Information Technology and Collaborative Writing: fundamental pedagogy and theoretical considerations

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ABSTRACT This article considers how teachers working across three countries can create a collaborative writing environment in their classrooms. It reports on the first phase of a research programme conducted by university lecturers in the United Kingdom, Australia and Canada, investigating ways of developing teachers' expertise in the linking of information technology (IT) and pedagogy. It examines writing practices in the secondary classroom, in particular focusing on collaborative writing, and explores how this can be extended and developed through the use of IT. The research operates at three levels of collaboration: first, between the researchers involved; secondly, between teachers sharing their pedagogical expertise; and thirdly, between school students engaging in writing across the limits usually imposed by time and space. A fundamental hypothesis is that experienced and capable teachers of writing in different countries can extend their pedagogical skills through working together. Such collaboration between both teachers and school students has only recently become a possibility as a result of wider access to the Internet and the World Wide Web, on which it is eventually intended to publish results of the research, including examples of student work.

Introduction

The English Orders for the National Curriculum in England and Wales stress the requirement for drafting and redrafting in writing: “Pupils should be given opportunities to plan, draft and improve their work on paper and on screen, and to discuss and evaluate their own and others’ writing” (Department for Education and Employment, 1995, p. 15).

Observation suggests that there is little evidence that either pupils or teachers really understand how to make this process effective in the
classroom. We already know from examples drawn from classroom practice (Tweddle & Moore, 1994) that the new technologies can help greatly in this respect, both by making redrafting less tedious and time-consuming and by enabling the restructurining of work already in existence.

However Snyder (1994a) points out that there is no reason to suppose that this will inevitably happen. Her 2-year study of the use of portable computers in Australian classrooms leads her to suggest that “... it is probably unrealistic to expect teachers who rarely teach writing to suddenly do so when a new writing tool becomes available” and that “if we want language and literacy teachers to explore how the use of computers may enhance students’ writing (Balestri, 1988), careful attention must be given to the ways in which they are introduced to computers and their own computer-mediated writing practices established” (p. 63).

The work of Donald Graves in his National Institute of Education study (1983) has shown the value of student conferencing in building a community of writers. But much of this work was necessarily done with small groups of pupils in the same place and at the same time. Currently being investigated by the present authors is an extension of Graves’s approach to a much larger group, potentially an international classroom, through the use of information technology (IT) capability. We are concerned to make transparent those factors operating in a classroom affecting the use of IT in writing (see in particular Owston, 1993 and Snyder, 1994a).

The research further explores how teachers from different cultures working together can combine their pedagogical skills and knowledge to improve the quality of student writing.

**Research Framework**

Teachers have been identified in two schools in each of three countries (Australia, Canada and the United Kingdom [UK]) who are experienced in both the teaching of writing and the use of IT and who are willing to collaborate in the reading and creation of texts, including multimedia texts, with pupils aged 14 to 15. The teachers are operating within the constraints of their normal curriculum structure but are finding ways of enhancing their work through collaboration.

The teachers involved have been asked to keep a regular record of their work as it progresses, to be monitored in each country by the research team: in the UK, the authors of this paper; in Australia, Wayne Sawyer of the University of Western Sydney; and in Canada, Bryant Griffith of Acadia University, Nova Scotia.

**Models of Writing**

The approach to writing described by Graves has made a significant impact on thinking about writing in the classroom. In particular, the notions of
conferencing, collaborative writing and redrafting have become a powerful model of classroom writing practice. As part of the development, the use of IT has become a significant factor in the discussion about collaborative writing in classrooms.

However, for a variety of reasons, classroom practice does not always reflect this model. The combination of group work and computers does not automatically equal collaborative writing. In a funded project, Information Technology and the Whole Curriculum 9-14, it was found that group work is often a function of maximising access to computers, and that any collaborative work therefore takes place by accident rather than as part of a planned pedagogy (Eraut & Hoyles, 1989). This finding was borne out during further classroom observation where pupils ‘grouped together’ (that is, physically sitting around a single table) were often observed undertaking parallel tasks rather than truly collaborative work. As Scrimshaw (1993) observes, “... simply putting learners together in front of a computer will not ensure peer facilitation of their learning”.

Similarly, in observing the activity of peer discussion and redrafting, which reflects Graves’s approach where pupils are encouraged to discuss and suggest changes to one another’s work, research (Adams, 1985) suggests that the redrafting subsequently undertaken is limited to surface features only and very little rewriting is undertaken in terms of content or discourse patterns.

The following example demonstrates such an approach to redrafting. Daniel, a student in a UK school linked with the project, wrote a 2000-word narrative called The Driver, which included the following:

I was leading the championship by the skin of my teeth and I desperately needed a victory in the last round in the San Marino, the fastest track in the world. I had managed to get pole position but I knew the race would be a bit tricky. It was all on for me to win. I lined up on the grid, adrenaline pumping and mind focused. I told myself that the track was my enemy and I was there to destroy it. My eyes were set on the track, I was on my way to victory – I thought. I held the lead for the first lap with ease, then I started to be attacked ... I stormed through the pit-straight and came into the first corner of the track. BANG! I’d been hit ... I was spinning wildly towards the concrete wall. Skulls and blood suddenly filled my mind ... Blackness.

Here is an extract from his own commentary on his work:

I’ve always been keen on motor racing so I thought I’d make myself a driver in my essay. I started to write to see where it would go. I got stuck after a while, so I started planning it out on paper. I worked out how the story line was going. I couldn’t get any further so I started to type it up on the computer. I thought of the next bit but didn’t like it that much so I added a bit to it and cut a bit out .... When I reached the end I printed
it out and read it through. I found a few bits that didn’t fit, so I changed
them and printed it out again. My teacher looked at it and pointed out
some mistakes. I corrected them, ran the spellchecker a few more times
until it was perfect, then printed it out for the last time.

Although articulate, this commentary shows how both he and his teacher
were locked into using the computer as no more than an intelligent
typewriter, with an overriding concern for ‘correctness’, even though he
shows the potential for more sophisticated editing which might have been
exploited further by the teacher. This approach is common in classrooms in
all three countries. For example, Snyder’s report on her research project on
writing practices, IT and teacher attitude in Australia confirms this limited
use of IT in writing:

Each of the five teachers emphasised the importance of correctness in
writing and the publishing capabilities of the technology so that it was
used primarily for transcription and printing of a ‘good copy’. None of
the teachers ever really examined the potential of the technology to
make a greater impact on the students’ writing. None explored how the
technology could be used effectively as an integral part of a
computer-mediated writing pedagogy. The focus in all six classrooms was
primarily on operationalising the technology, not on exploring its
capacities to develop students’ writing ... As a result, the computers were
used in minimal ways. (Snyder, 1994b, p. 62)

Research by Owston (1993) suggests that teachers’ reluctance to use
computers beyond the minimal can be explained, at least in part, by teachers
having insufficient access to training in ways of teaching pupils how to write
using IT: “The conclusion is that ... courses typically found in pre-service or
in-service educational programmes are inadequate to prepare teachers for
the teaching of writing with computers. New kinds of courses need to be
developed that examine how computers affect classroom culture and the
writing process” (p. 239).

Even where training did occur, the likelihood was that the focus would be
on the technical aspects:

... teachers typically learn the rudimentary operations of a word
processing application such as how to create, save, retrieve and print
files, format and manipulate text, and use the spellchecker. Teachers
charged with teaching writing are then usually left on their own to make
the connections between their newly acquired knowledge of the
computer and the way they teach and the way children learn to write in
classrooms with computers. (p. 239)

In particular, we would be concerned to address Owston’s comment that
“New kinds of courses need to be developed that examine how computers
affect classroom culture and the writing process” (p. 239).
Writing and Computers

(i) Collecting Information

Clearly, a number of variables could be operating in the use of IT in writing, including available resources. It is known that a key variable in school performance is that of the prevailing school culture (Grace, 1978; Rutter, 1979). By comparing the experiences of three groups of students in different countries, we hope to illuminate the significance of such cultures in the process of the development of IT and collaborative writing.

The researchers are therefore working directly with the teachers involved in the research project to design agreed units of work that require genuine collaborative writing using IT capability.

These units of work will also, in one sense, be the research vehicle for observing other significant issues. As Snyder (1994b), following Greenleaf (1992), observes:

Qualitative studies of the ways social contexts can influence computer use are not well represented in the literature. Yet the teacher’s experience with computers, attitude toward the technology, pedagogical objectives, arrangements of the social structure of the class and the prior experience of the students are some of the more important influences which need to be examined, if we are to fathom the complexities of computer-mediated writing classrooms.

The qualitative element of the project develops Snyder’s research in looking at the effects of classroom culture, of teacher attitude to both IT and writing, (Graves, 1983; Harste et al, 1984; Snyder, 1994c; Calkins, 1986), and of the concomitant teacher attitude to definitions of literacy (Green, 1995). The focus of the research across the three countries is the relationship between the theory and the practice of writing with computers to enable the identification of the most effective ways for the collaborative creation of texts. It also explores the sharing and development of new and appropriate pedagogical strategies. (It may be useful to compare this approach with that of Ruopp et al (1993) working with science teachers in the Labnet project, Boston, USA.)

(ii) Models of Learning and Teaching

It is significant that, despite lip service to Graves’s work on collaborative writing, much of the writing that takes place in classrooms, particularly at the secondary level, is undertaken on an individual basis and that any use of IT is predicated on the same individualistic pattern of teaching and learning.
In the early days of the use of IT in schools in England and Wales, things were somewhat different given the scarcity of the available hardware. Thus, much of the early literature about the use of computers in schools argued their value in group work and the development of collaborative activity (Chandler & Marcus, 1985; Robinson, 1985). One experiment in writing, reported by Adams in Chandler & Marcus, describes the extensive use of a set of ‘Quinkey keyboards’ which were designed so that four pupils could address the same screen at the same time. Originally, the intention with such keyboards was that the screen should be divided into quadrants so that four pupils could use the same computer though working individually. In this experiment all four pupils were working to the same screen though each had individual control of a keyboard. The object of the research was to investigate the talk processes of the pupils, how they learned to negotiate the situation and to what extent they developed a collective sense of ownership of their work.

Such conditions were relatively easy to establish when schools were using a computer specifically designed for educational purposes such as the BBC Computer, in combination with specifically designed input devices such as the Quinkey keyboard or concept keyboards.

However, in practice things have now changed, partly as a result of the more widespread introduction of ‘orthodox’ hardware (Apple and PC computers) into the classroom and the increasing use of laptops. It seems to be the case that many teachers would ideally like to see a one-to-one ratio of pupils to computers and to establish a classroom organisation reinforcing this (See Light in Scrimshaw, 1993). There is an increasing move towards seeing computers as a means of delivering the curriculum to individual learners. The significance of this potential use of IT in the UK context will not be lost on a government facing massive teacher shortages in the year 2000. It is interesting to explore, however, how far this pattern of teaching and learning is replicated in other countries.

For example, the current use of IT in British classrooms, predicated on individual learning, contrasts strongly with its use in Japanese classrooms as seen in the work of a doctoral student at Cambridge (Holmes, 1998). Her observations in roughly comparable classrooms in England and Japan show that most of the time in British classrooms, teachers expect pupils to work individually and that a quiet classroom is strongly preferred. There is little direct encouragement of collaborative work. By contrast, this never happened in the observed Japanese classrooms. Pupils invariably worked in pairs at a computer terminal and there was a constant babble of talk as individuals and pairs helped each other in their work. The British classroom was individualistic; the Japanese one was essentially collaborative. In this respect the classrooms were clearly modelling profound differences in the two societies which are carried through later into the workplace and in attitudes to work.
Phase One of our current research seems to indicate that, similarly, differing cultures in the countries involved affect the use of IT in the classroom, the pedagogical methods employed and the interpretation and creation of texts. For example, the 16-year-old students in the Canadian classroom were working on a pedagogical and curriculum model similar to that adopted in many UK primary schools with five to 11-year-old students. They worked on projects incorporating a range of subjects for three-quarters of each day in their ‘technology-enriched’ environment and were able, with their teachers, to devise formats for the evaluation of their work. The Canadian teachers saw this as being appropriate to this age range in its development of global workplace skills. By contrast in the UK classroom, the students had to conform to the requirements imposed by the National Curriculum and external examinations, so that the work was subject-based with an increasing amount of whole class teaching and with little scope for collaborative learning. They also only had access to a computer-based classroom for one hour a week. In the Canadian classroom, both teachers were mathematics and IT specialists now teaching across a range of subjects, including English; the work in the British classroom was directed by an English specialist.

In the light of the considerable differences between the two situations, we were encouraged by how fruitful the collaboration was felt to be by both partners. It is too early to report on the Australian phase of the work, which is just beginning and where differences in the phasing of the school year in the northern and southern hemispheres have created some problems.

(iii) Developing Effective Collaboration

As already observed, the work of Donald Graves on writing conferencing has demonstrated the value of small writing syndicates of pupils sharing their work in progress in conventional classrooms. However, the potential of the new technology enables writing syndicates to be developed more fully and on a larger scale. As researchers, we envisage students writing at a computer terminal, enabled by the use of the Internet to transmit their work in progress to other audiences, including other students, from whom they receive feedback. This could take the form of a question asking for commentary along the lines of: “I don't understand what you mean by ...?”, “Please tell me more about ...”. In particular, the students will be asked to interrogate those elements of the texts which they find culturally puzzling. For example, students in Canada will have a very different conception of winter from those in more temperate zones. Even specific lexical items such as ‘outside’ may have different connotations in different cultures and contexts.

The originating students will then be encouraged to respond to these prompts and suggestions by incorporating revisions in their texts. It will be
seen that this very closely replicates the approach to writing conferencing adopted by Graves, but on an international scale - that of an international classroom, something only made possible recently through the new technologies.

The hypothesis is that this will have the effect of ‘forcing’ the responders to re-form the text rather than simply address surface features. It is for this reason that the responders will be encouraged to ask questions rather than to offer ‘corrections’ of the work. Even in a single networked classroom there would be no limit to the number of responses that a single piece of writing could generate and the originating writers would have to make informed choices about which responses they found most helpful and significant. In this way they would explicitly retain ‘ownership’ of their work, a point which Graves stresses.

This pattern could be adopted in any networked school or classroom but could be easily extended through the use of electronic mailing to enable similar writing syndicates to exist between classrooms, between schools and between different countries. In fact some work is currently being planned through the European Educational Regional Partnership, based in Hertfordshire, to encourage lower secondary school children to cooperate together in a number of European classrooms, and to write bilingual stories jointly with primary school pupils in the same countries as the intended readers. Similarly, the Australian Writers’ Project, within the Sunrise Project, has undertaken extensive work on a national scale, looking at collaborative and distance writing using laptops.

(iv) Developing Collaborative Writing Using Email

Work that has already been undertaken in the use of electronic mailing in writing has emphasised the interesting anonymity of the medium. You do not know the age, colour or even the gender of your correspondent unless, or until, they choose to reveal it. (This is of course an increasingly important feature when people ‘meet’ on the Internet).

A few years ago an experiment was conducted with a group of English students in Cambridge on a one-year pre-service course of training for teaching, following their first degree. They worked collaboratively using email with a class of 13-year-old students in a local school. Originally, this was designed simply to give the students experience of responding to pupils’ written work. However the school pupils decided to adopt the persona of beings from another planet and wrote in role about themselves and their life experience. The pre-service students, who had been told nothing about the pupils apart from what was revealed in the writing itself, found themselves totally ‘thrown’ by this experience and assumed that the pupils were much older and more mature than they actually were. It was not until much later in the term when they were taken on a field trip to meet the pupils with
whom they had been working, that they realised that they were in fact only 13. They certainly treated them with more respect as ‘real’ writers than they did similar pupils whom they met in a face-to-face situation in a conventional classroom. What had been achieved in the relatively short time of six weeks was the creation of a community of writers in which 13-year-olds and pre-service students worked on largely equal terms, each challenging and informing the others’ writing in a way unlikely to be achieved by pupils and teachers in conventional classrooms.

**Conclusion**

The sharing of pedagogical practice in the development of collaborative writing across Australia, Canada and the UK, and the central role of IT in this process will go, it is hoped, some way towards answering what Green (1995) sees as one of the current challenges to English teaching, that of forging "... new relationships between language and technology ... Traditionally, English teaching’s concern with language (and hence literature and literacy) has been defined either implicitly or explicitly against technology ..." [author’s emphasis].

The opportunities, afforded by the other place/other time dimension to the development of collaborative writing strategies, are vast. Both students and teachers will be able to draw on a wide range of views and opinions on the development of their own writing process and in turn comment on others’ writing; the development of personal and shared writing strategies from a cross-cultural perspective and the exchange of cultural information should prove an exciting experience for all the participants in the research. Certainly Phase Two of the research which is just beginning – the recording and monitoring of the collaborative writing project – promises some fascinating insights into the interrelationship of IT and writing.

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