

**Writing the Future
Writing and Computers 10**

Brighton University

Cyborgs sitting in the classroom.

**Information & Communications Technology
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Abstract

During the past three years an increasing number of school students in the UK have had access to personal computers at home and at school. Much of the written work produced by these students as part of their course requirements has used computer technology, and anecdotal evidence from students and their teachers has suggested the use of computers has had an effect on their writing.

Some post-16 students following GNVQ courses now use such programs as PowerPoint for their presentations. The use of a presentation program has affected information sequencing techniques. Some students who now use PowerPoint approach the structure of writing in a more analytical way than previously. With others, multimedia techniques have been incorporated into presentations.

The net effect of this is to modify these students' writing styles when standard word processors are being used.

“When doing a presentation PowerPoint can help the speaker to illustrate his or her points through the means of graphs, key points or diagrams. These functions can help a speaker who is not so confident at speaking feel more at ease when talking as the PowerPoint can take some of the audience's attention, rather than having all the audience staring directly at the speaker.

In some presentations in which I have used PowerPoint the use has been a great factor in how successful my talk was: for example the statistics in marketing module required a lot of graphical data. To show the audience my results was much easier using PowerPoint as the results were much neater than simply drawing the graphs on paper, the time it saved me was a bonus too.”

Background.

Research undertaken with the University of Huddersfield at Boston Spa, a comprehensive school with about 1,800 students and 110 teachers near Leeds, West Yorkshire, has shown a significant increase during the past three years in the number of young people with access to a Windows-based PC. During each survey more than 1200 students across the whole age and ability range were surveyed. Data from an inner-city school was compared during the most recent survey.

Comparative figures (as a percentage of respondents.)

Home ownership of Personal Computers 1997			Suburbs February 1995
Year Group	Suburbs	Inner-city	
Year 7	47%	16%	26%
Year 8	52%	11%	31%
Year 9	55%	16%	35%
Year 10	62%	22%	42%
Year 11	67%	32%	46%
Year 12/13	72%	38%	49%
Whole school, as % of respondents	59%	20%	35%

These figures would confirm trends identified in a survey of secondary schools by the Computer Education Group¹ (Computer Education, issue 83, June 1996), which showed the increasing dominance of IBM-compatible PCs.

Teachers' views.

The survey also asked staff at both schools what they thought were the effects of computers on students' work.

- 80%+ agreed that students work was improved by computer use. Teachers stressed legibility, presentation and organisation of work as the main areas of improvement.
- 31% of staff in the suburbs and 46% of those in the inner-city stated that work was improved by up to 25%.
- More than 50% of respondents saw access to CD-ROMS as beneficial to students' work.

Transactional factors:

The main impact of computers on student work	Total=116
Presentation	37% (43)
Motivation	17% (20)
CD-ROM Research	10% (12)
Word-processing	4% (5)
Project work - documents	3% (4)

Recent corroborative research.

1. A report published in March 1997 by the management research consultancy McKinsey & Companyⁱⁱ examined the extent to which computers could be fully integrated into education. Three main sources of statistics were used:
 - Survey of Information Technology in Schools. Government Statistical Service, February 1995
 - RM International Report on IT Provision in Schools July 1996
 - Olivetti Personal Computers Home Market Report (Intel) 1996

Key findings:

- 40% of homes with school-age children (11-14) have a computer.
 - 52% of all families with children own a computer.
 - In the UK in 1995-96 more computers were sold into homes than into the workplace (Microsoft UK).
 - The growth potential in the consumer market for computers is similar to that for Video Cassette Recorders
 - Within the next two years the number of households owning a computer is projected as almost 55% of the total.
2. Olivetti Personal Computers published the details of their survey this monthⁱⁱⁱ. A representative survey of more than 2,000 pupils found 66% used a computer at home, compared with 45% two years ago. In almost 20% of households with children there were at least two computers. One in five computer-owning households was connected to the Internet. On average, a child with a home computer spent about 11 hours a week using it - an increase of 10% on last year.
 3. An American poll commissioned by Gateway 2000^{iv}, with a sample size of 600 families with children aged 6-18, reported that making use of PCs for up to four hours a week showed a significant increase in grades.
 - 56% of students age 10-18 reported significant grade improvements.
 - 67% of students age 10-12 confirmed an improvement.
 - 92% of these children regularly used their PCs for homework, whilst 61% of them also used the Internet and/or e-mail.

What does this mean?

These statistics would suggest that a significant number of students use computers at home for a range of applications. And what of their teachers? When they completed the same survey, 43 per cent of staff respondents said they had access to a PC at home. However, while all of the students who had a PC at home used it for work, this was not the case with their teachers. Fewer than 25 per cent of them actually used their PCs at home. The primary use for those who did was "typing". This is reflected in the curricular uses of computers.

Leeds sample: Staff curricular computer use								
W/P	D/B	Charts	S/S	CAL	DTP	Internet	CD-ROM	CALL
62% (72)	27% (31)	22% (26)	21% (24)	13% (15)	8.6% (10)	7% (8)	6% (7)	3% (4)

It seems that the skills gap between many students and their teachers is wide - and is still widening. Whatever the reasons - lack of time, the cost of computers that need updating regularly, or a residual belief that work produced on computers is too easy and that learning ought to be hard work - the result is that many computer tasks set by teachers focus on low-level skills. Teachers overwhelmingly see the impact of computers on students' work in transactional terms.

"A good touch of PowerPoint is the ability to change the style of the slide through colour and patterns, this is just a part of the factors that make PowerPoint look so professional and give the students an excellent way to present their work."

When students bring their own skills into the classroom teachers often lack the background knowledge to effectively evaluate their work. The students use templates and pre-set formats because they are quick, easy and effective. These are used as a support for the content, yet in many cases McLuhan's aphorism, that the Media is the Message, prevails.

What students need.

There is a need now for students to be taught to integrate information use and information handling into their writing strategies. These can be classed as **Knowing About** and **Knowing How**. The students have many of the skills necessary to operate the programs: they explore the Internet, collect information, make use of free e-mail and web page facilities offered by providers such as GeoCities and USA.net and learn the ever-changing routines as they go along.

"I found learning PowerPoint to be quite easy and the more you use it the more you learn. At first I could only input words but after using it a few times I could use graphs and images as well as text. Because the slides are in colour it keeps the attention longer than boring black and white slides. Images can be transferred easily into the presentation and with the easy access to the Internet relevant images can be put on to the slides which would make them more interesting for learning."

It is the development of a cognitive framework within which they can operate that is a more important imperative for teachers than trying to use aging educational facilities to teach operator competence.

Knowing About.

Students must determine their information needs, and develop a range of strategies to assess them. Prior and ongoing needs are often context-related: the transfer of existing knowledge domains to the task in hand has proved more problematic. The identification of existing knowledge should enable that which is new to fit more comfortably with that which needs to be known. The very nature of the education process, however, all too often predicates knowledge as a serial process, rather than one which is holistic. It is ironic that, in the production of the artefact for assessment, students use holistic production techniques.

Knowing how.

The skills that are needed are those that students can correlate with concepts: the use of data and information and the combination of it so that it can be presented in a visual form. PowerPoint offers some pointers as to the way in which students are using visual presentations to convey information. Indeed, conceptualisation as a visual process forms an important stage in young people's cognitive development.

"The more you use PowerPoint the more you learn about it. At first I could only use PowerPoint to put text onto, but after a while I found I could insert graphs and images from clip-art: scanning in pictures from the internet. PowerPoint is very easy to use once you get used to it. You learn as you go along by yourself."

The sequences of information can be seen as iconic stages: the use of imaging as information develops leads to an overall understanding of the concept. The underlying question that many teachers face is whether the completion of the task leads to an understanding of the subject. All too often that is doubtful.

It is the product, however, on which students focus. Not only will they be assessed on it, but it represents a statement of their creativity and identity. Their ability to create an artefact using a range of sources, integrating a range of data and information and presenting it in an appropriate way casts the student as Auteur: their teachers may know the content better than they do, but the control of the form is theirs.

"It is not hard to learn how to use PowerPoint using the help options and the tutorials, but the best way to learn is to try."

The availability of templates, Wizards, freeware and online information poses significant ethical issues for many students over the ownership of the product.

"PowerPoint is very useful if you want to improve the quality of your work. You can have the choice of having the computer set it up for you. You can also use the auto content and this will set up what you want in the presentation by asking you questions. In the

presentation you can have a wide range of choices for the background and these can be changed during the time you are working on the presentation. You can also have a wide range of text styles, colours and sizes.”

The post-modern positioning and conditioning of students, accessing, copying and swapping a range of media, extends to the work that they do. They regard the artefact they produce for assessment as their product: they have designed and created it. In essence, it is a post-copywrite product. In their world, what are the ethics of ownership? What are intellectual property rights in the Information Age? What is plagiarism?

Ways forward.

In an ideal world there would be time, resources and expertise enough to ensure that the educational process empowered all of our students equally. What we see, however, is that in this Information Age those with access to the economic and cultural capital which computers represent are privileged.

“I got my first computer when I was five. I’ve had lots since then. I always use them.”

These students envisage any tasks which they are set in terms of the programs and routines which they will use. The proportion of their week in which computers are used is considerably greater than most of their teachers. It is only to be expected that their proficiency should be more extensive.

We should acknowledge the starting position of many students and develop a range of strategies.

- Information seeking and handling skills should be taught as an integral part of the curriculum from the earliest age.
- Schools and teachers must address the issue of those students who do not have access to a home PC. A policy of positive discrimination may be needed.
- It may be necessary to re-define our expectations of coursework in order that no group of students is disadvantaged: neither those from non-digital households, nor those who are electronic magpies
- Students must be taught the attribution and ethical use of materials. Plagiarism of a textbook is easier for a teacher to identify than that of a plethora of electronic information. Those students who have CD-ROMs and an Internet connection at home have access to an unlimited source of information which teachers cannot control.
- The progress of these cyborgs from the classroom into higher education raises questions about the nature of authenticity and originality of their work. If we as teachers fail to address these issues at an early enough stage in the educational process there will be two inevitable consequences:
more ammunition will be handed to critics of the expansion of higher education;

those students whose understanding and use of computers is limited by their lack of access will be further marginalised.

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- ⁱ Computer Education, issue 83, June 1996
 - ⁱⁱ The Future of Information Technology in UK Schools. McKinsey & Company, London March 1997
 - ⁱⁱⁱ Olivetti Personal Computers. The Times. 04.09.97
 - ^{iv} Gateway Computers. August 1997