

# TEACHING AND ASSESSING ELECTRONIC WRITING SKILLS

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## ABSTRACT

Writing is an important aspect of a student's skill set. Most students now use 'information technology' tools, such as a word processor, spreadsheet, data base and a web browser, in order to research and produce written work that is subsequently used as part of some course assessment process. Invariably, the work that is produced is just 'printed off' and submitted in 'paper form'. Such submissions lack the richness that hypermedia writing can achieve. They are also difficult to store, share and access. This paper discusses the skill sets needed by students in order to employ non-linear writing techniques in order to produce electronic reports that embed rich information such as sound and video. It also outlines how students might utilise the newly emerging technique of 'blogging' (the creation and use of weblogs) as a means for organising and harvesting the electronic knowledge that they acquire as a result of research activities. A mechanism for handling the electronic submission of reports is discussed and potential criteria for assessing students' submissions are identified. A case study is presented which identifies examples of good practice in relation to electronic report writing.

## KEYWORDS

writing skills, electronic course delivery, assessment, web-reports, weblogs, e-reports, hypertext

## INTRODUCTION

My motivation for producing this paper grew from a number of important sources. These were rooted either in my own experiences of electronic writing projects that I have been involved in or my reading of contemporary literature relating to the teaching and learning of electronic writing skills. For example, when I was reading a recent issue of the *British Journal of Educational Technology* (BJET, 2003) I came across some interesting and thought-provoking questions:

- *Does your writing change when using new technology?*
- *Can a collaborative network environment enhance essay writing?*
- *How good is a student's online discourse?*
- *What is the point of a book without pictures or conversations?*

Prior to encountering the above 'prompt' questions, I had been involved in a number of national and international projects that were intended to teach people about the possibilities offered by new approaches to writing using electronic media. Examples of these projects include the development of an interactive package on creating hypertext documents - for the University of Barcelona (Barker, 2001a) - and the creation of a demonstrator for the UK's Institute of Learning and Teaching (Barker, 2001b). I had also begun tutoring on two electronic courses (T170 and T171) for the UK's Open University (Barker, 2002; Weller, 2002). These experiences, together with the prompt questions listed above, caused me to think about and reflect on the issues involved in electronic writing using different types of media and how we should try to teach students about the skills that are needed. I therefore formulated three basic questions that I wanted to address:

- *Can technology help us to improve our writing skills?*

- *Does technology enable us to write in more creative and effective ways?*
- *If so, how do we teach students to do it?*

I do not claim to have yet found complete answers to these questions and so they provide me with considerable motivation for my ongoing research in this area. In subsequent sections of this paper I describe some of my findings and the experiences I have encountered in attempting to answer these three important questions. However, before doing this, it is necessary to establish exactly what we mean by the term '*electronic writing*'. I attempt to do this in the following section of the paper.

## FORMS OF WRITING

Writing can be classified in a variety of different ways. As far as this paper is concerned it is necessary to distinguish between two basic forms: linear and non-linear. *Linear text* is essentially similar to the text that makes up this paragraph. It is designed to be read in a strictly sequential fashion - one sentence after another after another until it is all processed. In contrast, *non-linear text* is usually intended to be processed out-of-sequence. Embedded within it are links to other objects (other units of text, pictures, sound effects, animations, video clips, and so on) which its author uses in order to illustrate particular points or to expand upon a topic in greater depth. This type of text is often referred to as *hypertext* (Barker, 1993).

The use of non-linear text is increasing considerably in a variety of different types of application - particularly, in relation to web-development, electronic books and, as is discussed later, electronic course delivery. A practical example of the use of hypertext writing can be found in the electronic documents that I created for a project that I undertook some years ago for the UK's Institute of Learning and Teaching. These can be found on the Internet (Barker, 2001b; 2001c). The relationship between the two files that I created is illustrated schematically in Figure 1. In this diagram the main electronic manuscript is a *Word for Windows* document that is essentially linear in structure. However, it does embed simple hyperlinks both to an accompanying support document (a 'notes' file) and to other resources held remotely as Internet-based documents.

Within Figure 1, the support document is in HTML format. Its contents are intended to explain and expand upon topics and issues that are only superficially introduced in the main document. Embedded within the notes file are further hyperlinks. These are of two types. First, there are *external* links to other local and Web-based resources. Second, there are *internal* links to related and relevant sections of text embedded elsewhere in the notes file.

The presence of hyperlinks within electronic text implies the existence of a certain level of reactivity within a document. Textual reactivity can be used in a variety of ways in order to provide additional facilities and functions that are related to using a given text corpus. Typical facilities might include annotation, send-to-blog, add markup, add decoration, and so on. Decoration can take on a variety of different forms through the use of colour, various fonts and font effects.

Each of the two types of writing described above (*linear* and *non-linear*) can be used as a primitive building block (a sort of 'repeat' unit) that can be employed in the creation of a text corpus. Depending upon the ways in which these repeat units are put together, a variety of different types of structure can emerge. Structures can be built according to particular types of generic rule-set. Each structure will usually embed some form of metaphor that projects (to its users) its purpose, functionality and underlying properties. Some typical examples of the types of generic structure that can be created include electronic books, web-reports, weblogs, and so on.

Non-linear writing techniques that incorporate the ideas described above are particularly important because they provide a mechanism for the creation of knowledge-based structures that can embed different levels and approaches to the representation of human experience - as outlined by Barker and Proud (1987). A good example of the way in which this can be achieved can be found in the use of

weblogs for knowledge representation (Barker, 2005a; 2005b; Bausch, Haughey and Hourihan, 2002). I shall return to a discussion of the important role that weblogs have for knowledge management later in the paper.

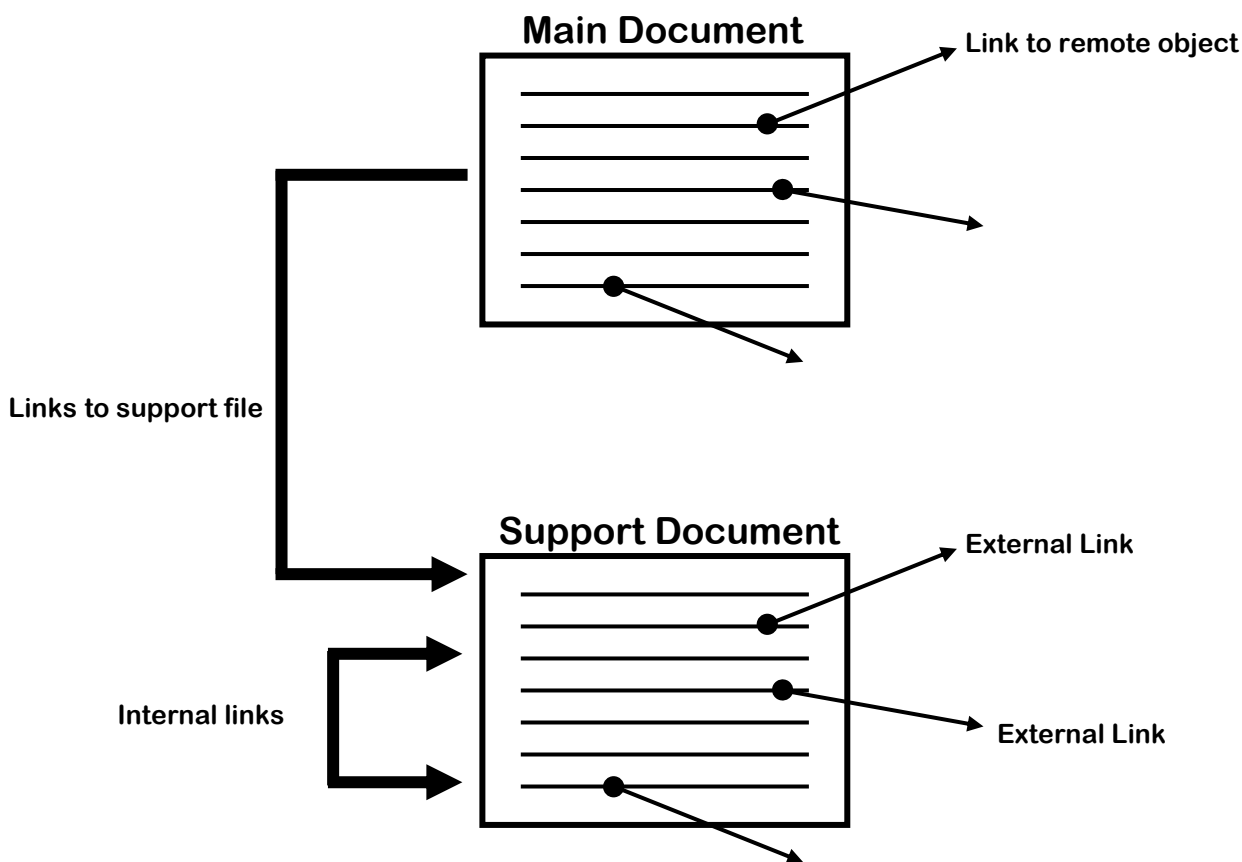


Figure 1. An example of non-linear writing.

Having discussed some of the different forms that electronic writing can take, it is now necessary to see how the skills involved fit within the concept of paperless courses. This is discussed in the following section.

### **ELECTRONIC COURSE DELIVERY**

There is an increasing demand for university and college courses to be made available online and ‘delivered’ electronically. Some of the obvious reasons for this stem from the *time* and *place* flexibility that this approach offers (van Schaik, Barker and Beckstrand, 2003; Collis and Moonen, 2001). Naturally, as organisations make greater use of electronic course delivery (ECD) there will be an increasing need for students (and staff) to acquire electronic writing skills - as we move away from the use of paper as a medium for the support of teaching and learning activities.

Depending upon the objectives that are to be achieved, there is a variety of ways in which ECD might be implemented. In the most common form of delivery, a computer-based network infrastructure is used to create an online *learning community* involving students and staff. Members of the learning community interact with each other via their computer workstations using electronic mail, conferencing facilities (both synchronous and asynchronous) and other Internet-based services. Study materials for the course are usually made available by means of appropriately designed Web sites that can be

accessed only by members of the learning community (Barker,1998; 1999a; 1999b). Appropriate online activities are provided to enable students to work as individuals and as members of a team (Salmon, 2000; 2002). These activities often involve problem solving, the creation of essays and/or web-reports, and participation in computer-conferencing events. In order to assess students' progress and to certify the skills and knowledge that they have acquired, a range of different assessment metrics has to be put into place.

Within an ECD system, all materials are held and distributed in electronic form. Students therefore have to submit work for assessment using electronic media; this is then stored on a secure server. Subsequently, this work can be downloaded and assessed by the academic staff associated with the course. Naturally, students' submitted work is usually assessed in electronic form and is then returned to the server. From here, students can retrieve their results, their annotated manuscripts (containing individualised comments from their tutor) and any other feedback that a tutor needs to pass back - either to individuals or to the group as a whole. This workflow arrangement is shown schematically in Figure 2.

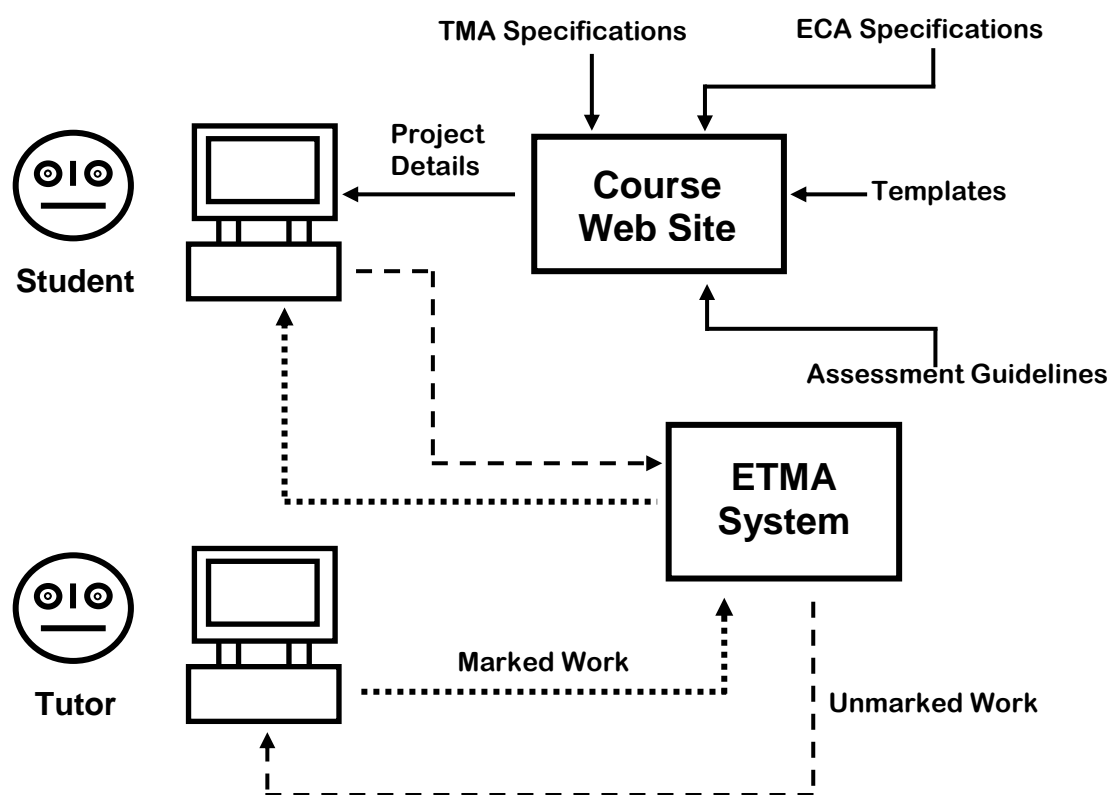


Figure 2. Logistics of electronic work submission.

In the illustration presented in Figure 2, the workflow diagram is modelled on the system that is currently employed by the UK's Open University. Within this diagram the abbreviation 'TMA' refers to the *Tutor-Marked Assignments* that students submit for assessment. Course tutors then mark these. The results for each of the TMAs that a student submits are aggregated and used to determine that student's performance -along with the results that he/she achieves in the *end-of-course assessment*. In figure 6, the central server through which all work flows is called the 'ETMA system' - ETMA being an acronym for '*Electronic TMA*'.

Bearing in mind what has been said above, it is easy to identify a number of generic areas where electronic writing skills would be a useful asset for students - and maybe for academic staff too! In my

view, there are four important areas where sound writing skills would enable students to function as effective participants in an online learning community. Each of these is briefly discussed below.

- *Document Creation:* the ability to design, create and subsequently submit electronic documents to the central server system is a fundamental requirement. Its realisation might involve a person working as an individual or as part of a team. For students, this ability is needed, primarily, for assessment purposes - so that academic staff can assess each student's progress through the course. For the staff associated with a course, this skill is needed for providing feedback reports for students.
- *Use of Electronic Portfolios:* the skills needed for the design, creation and maintenance of an electronic portfolio often involve drawing and writing. These e-portfolios can be used as a 'storehouse' for work undertaken during a course of study (Barker, 1999a; Olsen, 2004; Hawkins and Black, 2004). Subsequently, at the end of a course an e-portfolio might be used as a part of the final assessment of a student's ability (Mason, Pegler and Weller, 2004).
- *Maintaining Weblogs:* it is likely that both students and staff within an ECD system will need to be able to create and maintain weblogs for the purpose of managing the knowledge that they acquire as a result of participation in a given course (Barker, 2005c). This knowledge is likely to be of two basic types: private and shared. This requirement can easily be met through the use of electronic writing skills for the creation of appropriate collections of private and public weblogs.
- *Online Conferencing Skills:* it is imperative that students (and staff) develop appropriate skills which will allow them to become effective contributors to the various online conferences that normally accompany a given online course presentation (Salmon, 2000; 2002; Webb et al, 2004). At the very least, this should involve observing the basic rules of conference behaviour - this is often referred to as 'netiquette' (Zimmer and Alexander, 1996).

Of course, as a result of the change of medium (from paper to electronic), the academic staff associated with the presentation of a given electronic course will also need to acquire additional new writing skills - over and above those needed by students (Barker 2002; Duggleby, 2000). These arise because assessing, marking and commenting on students' work in an online environment can be significantly different from the corresponding activities undertaken when paper is used as the primary medium for the delivery of a course.

## **TEACHING AND ASSESSMENT**

In this section of the paper I shall describe some of the experiences that I have had during the time I spent teaching and assessing electronic writing skills on two Open University courses - T170 and T171 (Barker, 2002; Weller, 2002). The discussion in this section concentrates on five main issues: the assumptions made, the objectives to be achieved, the teaching scheme that is employed for their realisation, an example problem and an outline of the assessment strategies that are used to gauge the quality of students' work.

### ***Assumptions***

In keeping with normal educational practice, it is necessary to make certain assumptions about the nature of the knowledge and skills that students bring with them to any given course. In the courses that are discussed in this section, it is assumed that students will have a basic understanding of a word-processing package (such as *Word for Windows*) that enables them to create simple linear text documents of the type described earlier in this paper. A pre-test can be used to check this requirement and, where appropriate, students who do not meet this pre-requisite can be given relevant pre-course induction modules to study.

### ***Teaching and Learning Objectives***

The overall objectives to be realised involve the creation, within each member of the cohort of students, the knowledge and skill sets needed to enable the production of non-linear, electronic web-reports. Students should be able to produce these reports in two types of context: first, acting as individuals and, second, as a result of participating as members of a project team. Naturally, when a report is produced as a result of team effort, evidence of each team member's contribution has to be submitted (for assessment) with the work.

The generic software tools needed to realise the above objectives are a word processing system, an online conferencing facility and a HTML editor. For the work described in subsequent sections of this paper, the specific software tools employed were *Word for Windows* (the word-processing system), *FirstClass* (conferencing facility) and *Netscape Composer* (HTML editor).

Ideally, an important objective that has to be realised from the teaching and learning strategy will be the development (within the members of the student cohort) of a set of 'transferable skills', that is, knowledge and techniques that are not tied into particular software products.

### ***Teaching and Learning Strategy***

The basic strategy underlying our approach to the teaching of electronic writing skills is summarised in Table 1.

Table 1. Steps involved in the teaching and learning strategy.

Step 1:	Produce a simple Word document.
Step 2:	Submit to the ETMA system (see Figure 6)
Step 3:	Download marked work and reflect on tutor's comments.
Step 4:	Introduce linking.
Step 5:	Introduce HTML, Netscape Composer and FirstClass.
Step 6:	Produce a Group Web Channel
Step 7:	Produce individual web-report.
Step 8:	Submit to the ETMA system.
Step 9:	As Step 3.

From a basic understanding of word-processing (Step 1), students are introduced to the concept of linking (Steps 4 and 5). This is done, in the first instance, using the word-processor, and then, using the HTML editor. Initially, students each work as individuals (Steps 1 through 3). Subsequently, in order to develop the skills of collaborative writing, they work in small groups (usually, no more than five members) in order to produce a group report - or 'web channel' (Steps 5 and 6). This usually involves the students working on a project which can be 'divided up' into segments - thereby allowing each team member to make an individual contribution to the overall work involved.

Each individual's contribution to the project can be held on his/her own Web-server space during the development of the overall document. The index page (produced collaboratively) is used to provide a generic description of the project and details of each member's contribution. Individual contributions can be accessed through hyperlinks embedded within the index page. An illustration of the type of problem that students might work on (either individually or as a team) is presented in the following section.

### ***An Example Problem***

In order to illustrate the types of problem that students work on, an example problem specification is presented in Table 2.

Table 2. Sample problem for students.

<p style="text-align: center;"><i>Problem Specification</i></p> <p><i>Write a web-report about a famous computer personality. Examples of people you might consider could be Tim Benners-Lee, Bill Gates, Steve Jobs, Linus Torvalds and Richard Stallman. Identify the person and the contributions that he/she has made to the computer industry. You should provide biographical details for the personality that you choose - along with appropriate photographs. Give reasons for your choice and illustrate your answer with reference to material that you have found on the Internet and the course Web site.</i></p> <p><i>Accompanying this part of the course there was a 'Famous Personalities' forum. Identify and discuss the contributions that you made to this forum.</i></p>
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In this particular example, each student is required to work individually on the production of his/her web-report. Of course, this particular problem could be easily extended in order to accommodate its use as a team project. This could be achieved by introducing a 'theme area' into the specification of the problem. It could easily be re-worded in a way that would require students to identify famous personalities that have contributed to the development of 'animation techniques', 'portable devices', 'printing technologies', and so on. Each student in a given team would now be required to participate in two types of writing task. First, individual writing to prepare his/her individual report contribution and, second, collaborative writing to prepare the generic material (the index page and supporting documentation) needed to create the team's web channel.

#### **Assessment Strategy**

Naturally, the detailed nature of the assessment metric that is used in order to gauge the quality of a students' work will depend upon the particular characteristics of the specific problems that students are given to work on. However, having said this, there are some fairly 'generic' assessment areas that normally underlie the way in which most work submissions are evaluated. Five important aspects of students' work are normally considered in most web-report assessment processes. These are: the background research that has been undertaken; report planning; report structure; academic content; the overall presentation of the work and (in the case of group projects) evidence of participation in the online conferences related to the project. These facets of assessment have been used in assessing the quality of the examples of web-reports that are discussed in the following section.

#### **CASE STUDY MATERIAL**

Although it is not possible to present detailed copies of students' work or marks (for confidentiality reasons), it is important to identify examples that embed instances of good practice. Bearing this in mind, four examples of students' work, that scored high marks in a particular assessment exercise, have been selected and have been used in this section to showcase students' achievements and to provide examples of typical hallmarks of quality. Each case study presented in this section has been analysed in order to isolate the key features it contains relating to examples of good practice.

The work that the students undertook, and which is described in this section, was used as an *End-of-Course Assessment* (ECA) exercise in which students had to undertake three main tasks. First, they had to perform a Web-site analysis of three 'themed' Internet sites of their own choice. Second, they had to provide a small e-portfolio of work that they had undertaken during the course. Third, they were required to reflect on the various parts of the course that they had studied and then document their thoughts on the modules that they took. The outcomes of each of these three activities then had to be integrated into an electronic web report that they then had to submit for assessment purposes (as depicted in Figure 2).

High marks for the ECA assessment could be achieved by submitting a well-structured, modular report with a ‘contents page’ that embedded reactive hyperlinks to the different component parts of the report. Within each part of the report there had to be appropriate navigation links (such as ‘*top of page*’, ‘*back to contents*’, ‘*next part*’, ‘*previous part*’, etc) to facilitate readers’ navigation through the electronic document. The report also had to contain a variety of external hyperlinks to appropriate Web sites that were chosen to illustrate points being made within the textual narrative of the report. In addition, reports had to contain good quality images (that were used in an appropriate way) and other media that were deemed to be relevant to the report’s contents. A reference section also had to be included; this had to contain correctly documented citations of work that was referred to within the web report.

Table 3 lists the marks obtained by the four case study examples that were chosen for analysis. The table also provides some details of the range of resources submitted by the students in relation to their submitted web reports.

Table 3. Characteristics of students’ submitted work

	<b>Case 1 Student W (ECA20)</b>	<b>Case 2 Student X (ECA21)</b>	<b>Case 3 Student Y (ECA45)</b>	<b>Case 4 Student Z (ECA16)</b>
Mark Awarded	96%	95%	88%	83%
HTML Documents	12	14	12	16
GIF Images	16	7	17	3
JPEG Images	3	10	20	6
Reference Section(s)	Yes	Yes	Yes	No
Colour Scheme	Good	Good	Good	Good
Internal Links	Yes	Yes	Yes	Yes
External Links	Yes	Yes	Yes	Yes
Consistent Appearance	Yes	Yes	Yes	Yes
Textual Narrative	Yes	Yes	Yes	Yes
Consistent Style	Yes	Yes	Yes	Yes

All of the project reports listed in Table 3 made a good use of images and was highly modular. Some of the reports contained a reference section while others did not (these were penalised in terms of marks allocated). All reports contained numerous embedded external links and a good set of internal navigation links. None of the projects utilised any sound effects although one of the projects (that submitted by Student Y) did make use of a video clip - which had an embedded sound narration. Some of the good features of the individual projects are briefly summarised below.

The web report for *Student W* was well structured to reflect the structure of the questions that were asked in the ECA. There was a good set of internal links (from the ‘contents’ page) to the various other parts of the report and from any given section of the report to other sections. There was also a good set of external links to appropriate illustrative Web sites. The colour scheme that was chosen was appropriate and consistently applied to all sections of the report. The author made good use of HTML tables to lay out the material being presented. A good selection of images was used and, where appropriate, their source was acknowledged; these images were appropriately used to augment the textual narrative embedded within the report. A reference section was included to reflect the details of important material consulted during the background research undertaken for the ECA project.

In terms of its overall quality, the web report for *Student X* was of a very similar standard to that of *Student W*. All of the good features of the work submitted by *Student W* were also apparent in the report submitted by *Student X*. In addition, the report submitted by this student contained some very useful references and hyperlinks to two online guides for evaluating Web-based material.



The reports submitted by both *Student Y* and *Student Z* showed similar characteristics to those displayed in the reports of *Students W* and *X* - but to slightly different (lesser) extents. This is reflected in their marginally lower marks. As well as referencing a video clip at Cray Computers (<http://www.cray.com/company/video>), the report submitted by *Student Y* incorporated a very good technique for merging images and textual narrative. Although it was a little weak with respect to its references, the report from *Student Z* did incorporate an excellent use of HTML frames for facilitating internal navigation of the web report.

## CONCLUDING REMARKS

Technology has become an all-pervasive force that is affecting virtually all aspects of human endeavour - particularly, people's ability to observe, think and express the outcomes of their thought processes. As computer technology becomes inculcated within our educational systems, we need to review continually our approaches to teaching and learning. Two significant trends are currently taking place: first, the more extensive use of electronic course delivery for providing educational opportunities; and second, the growing use of computer-based products as mechanisms for communication. Undoubtedly, such products can significantly influence the *speed* with which we can communicate, the *richness* of what can be said and the geographical *reach* that can be achieved.

Despite the growing importance of technology-enhanced speech communication, writing still remains one of the most powerful mechanisms for communicating facts and ideas. Indeed, computers are now being used extensively to create a wide variety of different types of 'written' artefact. As the 'facilities' associated with 'electronic writing' expand and improve, so, we will need to reflect on the nature of the skill sets and competencies that are needed in order to achieve successful communication within this important domain. Bearing this in mind, this paper has attempted to identify and describe some of the issues that need to be considered. It has also described and discussed the relevance of electronic writing within the context of people's participation in electronic courses. Naturally, within this context, the assessment and accreditation of students' electronic writing skills is an important issue that has to be addressed as we move from 'paper' to 'electronic media' as a mechanism for course delivery. This paper has discussed some of the approaches that we have been using both to teach the techniques and, subsequently, to assess students' online writing skills.

## REFERENCES

Barker, P.G., (1993). *Exploring Hypermedia*, Kogan Page, London, UK.

Barker, P.G., (1998). The Role of Digital Libraries in Future Educational Systems, 301-310 in *Proceedings of Online Information 98*, 22<sup>nd</sup> International Online Information Meeting, edited by D. Raitt and B. McKenna, Learned Information Ltd, Oxford, UK.

Barker, P.G., (1999a). Libraries as Agents for Lifelong Learning, 87-90 in *Proceedings of Online Information 99*, 23<sup>rd</sup> International Online Information Meeting, edited by D. Raitt and B. McKenna, Learned Information Ltd, Oxford, UK.

Barker, P.G., (1999b). Using Intranets to Support Teaching and Learning, *Innovations in Teaching and Training International*, 36(1), 3-11.

Barker, P.G., (2001a). *Project B5: Creating Hypertext Documents*, Commissioned work for the University of Barcelona, Spain.

[Available online at: <http://www.philip-barker.demon.co.uk/B5/>.]

Barker, P.G., (2001b). *Enhancing Learning Opportunities through the Appropriate Use of ICT*, Commissioned work for the UK's Institute of Learning and Teaching.

[Available online at: <http://www.philip-barker.demon.co.uk/ILTPaper/Paper.doc>.]

- Barker, P.G., (2001c). Interactive notes to accompany the manuscript '*Enhancing Learning Opportunities Through the Appropriate Use of ICT*', Commissioned work for the UK's Institute of Learning and Teaching.  
[Available online at: <http://www.philip-barker.demon.co.uk/ILTPaper/notes.htm>.]
- Barker, P.G., (2002). On Being an Online Tutor, *Innovations in Education and Teaching International*, 39(1), 3-13.
- Barker, P.G., (2005a). *Are You Blogging? If not, should you be?* Workshop presentation for the 5<sup>th</sup> Annual Teaching and Learning Conference, University of Teesside, UK.
- Barker, P.G., (2005b). Weblogs and Electronic Libraries, paper to be submitted to *The Electronic Library*.
- Barker, P.G., (2005c). *A Role for Weblogs in Electronic Course Delivery*, paper submitted to the EDMEDIA 2005 International Conference on Educational Multimedia, Hypermedia and Telecommunications, Montreal, Canada.
- Barker, P.G. and Manji, K.A., (1990). New Books for Old, *Programmed Learning and Educational Technology*, 25(4), 310-313.
- Barker, P.G. and Proud, A., (1987). A Practical Introduction to Authoring for Computer-Assisted Instruction - Part 10: Knowledge-Based CAL, *British Journal of Educational Technology*, 18(2), 140-160.
- Bausch, P., Haughey, M. and Hourihan, M., (2002). *We Blog: Publishing Online with Weblogs*, Wiley Publishing Inc., Indianapolis, IN, USA.
- BJET, (2003). *British Journal of Educational Technology*, 34(1).
- Collis, B. and Moonen, J., (2001). *Flexible Learning in a Digital World - Experiences and Expectations*, Kogan Page, London, UK.
- Dillon, A., (1994). *Designing Usable Electronic Text - Ergonomic Aspects of Human Information Usage*, Taylor and Francis, London, UK.
- Duggleby, J., (2000). *How to be an Online Tutor*, Gower, Aldershot, UK.
- Hawkins, C.L. and Black, S., (2004). Developing Electronic Portfolios Across the State of Utah: Breaks, Breakdowns and Breakthroughs, 95-113 in '*Integrating Educational Technology into the Teacher Education Curriculum - Process and Products of Change*', The Haworth Press Inc, Binghamton, NY, USA.
- Haynes, C., (1994). *Paperless Publishing*, Windcrest/McGraw-Hill, Blue Ridge Summit, PA, USA.
- Mason, R., Pegler, C. and Walker, M., (2004). E-portfolios: an Assessment Tool for Online Courses, *British Journal of Educational Technology*, 35(6), 717-727.
- Olsen, R., (2004). Electronic Portfolios in Evolution, 85-94 113 in '*Integrating Educational Technology into the Teacher Education Curriculum - Process and Products of Change*', The Haworth Press Inc, Binghamton, NY, USA.

Salmon, G., (2000). *E-Moderating - the Key to Teaching and Learning Online*, Kogan Page, London, UK.

Salmon, G., (2002). *E-tivities the Key to Online Learning*, Kogan Page, London, UK.

Van Schaik, P., Barker, P.G. and Beckstrand, S., (2003). A Comparison of On-Campus and Online Course Delivery Methods in Southern Nevada, *Innovations in Education and Teaching International*, 40(1), 5-15.

Webb, E.R., Jones, A., Barker, P.G. and van Schaik, P., (2004). Using e-Dialogues in Higher Education, *Innovations in Education and Teaching International*, 41(1), 93-103.

Weller, M., (2002). *Delivering Learning on the Net: the Why, What and How of Online Education*, Kogan Page, London, UK.

Zimmer, R.S. and Alexander, G., (1996). The Rogerian Interface: for Open, Warm Empathy in Computer-Mediated Collaborative Learning, *Innovations in Education and Training International*, 33(1) 13-21.

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