



Tackling student referencing errors through an online tutorial

Tackling
referencing
errors

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Abstract

Purpose – To evaluate the impact of an interactive online tutorial aiming to improve student citing and referencing practice.

Design/methodology/approach – Action research involving three cycles of activity: identification of the most frequently occurring errors made by new undergraduates and postgraduates following instruction in citing and reference practice given in the autumn of 2002; creation of the tutorial for use by the same students in spring 2003, with the quizzes contributing to a portfolio assessment for the undergraduates. Comparison of the students' performance before and after using the tutorial, monitoring through WebCT tracking facilities and usability tests with dyslexic students; adoption of the tutorial as the standard departmental practice, repeating the monitoring activities to compare the results with the previous year.

Findings – The results of the first cycle of activity showed a high number of errors, despite the instruction received by students, and the need to start the tutorial at an unanticipated basic level. The students responded positively to the tutorial and some improvements in practice were identified, although the tracking facilities revealed limited use by some undergraduates. Comparison of the errors made in 2003-2004 with those of 2002-2003 showed improvements all round.

Research limitations/implications – Some of the improvements may be accounted for by the change of practice part way through the previous academic year and other interventions.

Originality/value – The methods used will inform others wishing to carry out and evaluate online learning initiatives. It shows a qualified success in the use of online learning for this purpose.

Keywords Computer based learning, Interactive terminals, Project evaluation, Referencing

Paper type Case study

Introduction

Many students experience difficulties with citing and referencing bibliographic sources. The increasing range of electronic sources makes the task more complex (Stein, 1999). In the future, as more students come from non-traditional backgrounds, there is likely to be a greater need to provide clear explanations and opportunities for practice before assessment. The aims of this project were:

- (1) To identify frequently occurring errors in the references provided by first year undergraduate and postgraduate students in the Department of Information and Communications.
- (2) To design a WebCT[1] tutorial which would:
 - be based on student needs identified through the analysis of errors;
 - make learning more fun by being interactive; and
 - be accessible for disabled students.



- (3) To evaluate the impact of student use of the tutorial during the academic years 2002/2003 and 2003/2004.

Funding to create the tutorial was provided by the Learning, Teaching and Support Network for Information and Computer Science (LTSN-ICS) during the academic year 2002/2003.

Methods

Guidance in action research methods informed the project. Action research has been described as a:

... spiral of cycles of planning, acting (implementing plans), observing (systematically), reflecting and then replanning, further implementation, observing and reflecting (Kemmis and McTaggart, 1992, cited by Cohen *et al.*, 2000, p.229).

The first cycle of activity involved:

- following existing practice in the teaching of citing and referencing for all students new to the department during the academic year 2002/2003; and
- recording details about the nature and frequency of errors made in a sample of student assignments produced in the autumn term.

The second cycle of activity involved:

- using the results to inform the design of an online tutorial;
- introducing it to the same groups of students in the spring term;
- repeating the exercise to record details about the errors made in the assignments they subsequently produced; and
- measuring the extent to which they had made use of the tutorial using WebCT's tracking facilities.

The third cycle of activity involved:

- drawing from the findings to plan use of the tutorial with all students new to the Department during the academic year 2003/2004; and
- repeating the monitoring activities to compare the results with the previous year.

Cycle 1: autumn term 2002

In 2002/2003 the students involved were:

- A total of 116 undergraduates following a new common first year programme for students undertaking BA or BSc degrees in Information and Library Management, Information Management, Information and Communications, Web Content Management and Modern Languages and Internet Management.
- A total of 58 postgraduates on the taught conversion Masters courses in Information and Library Management or Information Management.

These students were given some face-to-face teaching on citing and referencing practice during the autumn term, and a copy of a booklet containing the department's guidelines which had been used for several years. An online version of the booklet was also available on the department's web-based intranet for reference at any time, and the

importance of following the guidance was stressed by many tutors when assignments were set.

Identifying the type and frequency of errors

Checklists were created to record errors in the students' references for each format of material, according to the existing guidelines. These were used to keep tallies of the total number of references and the number of references containing one or more errors. Every specific error was also counted in order to identify the type of errors being made, as shown in the example in Table I.

All the undergraduate students' reference lists for three pieces of work submitted at the end of autumn term were examined. As the postgraduates gave many more references, it was beyond the time available for the project to look at the work of all. Instead, random samples of the work by 20 students for each of three assignments were examined to ensure that references to a range of different types of material would be considered, according to the nature of the assignment. The results (Table II) showed that the majority of references were to books and electronic documents and a high number of errors were identified, despite the instruction received by the students.

The detailed results showed that the tutorial needed to start at a more basic level than originally expected, for example, with some students giving the title before the author's name, many not including the place of publication and publisher details or following the guidelines to put titles in italics.

Cycle 2: spring term 2003

Designing the tutorial

The project was informed by the results of another project which took accessibility issues into account in the conversion of an existing online tutorial into a WebCT version (Kendall and Booth, 2003). Improvements in terms of accessibility have been made with each version of WebCT (2004), although some problems remain, for

	Tally	Total
Number of references examined on this sheet		
Number of references with one or more errors		
Missing place of publication		
Missing publisher details		
Missing date of publication		
Author's first name in full		
Author's name/initials precede surname		
Title precedes author		
Title not in italics		

Table I.
Example of a check-list
for references to books

	Undergraduate		Postgraduate	
	Number	Per cent	Number	Per cent
References to books	114/184	62	168/379	44
References to e-documents	142/167	85	98/122	80

Table II.
References containing
one or more errors

example the use of frames and forms. However, in 30 case studies of WebCT courses, Pearson and Koppi (2002, p. 17) found that:

...the methods, structure, design and presentation of materials by the designer may pose difficulties in accessing the learning environment for students with disabilities. These generic issues are not because of any constraints imposed by WebCT itself.

The aim was to follow their guidance to avoid potential designer errors and provide options for adjustments to be made to meet specific needs, for example, by using cascading style sheets.

The WebCT version of the first tutorial had been introduced to the same groups of students who were to use the tutorial on citing and referencing, during the autumn term. A feedback survey showed that most students experienced little difficulty with navigating the tutorial and suggestions for improvements were easily implemented.

An advisory team of eight staff, including three from the University Library, was established for the citing and referencing project. Three meetings of the whole team were held at key stages in the project, supplemented by informal meetings between some members and communication via the department's WebCT Research Forum. This had the benefits of enabling progress reports to be provided and the sharing of information gained from the consultation of other guides to citing and referencing, for example Shields and Walton (1995). A decision was made to follow the British Standards BS ISO 690-2 (British Standards Institution, 1999) and BS5605 (British Standards Institution, 1990) as closely as possible. These standards were already used in a short WebCT tutorial previously created by Mary Harrison from the University Library and Blackwell's, the University's bookshop, sold a popular guide following the British Standards produced by Fisher and Hanstock (2003).

The results from the exercise identifying errors informed the design of the tutorial to meet student needs. The first chapter was designed to add the elements of references to books gradually, with explanations as to why each is significant. Draft chapters were made available to the team for comment before being released to the students. The WebCT Research Forum enabled discussion of specific issues arising as the tutorial was being written, for example, variance between the existing departmental guidance on referencing book chapters and the British Standards. It also enabled other staff in the department to follow the progress of the project and contribute if they wished.

Implementation

The Citing Proficiency Test tutorial was introduced to the first year undergraduate students as an integral part of their work on the Learning, Communications and Technology unit. Following discussion with the two tutors delivering the unit, it was agreed to assign 10/150 marks for their assessed portfolio of work to their performance in the five quizzes contained in the tutorial. The four chapters were released weekly and the students were able to complete the five quizzes as many times as they wished with their highest scores being recorded.

The idea for the name of the tutorial developed from the decision to assess the quizzes. The Cycling Proficiency Test is well known throughout the UK for road safety, and calling the tutorial the Citing Proficiency Test provided opportunities for the lighter touch desired to make completing the tutorial enjoyable.

A different approach was taken for the introduction of the tutorial to the postgraduates as less time was available in their timetable. The whole tutorial was released at once and they were given a short introduction to it during a time-tabled class for their Information Retrieval unit. The expectation was that the students would be sufficiently motivated to complete the tutorial prior to their submission of further assignments at the end of the spring and start of the summer terms. A fifth chapter on Endnote, the bibliographic management software available in the University, was also released to the postgraduates as they would shortly be starting work on their dissertations.

Student reactions

The students' reactions to the tutorial were positive during the timetabled classes, as reported by all the tutors concerned. As the undergraduates' experiences of online learning were being surveyed as part of a wider research project being conducted by the Learning and Teaching Support Network (SOLE, 2004), it was decided not to carry out a survey to collect their views. Instead, comments were invited as part of their feedback on the Learning Communication and Technology unit. The postgraduates were also being extensively surveyed at the end of their taught course, so their views were also collected as part of other feedback. A small number of comments, all positive, were received from both groups, for example:

The quizzes are really helpful and test my knowledge there and then to see whether I have understood the content.

I personally feel much happier now with citing references.

Very useful, easy to understand and can serve as both a learning and a reference tool. I'm likely to remember what I read here rather than information in a booklet.

Comparison of errors made before and after completion of the tutorial

In order to provide some indication of the impact of the tutorial, the exercise to identify the frequency and type of errors made was repeated. This was an attempt to follow the guidance given by Collis and Moonen (2001, p. 129):

What we are most interested in regarding learning as a consequence of using technology often can't be measured in the short term or without different approaches to measurement. Measure what can be measured, such as short-term gains in efficiency or increases in flexibility.

The results indicate some improvements in the references given by postgraduates (Table III), although this can only be a cautious claim as again it was only possible to look at random samples of the work by 20 students for each of three assignments.

For the undergraduates, the work of all students was examined and disappointingly, the initial comparison showed little indication of improvement, with an increase in the percentages of references containing one or more errors. There was, however, an increase in the total number of references given by undergraduates. This could indicate a greater awareness of the importance of referring to sources, although the range of formats remained limited.

However, comparison of the detailed information gathered about the errors showed that there had been improvements in presenting references by both the undergraduates

and postgraduates. The results were distorted by errors resulting from the changed guidelines requiring closer conformance to the British standards. For example, the requirement to put the author's name in upper case letters was ignored in 67 per cent of the references by undergraduates, which accounts for most of the increase in the number of references to books containing one or more errors as shown in Table IV. As a tally had been kept only of references with one or more errors, it was not possible to subtract those with only this error at a later date.

Clearer guidance was given in the tutorial on e-documents than in the department's booklet, which is likely to have led to the marked improvements shown in Table IV. However, a significant number of references by the undergraduate students just gave the Uniform Resource Locator (URL) rather than a full reference both before and after completing the tutorial (see Table V). This may be influenced by the fact that it is increasingly common just to give the URL, for example, in newspaper articles, and it may appear unnecessary to students to give more detail.

Tracking student use of the tutorial

WebCT provides detailed facilities for tracking student use of online materials. The postgraduates completed the tutorial in March and some indication of the value placed on it is shown by the continued use of it by 20 students in subsequent months. For the

Table III.
References containing one or more errors before and after completing the tutorial

Format	Undergraduates				Postgraduates			
	Before		After		Before		After	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Books	114/184	61.9	277/313	88.5	168/379	44.3	119/367	32.4
Book chapters			4/5	80	21/28	75	14/29	48.3
Reports					10/11	90.9	7/11	63.6
Print journal articles			8/13	61.5	100/150	66.6	45/171	26.3
E-journal articles					26/26	100	18/67	26.8
E-documents	142/167	85	193/213	90.6	98/122	80.3	125/269	46.5

Table IV.
Most frequent types of errors made in references to books

Type of error	Frequency of occurrence				
	Undergraduates		Postgraduates		
	Before (%)	After (%)	Before (%)	After (%)	
<i>Missing contents</i>					
Place of publication		70.1	46.9	41.6	31.9
Publisher details		38.6	28.8		1.7
Date of publication		14	3.9	4.8	0.8
<i>Presentation</i>					
Author not in upper case		n/a	67	n/a	50.4
Author's first name in full		25.4	28.8	36.3	8.4
Author's name/initials precede surname		21.9	10.8		
Title precedes author		10.5	0.4		
Title not in italics		55.2	25.6	30.4	20.2

Note: Each type of error is expressed as a percentage of the total number of references to books containing one or more errors (see Table III)

undergraduate students, checks were made on a weekly basis to see if the students had logged on to the WebCT area for the Learning, Communications and Technology unit and they were told that this would be used as an electronic register. The original plan had been to use WebCT just for this tutorial, but the interest of the tutors led to use being extended to support the students' work on group presentations. The majority of students logged on regularly, but as they were also using the course area for assessed group work, they may have been logging on for other reasons than completing the tutorial. Around 20 students did not participate, but these students had a poor attendance record for this subject, despite warning letters having been sent to them.

Given that fewer improvements were made by the undergraduate students, a more detailed investigation was carried out into their use of the tutorial. The tracking facilities show which pages were accessed and on which date. A summary of the extent to which the tutorial was accessed is given in Table VI. As it would appear that 29 (25 per cent) of the students had not received any additional instruction on citing and referencing practice, this may give some explanation for the persistent errors.

More students may have in fact used the tutorial, for example, through sharing and copying printouts of the text, but as only 81 (70 per cent) of the students attempted the quizzes, it is likely that such additional usage was limited. The students were allowed to attempt the quizzes as many times as they wished, so could obtain full marks through repetition. A check of the history of quiz attempts showed that most gaining full marks had made more than one attempt. The incentive of this counting for 10/150 marks for their assessment of the unit appears to have worked for the majority, but some were satisfied with less as shown by Table VII. The number of errors made after the tutorial may indicate that the students had not retained the information needed to transfer to their own practice, or it may indicate that there was some sharing of the correct answers between students who had not fully understood the requirements.

Type of error	Frequency of occurrence			
	Undergraduates		Postgraduates	
Missing contents	Before (%)	After (%)	Before (%)	After (%)
Author	7	6.7	41.8	10.4
Type of medium (online)	34.5	3.6	28.6	7.2
Date of consultation	42.9	9.8	45.9	3.2
Just URL given	49.3	54.9		1.6

Table V.
Most frequent types of errors made in references to e-documents

Note: Each type of error is expressed as a percentage of the total number of references to e-documents containing one or more errors (see Table III)

Proportion of the tutorial accessed	Number of students	Percentage
All of the tutorial	49	42.2
Three chapters	23	19.8
Two chapters	14	12.1
One chapter	1	0.9
None	29	25
Total	116	100

Table VI.
Undergraduate student use of the tutorial

Usability testing

A researcher with experience gained through employment at the National Library for the Blind carried out testing of the tutorial with the screen reader JAWS (version 3.7). Despite the use of frames by WebCT, she found it possible to navigate the tutorial, but felt that a visually impaired student would need some additional training and support when new to using WebCT.

An attempt at undertaking a user testing study with disabled students had been made as part of the other project in the autumn term 2002, but e-mail requests for volunteers sent out by the University's Learning Support Unit had twice been unsuccessful. In the summer term, funding was provided by the Faculty for nine students with specific learning difficulties to undertake ten paid hours of user testing. This group included students with dyslexia and was chosen because this is the most common disability at the university. This time the request via the Learning Support Unit resulted in a good response and students from other departments across the university took part. They were asked to complete feedback and log sheets as they worked through both tutorials and to attend a plenary focus group discussion.

None found it difficult to navigate or understand the Citing Proficiency Test tutorial. Three used software to help them read on-screen information, such as TextHelp Read and Write. Some had not known how to alter the appearance of the text and background using Internet Explorer's accessibility features. Two preferred the Comic Sans font to Arial and one said "the problem you are going to have with anything like that is each person is different. I like black on pastel green, someone else will like red on blue – you're not going to cater for everyone." All agreed that giving people choices was what mattered.

Reflection

While the usability testing was only on a small scale, it helped to inform future practice by highlighting the need for greater awareness-raising of ways of adjusting the settings in Internet Explorer. Until further improvements are made in future editions of the WebCT software, tutors need to know how to provide options for adjustments to meet specific needs. For example, the University of Aberdeen (2003) recommends that:

Adding the Compile Tool to your site, either on the Home page, or on a subsidiary page, may help screen reader users. This allows a series of pages to be viewed as a single document for printing, or copied and pasted into Word.

The results of the before and after comparison of student referencing errors in Cycle 2 showed that some improvements had been made. The postgraduate students achieved a higher rate of improvement, maybe because they were sufficiently well motivated to

Quiz scores	Number of students	Percentage
Full marks on all 5	49	60.5
Full marks on 4/5	9	11.1
Full marks on 3/5	6	7.4
Full marks on 2/5	6	7.4
Full marks on 1/5	4	4.9
Full marks on 0/5	7	8.6
Total number of students attempting quizzes	81	100

Table VII.
Undergraduate marks on quizzes

complete the tutorial independently. Some improvements may have resulted from students being given guidance by tutors when their work from the autumn term was returned, rather than from the tutorial. However, since the usual practice was not to make detailed corrections, the extent of such influence is likely only to have been small.

A change in departmental practice part way through the year may also have caused some confusion, particularly since tutors' reading lists were not changed from the original practice. The high number of students ignoring the guidance to put authors' surnames in upper case was attributed to this change. Repeating the exercise to identify the extent and nature of the errors made in 2003/2004 would indicate whether this was the case.

The non-use of the tutorial by one-quarter of the undergraduates needs to be seen in the context of the wider problems of poor attendance and low motivation of this cohort of first year students of the Learning, Communications and Technology Unit. Some of the students in greatest need of the core skills taught through the unit opted not to participate. This was identified as an issue to be addressed in the academic year 2003/2004.

Cycle 3: 2003/2004

Replanning

The department's staff agreed to adopt the changes in practice introduced in the tutorial for all students from September 2003, including second and third year undergraduates. An agreed benefit of making the tutorial available to the students throughout their studies was that it would enable tutors to recommend returning to it for remedial action and support. To support this decision, the following actions were carried out at the start of the academic year:

- The checklist used to identify errors was developed into a guidance sheet for tutors to use in giving feedback.
- Coloured, laminated cards giving sample references for different formats of material drawn from the tutorial, one for the Harvard System and one for the Numeric System. These were to be given to new students after completing the tutorial as a memory aid and distributed to returning students.
- On their return into the second year, the undergraduates were reminded in classes about the importance of citing and referencing correctly, recommended to revisit the tutorial and made aware that the tracking facilities had shown some non-use. The third year students were introduced to the tutorial in a briefing about their major projects and dissertations.
- All new students were shown how to use the accessibility features on Internet Explorer.

The tutors responsible for the Learning Communications and Technology Unit were interested by the students' positive reactions to a WebCT tutorial in class and the potential for the quiz and tracking facilities. This led them to reconsider the way in which the unit was taught, with the aim of improving student attendance and motivation. For the 2003/2004 academic year, they decided to replace large lectures with WebCT tutorials. This would enable greater levels of support through regular small group meetings with personal tutors, in addition to weekly face-to-face seminars or lab sessions. The programme included online tutorials on time management and

academic writing preceding the introduction of the Citing Proficiency Test tutorial in the sixth week of autumn term. The allocation of 10/150 marks for completing the five quizzes as part of the assessed portfolio of work was considered to be an important incentive and included in the autumn term rather than the spring term.

The postgraduate programme was extensively revised in the summer term 2003. This included plans for further use of WebCT tutorials throughout the academic year for a new Information Environments Unit. The Citing Proficiency Test tutorial was incorporated into the programme for this unit and one week allowed for its completion in the fifth week of the autumn term.

Implementation and student reactions

In 2003/2004, the numbers of students new to the department were:

- a total of 96 undergraduates following the common first year programme; and
- a total of 49 postgraduates following the taught Master's courses.

The students' reactions to the tutorial were again positive during the timetabled classes, but for both groups, the "novelty" factor was reduced as they were using WebCT more extensively. At the end of the year, a survey of the undergraduate students about the use of WebCT included a question about this tutorial as well as others used in the Learning Communication and Technology unit. Although only 26 (27.1 per cent) of the students responded, the results were generally positive as shown in Table VIII.

Another question in the survey asked the students to tick statements applying to them, including the following:

- I liked the flexibility of being able to use the tutorials whenever it suited me – 23 (88 per cent).
- I found learning this way helped me to concentrate on the topic – 13 (50 per cent).
- I found learning this way helped me to remember what I'd learned – 15 (58 per cent).
- I found the self-tests and quizzes useful in helping me check my understanding – 21 (81 per cent).

Comparison of errors made in 2002/2003 and 2003/2004

At the end of the academic year, the exercise to identify the extent and nature of student errors was repeated. Again, all the undergraduate students' reference lists for

	How useful was the Citing Proficiency Test tutorial in supporting your studies?	
	Number	Per cent
Very useful	11	42
Useful	10	38
No strong feelings	3	11
Limited usefulness	1	4
Not useful		
Did not use	1	4

Table VIII.
Undergraduate student
feedback

three pieces of work and random samples of the work by 20 postgraduate students for each of three assignments were examined. For each group, assignments from the beginning, middle and end of the year were selected. Comparison with the results from Cycle 2 indicated improvements all round as shown in Table IX although the number of errors made by the undergraduate students remained relatively high in comparison with the postgraduates.

The difference in performance between the years indicates that the change in practice part way through the year in 2002/2003 was likely to have been a factor. As shown in Table X, the requirement to put authors' names in upper case was followed more often in 2003/2004, although the percentage of non-compliance by undergraduates remained high at 49.7 per cent. The British Standard is unusual in making this requirement and it is less likely to be familiar to students from their previous experiences. For both groups of students, there was also an increase in the percentage of references without titles in italics. In both these cases, there may have been some conflicting advice in relation to accessible design of web pages, for which the use of upper case and italics is discouraged. An introduction to web page design is part of a mandatory unit for all Stage 1 and postgraduate students in the department.

Format	Undergraduates				Postgraduates			
	2002/2003		2003/2004		2002/2003		2003/2004	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Books	277/313	88	185/386	48	119/367	32	33/230	14
Book chapters	4/5	80	1/3	33	14/29	48	1/28	3.6
Reports					7/11	63		
Print journal articles	8/13	61	9/20	45	45/171	26	11/13	8.5
E-journal articles			2/8	25	18/67	26	8/101	7.9
E-documents	193/213	91	89/305	29	125/269	46	12/219	5.5

Table IX.
Comparison of references containing one or more errors after completing the tutorial

Type of error	Frequency of occurrence				
	Undergraduates		Postgraduates		
	2002/2003 (%)	2003/2004 (%)	2002/2003 (%)	2003/2004 (%)	
<i>Missing contents</i>					
Place of publication		46.9	15.1	31.9	24.2
Publisher details		28.8	9.7	1.7	18.2
Date of publication		3.9	1.6	0.8	
<i>Presentation</i>					
Author not in upper case		67	49.7	50.4	24.2
Author's first name in full		28.8	17.8	8.4	27.3
Authors name/initials precede surname		10.8	6.5		
Title precedes author		0.4	3.8		
Title not in italics		25.6	58.9	20.2	60.6

Table X.
Comparison of most frequent types of errors made in references to books after completing the tutorial

Notes: Each type of error is expressed as a percentage of the total number of references to books containing one or more errors (see Table IX); NB: only 33/230 postgraduate references to books contained one or more errors in 2003/2004

The total number of errors in references to electronic documents was also reduced, but examination of the nature of the errors showed continued high percentages of references from undergraduates giving just the URL, as shown in Table XI. This indicates a need for further emphasis and explanation in the online tutorial and by staff when giving feedback.

Tracking undergraduate student use of the tutorial

As in the previous year, a more detailed investigation into the use of the tutorial by the undergraduate students was considered necessary, given that the reduction in the number of errors was less in comparison with the postgraduates. The results in Table XII show that a smaller proportion of students accessed the whole of the tutorial in 2003/2004 compared with 2002/2003 and that the numbers completing only one or two chapters had increased. This may have resulted from all four chapters being released at once in 2003/2004 rather than week by week as in the previous year.

As in the previous year, most gaining full marks in the quizzes had made several attempts. However, there was a reduction in the number of students gaining full marks on all five quizzes, as shown in Table XIII, although the proportion of students attempting the quizzes had increased.

Discussion and conclusions

Overall, the initiative has had an effect in reducing the number of errors in references made by both the undergraduate and postgraduate students. However, as there are

Table XI.
Comparison of most frequent types of errors made in references to electronic documents after completing the tutorial

Type of error	Frequency of occurrence			
	Undergraduates		Postgraduates	
	2002/2003 (%)	2003/2004 (%)	2002/2003 (%)	2003/2004 (%)
<i>Missing contents</i>				
Author	6.7	11.2	10.4	33.3
Type of medium (online)	3.6	19	7.2	
Date of consultation	9.8	18	3.2	16.6
Just URL given	54.9	47.2	1.6	25

Notes: Each type of error is expressed as a percentage of the total number of references to e-documents with one or more errors (see Table IX); NB: only 12/219 postgraduate references to e-documents contained one or more errors in 2003/2004

Table XII.
Comparison of undergraduate student use of the tutorial

Proportion of the tutorial accessed	Students 2002/2003		Students 2003/2004	
	Number	Per cent	Number	Per cent
All of the tutorial	49	42.2	33	34.4
Three chapters	23	19.8	9	9.4
Two chapters	14	12.1	10	10.4
One chapter	1	0.9	19	19.8
None	29	25	25	26
Total	116	100	96	100

other variables besides the introduction of the WebCT tutorial which may have led to this improvement, some caution needs to be used in interpreting the results.

The checklists to record errors in the students' references were reliable research instruments as it was possible to repeat the exercise in the second year to provide a valid indication of the impact of the interventions. Although the initial "before and after" comparison of the results for undergraduate students indicated that the proportion of errors had increased rather than decreased (Table III), the more detailed results showed that there had in fact been improvements (Table IV), but indicated that the change in practice to closer compliance with the British Standards in requiring authors' names to be in upper case may have caused some confusion. In 2003/2004, the drop in the number of errors showed that this was likely to have been a factor (Table IX). If the checklist were to be used again, an improvement would be to keep separate tallies of references with one, two, three and more errors, rather than a simple tally with one or more errors. This would make it possible to identify whether one particular error was affecting the results, but would have the disadvantage of adding to an already time consuming process.

As it was only possible to examine samples of the students' work given time constraints, the results are indicative rather than conclusive. Individual differences in ability also need to be taken into account in comparing groups of students with each other, rather than tracking individuals over time. The latter was considered by the project team initially, but rejected because of the lack of anonymity for students. Reassurances were given to the students that analysis of their reference lists would take place after the work had been marked by their tutors, would not affect their results in any way and that no names would be recorded.

Detailed investigation through WebCT's tracking tools shows that caution is needed in attributing the decreasing number of errors made by undergraduates to the WebCT tutorial. While use of the tutorial suited some students, as shown in the feedback given and in their performance in the quizzes, others only partially completed the tutorial and the number of non-participants remained high in both years (Table XII). In the second year, the proportion of students attempting the quizzes increased, but the numbers taking the opportunity to gain full marks decreased (Table XIII). The prevalent attitude among many students of doing simply "enough to pass" may apply regardless of the method of delivery. Possible solutions for 2004/2005 may be to require all quizzes to be attempted before any marks are given, to increase the marks available to encourage completion, or to only count quizzes for which full marks had been

Quiz scores	Students 2002/2003		Students 2003/2004	
	Number	Per cent	Number	Per cent
Full marks on all 5	49	60.5	22	29.3
Full marks on 4/5	9	11.1	18	24
Full marks on 3/5	6	7.4	7	9.3
Full marks on 2/5	6	7.4	8	10.7
Full marks on 1/5	4	4.9	13	17.3
Full marks on 0/5	7	8.6	7	7.2
Total number of students attempting quizzes	81/116	69.8	75/96	78.1

Table XIII.
Comparison of
undergraduate marks on
quizzes

achieved. However, the latter option might have the disadvantage of encouraging cheating.

The other interventions in 2003/2004 are also likely to have had an impact. The laminated cards have been popular with both staff and students, and the guidance sheet for tutors may have increased consistency in giving feedback that accurate references are important.

The ability to pay attention to detail and follow instructions accurately is particularly important for all students in the department, whether they wish to become librarians or web designers. In this respect, the emphasis given to referencing practice at an early stage in their studies is of wider benefit. However, concerns have been raised by both staff and students about whether it is advisable to follow the guidance in the British Standards about putting authors' names in upper case and using italics as these can cause accessibility problems when publishing on the web. When necessary, adjustments can be made easily to the online tutorial to accommodate the needs of disabled students, but this contradicts advice in teaching web design that it is preferable to adopt a universal design approach. It may be timely for the British Standards to be reviewed to take the changing needs of electronic publishing into account.

Although the initiative began as a small project, it has led to wider developments, as is often the case with action research (Cohen *et al.*, 2000). In the university, interest in the tutorial led to it being recommended in the Faculty Academic Standards Committee Code of Practice for use by all departments and to collaboration with colleagues from the Department of Sociology in the design of a companion interactive WebCT tutorial to help students avoid plagiarism, to be introduced in 2004/2005. As the creation of the Citing Proficiency Test tutorial was financed by the LTSN-ICS, guest access to view the tutorial and obtain copies is available by contacting the author. External interest has led to the tutorial being adopted for use by the Information Management School at London Metropolitan University and the Department of Continuing Education at the University of Manchester.

The project has also contributed to the department's strategy to extend the use of WebCT through the creation of learning materials for which interactive, online delivery is most appropriate. Prior to the initiatives in 2002/2003, WebCT had only been used for three optional units involving some postgraduates and some undergraduates in their second and third years. The project helped to mainstream the use of WebCT through its use with all students new to the department in 2002/2003, involved a greater number of staff in delivery via WebCT and acted as a catalyst for further developments in the use of WebCT in 2003/2004. In 2004/2005, further developments are planned and finding some measures, however small, through which the effectiveness of initiatives can be judged, will continue to be important in future cycles of activity. Lessons learnt from tracking student participation and performance through the tools available in WebCT in this project will be applicable to other initiatives. Although indicators of success need to take into account other variables, they provide some accountability for the investment in creating online learning resources. While student use of the online tutorial on citing and referencing can only be seen as making a partial contribution to improvements in their performance, it has had an impact on some of the students' learning experiences which may benefit them in the longer term.

Note

1. WebCT is commercial software which allows lecturers, without the need for programming skills, to manage a sequence of web pages as an online tutorial incorporating features such as quizzes and bulletin boards.

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