lexical item they requested. It was

in a rather petulant spirit that they requested information on the word 'go'. Yet this experience convinced them of the value of the concordancer when it gave an example of the word used as a noun, as in 'have a go'. This was a totally new concept to them and generated much interest and excitement. The experiment, although on such a small scale, served to confirm my impression that students could benefit from using a concordancer.

Students' attitudes, then, pose no major obstacle to the introduction of concordancing in schools. The major problem lies elsewhere.

Teacher attitudes

In Hong Kong there is a surprisingly high degree of computer phobia among teachers. Computers are seen in terms of a subject to be taught rather than tools to be used. They are the sole responsibility of the computer studies teachers, who naturally use them to teach the computer studies syllabus. This requires students to learn basic programming skills. Once they have taken the examination most students do not use a computer again. Unless there is a computer at home, the majority of students do not acquire word processing skills or become familiar with database or spreadsheet programs. Teachers of other subjects have not yet awoken to the possibility of using computers as resources for teaching. Although many teachers are aware of the existence of learning packages for, say, geography and history, these are seen as having no relevance to teaching.

Teachers appear to fall into three main categories. The vast majority of secondary school teachers appear to belong to the first of these categories, that of computer illiterates. They do not use computers at all except to enter student test marks onto a computer disc. Even so, many of these teachers usually work on this task with a partner who enters the marks which they read aloud from a hand-written list. Such teachers express surprise and even admiration when they see others using a computer for other purposes. There is also, unfortunately, a tendency to look on such an occupation as 'playing' or 'showing off', instead of doing serious work such as marking books.

The second category consists of those who can use the computer as a kind of substitute typewriter, although most prefer the real thing. These teachers are interested in the potential for using computers to ease the onerous tasks of completing student reports and record cards. In some schools this is done already, but other schools are still investigating the possibility of introducing such a system. Some teachers in this category do use computers to produce examination papers or tests, and a very few produce teaching materials using word processing packages.

The third category consists of those who are completely at ease with computers and are familiar with word processing, database and spreadsheet packages. These programs are not seen as useful for teaching purposes, however, but for personal use or possibly for school administrative matters. Almost all the teachers in this category are teachers of computer studies.

Apart from their fear of computers themselves, many teachers also fear the loss of control that could result from the use of computers in the classroom. In Hong Kong, a very teacher-directed style of classroom management prevails. The teacher is the knower who imparts information, the expert who decides what is correct or acceptable. In order to maintain this role, language teachers here rely heavily on grammar rules and strict dictionary definitions to set the tone for 'correctness'. Lessons follow the text book closely and the 'teachers book' - which is usually nothing more than a set of answers to exercises - sets the standard for what is acceptable. Higgins (1988) pointed out that in many countries it is the students who fail to reach higher levels of tertiary education that become teachers and that language teachers in particular seem to have an inadequate grasp of their subject. This has led to the creation of the 'teacher proof' text book which actually discourages teachers from being innovative, and reinforces the concept of the one right answer, which is the one the teacher knows. The use of a concordancer with a large corpus of authentic text which may, and probably will, conflict with 'rules' of grammar, syntax and lexical definition, poses a frightening threat to a teacher's authority.

The senior staff in secondary schools are generally those who received their training before the advent of the personal computer revolution. As a result there is a general lack of knowledge about the potential for teaching with computers and a high degree of computer illiteracy. One principal confessed to never using the computer in his office. But, as he cheerfully pointed out, it gave a very modern and high tech impression to his office, which pleased parents. Within the Education Department, too, computers appear to be seen only as resources for the teaching of computer studies. Not enough are provided (in my school we have eleven computers for student use, although classes can have up to forty four students). There is no provision for the networking of computers, which is useful for self-access provision and for communicative language work on computers, but which is not necessary for learning how to write a program. No department has a budget for software provision and no materials have so far been provided to schools by the curriculum development division.

3. Feasibility

All this gives the impression that any attempt to introduce concordancing into schools is doomed to certain failure. But the picture is not so gloomy. Certainly students would welcome such a move and there is increasing interest in the possibilities among some teachers. If concordancing, and, indeed, other CALL packages are to be introduced successfully, the process must be carefully thought out.

It is probably not possible or even desirable to try to wrest control of the computer room from the computer studies staff. Their needs are also great and as we have already seen, the demands of the computer studies syllabus mean that the computers are heavily used for that course. Nor are computer phobic language teachers going to feel particularly happy about being shut in a room with equipment

they fear, software they are unsure of, the pressure of adopting a new management style and a large, excited class of students who may, and probably do, know more about the equipment than the teacher does. In the authoritarian and hierarchical education system of Hong Kong the last point is the most terrifying.

The first step must be to reduce computer phobia among teachers. This will require commitment and care. Computers are already in schools; what is needed is training in use, organisation in arranging access, and commitment from senior management. Teachers are afraid of the machinery, in the same way that teachers in Europe once feared the language laboratory. There is the fear of damaging expensive machinery, of looking foolish if a student asks for help with the computer, of being unable to devise an appropriate methodology, and of being caught out by the superior knowledge of the machine - for students using concordancers may discover patterns which conflict with the teacher's rules. Even if they do not, teachers may be afraid that students will find something they don't know. The authentic text of the concordancer could be regarded as a rival to the teacher-expert.

Consequently, providing hardware and software will not be enough and both pre-service and in-service training is necessary. But before beginning to train teachers to use concordancing with students the ideal would be to make them feel comfortable with the machinery itself. A start can be made by actively encouraging the use of computers for administrative matters. Short courses in basic word processing skills should be offered in the training colleges for pre-service student teachers and computer-based self access material needs to be provided in the colleges. For in-service training, such courses should preferably be provided in schools. There are extra-mural courses already on offer but these demand a prior commitment to computers from teachers. The teachers must pay their own fees and give up their own time to do the courses. If administrators and the Education Department are seriously committed to training teachers to handle the machinery, then a policy of active encouragement must include allowing teachers the time and saving them the cost of being trained. Only when computers are regarded in the same light as typewriters will the possibility of concordancing approach reality.

The next step will be for teachers to be shown how computers can be used to produce materials for teaching and testing. Producing teaching materials is unlikely to have immediate appeal for many teachers here since few do produce their own materials, relying heavily on text books and past examination papers instead. (Cf. Adamson and Lee, this volume, editor's note.) But as a first step, demonstrating the value of computers in producing tests will certainly excite interest and it is here that a concordancer can prove its usefulness. (The feasibility of test production using a concordancer has already been investigated by Butler, 1991.) The discovery of the usefulness of concordancing in relieving the teacher of the burden of setting tests will be a major selling point. The setting of examinations in Hong Kong schools is a great headache because few teachers have expertise in writing tests. Another problem is that many teachers lack confidence in their own ability to use English, especially those teachers of other subjects who are drafted in to take one or two English classes to meet the shortage of English specialists. The usual solution is to

simply copy tests and examinations from published mater als. This has the disadvantage that most students are wise to this trick and many of them buy and use the same published materials for private study. In using a concordancer to produce tests, teachers will acquire familiarity and expertise which can then hopefully be transferred to the classroom or self-access centre. From tests it is not such a long step to move on to the production of practice material. In so using a concordancer the teacher will be building up the confidence she needs before using it with students.

Given sufficient encouragement and systematic support, teachers can be convinced of the educational and practical benefits of computers in general, and concordancers in particular, and these poentially valuable learning tools can then come to make their contributions in the school situation.

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