PROGRESSIO

The effects of editing print-based study materials on accessibility: A pilot study

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ABSTRACT

From the research into the effects of editing print-based study materials on accessibility, it is clear that there is solid evidence that editing intervention does effectively increase the accessibility of the study materials for learners. Although in this study a small sample was used, the evidence is sufficiently compelling to suggest a strong likelihood that similar editing interventions would increase the accessibility of study materials generally for learners belonging to this subgroup of first-years at the University of South Africa (Unisa).

INTRODUCTION

This is a report of a joint research project undertaken by the Bureau for University Teaching (now the Institute for Curriculum and Learning Development) and the Editorial Department at the University of South Africa (Unisa), with the aid of a student counsellor. Unisa is one of the world's ten mega-universities (Daniel 1998): Unisa teaches over 100 000 students through distance education. The main delivery method is independent study and the predominant medium is print. The Bureau for University Teaching and the Editorial Department are both academic support departments tasked, among other things, with helping academic course writers to provide quality learning materials.

BACKGROUND (THE NECESSITY FOR THIS STUDY)

The South African government has declared its intention of achieving the massification of higher education (NCHE 1996; White Paper 1997). Access is to be expanded to allow previously disadvantaged learners to study at tertiary level. Many educators are looking to open and distance learning (ODL) as the only way to achieve these objectives, since distance education makes it possible to supply excellent study materials, produced by a small number of experts, to large numbers of learners (Peters, in Keegan 1994).

In theory, this is an equitable educational approach, since all learners receive the same quality study packages. In practice, learners from a disadvantaged educational background are in danger of being further disadvantaged because they lack the reading, writing and study skills required for independent study using print-based study materials. This danger is exacerbated when English second language (ESL) learners are faced with print materials that are written in inaccessible academic prose.

Unisa has developed a number of strategies to help learners cope with the demands of tertiary studies. These include appointing tutors at first-year level in some subjects, facilitating peer support, instituting an introductory certificate course in study skills, and incorporating reading, writing and study skills into content area study materials (Heese 1993; Van Zyl 1993). The latter approach aims to teach discipline-specific skills; for example, teaching law students how to read legal case reports (Van der Walt 1995).

The need for teaching students how to cope with difficult authentic texts is thus recognised. Such texts, meaning texts that exist in the real world, include textbooks, academic articles and a wide variety of subject-specific examples. Just as law students need to be able to cope with case reports, so do students of economics, for example, need to be able to understand company reports (complete with statistics). In the same vein, students of philosophy must read Kant, students of literature are faced with Shakespeare – the list is endless. These are not texts that can be made easier for learners by rewriting them. Instead, learners must be taught how to interpret them.

However, where does this teaching take place? In contact classrooms, the lecturer is present to mediate these texts, to explain difficult concepts in simpler language, provide examples and illustrations, answer questions and so forth. In distance education, this mediation takes place largely via the printed study guide. The guide must provide mediated didactic dialogue (Holmberg 1995). It is therefore a matter of increasing concern to Unisa that its study guides should mediate effectively, and to do this it is imperative that the language of the guides be accessible, especially to ESL learners.

In November 1997, the Editorial Department approached the Bureau for University Teaching (BUT) with the suggestion that a joint research project of limited scope be undertaken to look into the effects, if any, of the kinds of editing interventions the Editorial Department was offering academic writers. It was agreed that a pilot test of some sample material would be undertaken, together with a focus group interview involving the test subjects.

PURPOSE

The purpose of the pilot test and the focus group interview was thus to investigate the effects of editing carried out by a member of the Editorial Department on print-based study material at Unisa on the accessibility of the material for ESL learners at first-year level. While the researchers realised that the sample was too small to yield results that could be generalised to all first-year ESL learners at Unisa, it was hoped that the investigation would yield sufficient information to indicate whether or not the editing interventions would probably have the desired effect, that is, of improving the accessibility of the study materials.

RESEARCH METHODOLOGY

The initial request from the Editorial Department was for a focus group interview only. It was felt that, with a small group of subjects, a qualitative approach that delved deeply into learners' responses and attitudes would be valuable (Bers 1989). After some discussion, it was agreed that the information thus gleaned would be bolstered by adding some objective tests. The reasoning here was that less proficient readers are often not good judges of their own understanding and may be under the impression that they have grasped more than they actually have (Bransford et al. 1984). The decision was taken to include researcher-designed tests that were specifically related to the sample materials in the investigation. Potter (1991) supports the use of both qualitative and quantitative methods in educational research.

Using materials from a first-year Communication study guide, two versions of an introductory study unit were prepared, one of which was the specially edited version. It would have been problematic to present the whole group with either version first, since the group's performance on the second version might have been enhanced as a result of having already seen the (same) content. As recommended by Tuckman (1994, 134), therefore, a counterbalanced design was used. In other words, the materials were presented in alternate order to two groups who were tested in separate rooms; these two groups were then combined in the subsequent focus group interview. All test subjects were required to respond to the same objective items in the same order in relation to the sample texts.

PARTICIPANTS

Test subjects

All participants were young (in the age range 18 to 23), black ESL learners, studying full time. All listed an African language as their home language; their highest qualification was either Matric or Senior Certificate; they were registered for a variety of courses, including B.A., B.Proc., B.Com. and B.Sc.

Researchers

The researchers involved in this undertaking came from three departments at Unisa: two

were editors from the Editorial Department, one was a teaching advisor from the Bureau for University Teaching and one was a student counsellor from the Student Counselling Bureau. All four acted as observers while the students were studying the materials and writing the tests. The student counsellor and teaching advisor facilitated the focus group interview.

MATERIALS

For the purposes of this investigation, an extract from one of Unisa's older study guides (a first-year Communications guide) was used. The subject was selected because it is not one that is taught at high schools, which meant that no student would know more about it than anybody else in the group. It was also judged to be a subject that should be readily understandable to students since it is on a topic (i.e., communication) of which all people have experience in their own lives.

An older guide was selected because newer guides have often been specially designed to teach well, with reader-friendly layout and language, and in-text activities. Older guides were generally content-centred rather than learner-centred and did not aim to supply in-text reader support. The researchers therefore believed that, in the case of an edited older guide, only one variable would have been changed by editing the language in an attempt to improve accessibility. The following materials were generated:

Texts for comparison

Two versions of the study materials were prepared. The overall length was the same (six-and-a-half-pages). The extract came from the first introductory study unit in a first-year Communications guide. The one version was the unedited original and the second version was the edited version.

It should be clearly stated that 'unedited' does not mean that errors of grammar, spelling or punctuation were present. These elements are checked when the usual copy-editing is done. The original version was free of such errors. The editing that was done in this instance was what the editors describe as 'deep editing', that is, editing that rewrites at word and sentence level, providing easier synonyms, explanations, paraphrasing, shortening sentences and, on occasion, leaving out some details while in other instances adding examples. The aim of this editing intervention was to improve readability and thus increase the accessibility of the text.

The two versions were then photocopied in different colours (pink for the unedited and white for the edited version). This was done to promote ease of reference in discussing the two versions subsequently. Each version was divided in half so that a counterbalanced design (Tuckman 1994) could be used. In the end, therefore, there were four texts:

Text A (pink, unedited) (pp. 1–3)	Text B (white, edited) (pp. 4–7)
Text C (white, edited) (pp. 1–3)	Text D (pink, unedited) (pp. 4–7)

Evaluation instruments

A number of evaluation instruments were used for this undertaking.

- A biographical questionnaire was used to obtain information about the test subjects.
- A structured observation form was used to structure the observers' notes. There was room for general comments.
- A readability test was designed, using mainly multiple-choice-type questions, with one fill-in item. The following objectives were tested:

  – literal comprehension (eg., selecting synonyms)
  – inferential comprehension (eg., drawing conclusions)
  – understanding given sequence (eg., chronological writer's order)
  – grasp of emotive language (eg., attitude to a topic)
  – categorisation (eg., filling in partially completed table)

The whole test consisted of 20 items.

The focus group interview video

The focus group interview was videotaped with the permission of the participants.

PROCEDURE

To obtain the test subjects, an advertisement was placed on the Unisa main campus, where many students typical of the target group (ESL learners) come to study full time, despite the fact that there are no on-campus lecturers (other than one or two discussion groups a year in some subjects). The advertisement stated that Unisa was looking for 'guinea pigs' to take part in a research project, that learners should be registered for first-level courses and that they would be paid R50 to participate. Initially, there were to be 12 test subjects but one extra was registered owing to a misunderstanding and was allowed to take part. This thirteen was an acceptable number for a focus group interview (Bers 1989).

All participants were first gathered in one venue and asked to complete the biographical questionnaire. These were numbered, as were the test answers, and the observers memorised the names of the subjects in each group, so that it was possible to match up each individual's biographical information, test answers and videotaped comments. It was explained that the research aim was to check the readability of Unisa's study material using a sample text. The point was stressed that it was the texts that were being evaluated, not the students who were being assessed. Their permission to make the video recording of the focus group was obtained and they were told that it would be given to the Editorial Department. They were assured of confidentiality.

Two groups were then divided between two venues and given the first texts with the first half of the objective items. This meant that group 1 received questions 1 to 10 on Text A (unedited, pink copies, pp. 1–3) and group 2 received questions 1 to 10 on Text B (edited, white copies, pp. 1–3). They had one hour in which to complete these tests before a tea break. During the tea break, when tea and sandwiches were served, the groups were kept apart to ensure that no discussion took place. After tea, group 1

received questions 11–20 on Text C (edited white copies, pp. 4–7) and group 2 received questions 11–20 on Text D (unedited pink copies, pp. 4–7). Again, one hour was allowed. The time allowance was generous, since the researchers wanted to emulate the conditions that apply when students study at home, not examination conditions (i.e., when speed is an issue).

On completion of the tests, the whole group reconvened in a venue where chairs had been set out in a circle and a video camera had been set up. The camera was switched on and ran without an operator, so it was not very obtrusive.

The focus group facilitators were the teaching advisor and the student counsellor. This was decided because the editors were the clients who had done the editing and they might have inadvertently asked leading questions or otherwise influenced the discussion. The discussion went on for 45 minutes, with specific questions being put to each student, and general discussion also being encouraged. The students answered and participated freely. The video recording was subsequently made available to the researchers from the Editorial Department for analysis.

RESULTS AND DISCUSSION

The results obtained by each evaluation approach will be reported separately.

Results of the observations

Each group was observed by two researchers using the observation form. In both instances, the body language and facial expressions of the students indicated more tension and puzzlement when faced with the unedited version. In the case of group 1, who were given the unedited version first, one might have expected more tension in the beginning anyway; this tension could have been explained by the fact that it was the start of the testing and they might therefore have been nervous.

However, in the case of group 2, who were given the edited version first, the strangeness of the experience could be expected to have worn off after the tea break (when they received the unedited version). Yet both observers noted nervousness in this group after the break. One observer wrote:

> Students seem to find the second test more difficult than first test – took at least 20–30 minutes before starting to answer questions, referred frequently to text when answering . . . These students who answered all the questions went back to the text to check their answers. This wasn't as apparent during the first session.

The second observer of this group noted:

> Definite change in positioning of all bodies – much more puzzled looks, frowns, sitting tensely over texts. More fidgeting – tense. Lots of frowning . . .

The observers of group 1 noted little change in the demeanour of the students when presented with the edited version after tea, except that some appeared 'more relaxed and confident' and one 'smiled to himself'.

Results of the readability test

Since this was a small sample, which was further divided into two groups, and considering that the test consisted of 20 items only, it did not seem appropriate to work with aggregate scores. Instead, the performance of each learner on each item was noted. Learners performance in edited text was compared to his or her performance in unedited text.

The results were as follows:

- Item 19 was scrapped because it tested grasp of a sequence that had not been included in as much detail in the edited version, so the question was deemed invalid.
- The scores were exactly equal on item 17 – nobody got it right. This was an inferential question.
- Students fared better on 5 items of the unedited version. These were items 1, 4, 9, 10 and 16. The differences are set out in Table 1; indicated as percentages of each small group who got the answers right.

Table 1: Items where sutdents improved on unedited version

Item	Edited version %		Unedited version %		Difference %
1	0	(0/7)	16.6	(1/6)	16.6
4	85.7	(6/7)	100	(6/6)	14.3
9	42.8	(3/7)	66.6	(4/6)	23.8
10	71.4	(5/7)	83.3	(5/6)	11.9
16	50	(3/6)	85.7	(6/7)	35.7

Only in one instance was the improvement larger than 20 per cent (item 16). This result is anomalous.

Students fared better on 13 items of the edited version. These were items 2, 3, 5, 6, 7, 8, 11, 12, 13, 14, 15, 18 and 20. The differences are set out in table 2, indicated as percentages of each small group that got the answers right.

Table 2: Items where students improved on edited version

Item	Edited version (%)		Unedited version (%)		Difference (%)
2	85.7		50.0		35.7
3	42.8		16.6		26.2
5	100.0	(7/7)	66.6		33.4
6	85.0		83.0		2.0
7	85.7		50.0	(3/6)	35.7
8	100.0	(7/7)	83.3	(5/6)	16.7

Item	Edited version (%)		Unedited version (%)		Difference (%)
11	83.3	(5/6)	57.1	(4/7)	26.2
12	50.0	(3/6)	42.8	(3/7)	7.2
13	50.0	(3/6)	28.5	(2/7)	21.5
14	83.3	(5/6)	28.5	(2/7)	54.8
15	83.3	(5/6)	57.1	(4/7)	26.2
18	50.0	(3/6)	42.8	(3/7)	7.2

* For item 20. The average of each group as a score out of 6 was used, since the item counted 6 marks.

In one instance the improvement was larger than 50 per cent, in three instances larger than 30 per cent and in four instances larger than 20 per cent. An analysis of what these items tested provides the following information:

Table 3: Competences tested, with improvements

Item	Competence tested	Difference (%)
14	Inference about writer's attitude	54.8
2	Grasp of definition of key concept	35.7
7	Grasp of explanation of key concept	35.7
5	Instruction to learner	33.4
3	Instruction to learner	26.2
11	Paraphrase of fact stated	26.2
15	Grasp of definition of key concept	26.2
13	Grasp of definition of key concept	21.5

It can therefore be concluded that the edited version was generally more accessible to the students, and enabled them to better understand crucial elements such as definitions and explanations of key concepts, stated facts and instructions about what they are expected to do.

It is also clear that the objective tests bore out the subjective impression noted by the observers that the students experienced more difficulty in understanding the unedited text. The edited text was more accessible.

Participants' comments relating to the test materials (focus group interview)

As previously stated, the two groups were combined for the focus group interview. It

immediately became clear that both groups had found the unedited version of the text more difficult than the edited version. When they realised that the pink photocopy had been the version they had found more difficult, they soon began to use the terms 'white' and 'pink' as synonyms for 'easy' (or accessible) and 'difficult'. All of the test subjects agreed that they had experienced this difference.

Interestingly, one student delivered an eloquent plea for challenging materials. He said:

> My whole education has been white. I believe that a university education should be pink – we shouldn't just be learning things off by heart. They should make us think for ourselves – we should have to work hard.

This student was probably, in Biggs's (1979) terms, a deep learner who is more concerned with getting to grips with the subject than with obtaining a degree certificate. By his side sat a student who disagreed with him. He had liked the white materials, he said, and added:

> There should be summaries at the end of every study unit. That would make it easier to prepare for the examinations.

This seems more of a surface learning approach (Biggs 1979), characterised by the primary aim of passing examinations and obtaining a degree certificate, usually by means of rote learning.

Discussion of the results/student's comments

It might be argued that making text more accessible amounts to spoon-feeding and may promote surface learning rather than deep learning. In contrast while inaccessible text may, in some instances, challenge learners to deep learning efforts, experience at Unisa suggests that a more common response to lack of understanding is to resort to rote learning.

The stance taken by the researchers in this regard is that the study guide at Unisa embodies the teaching that, in a contact situation, is carried out by the lecturer. This teaching function, it is argued, needs to be done well if learners are to benefit from it. An accessible study guide does not imply simplification of the subject content as such; it merely facilitates learners' understanding of key concepts, definitions, explanations and examples. Without such understanding, learners will be incapable of grappling with challenging applications. Kilfoil (1995, 67) says: 'I think it is important to stress that study packages can be intellectually challenging and teach and test higher order skills using simple language.'

Kilfoil (1995, 61) explains that 'instructional scaffolding' is essential. By this she means that students should initially receive considerable help (such as careful explanations with examples, teaching discourse couched in easier words), but this help should gradually be diminished and ultimately withdrawn. Kilfoil (1995) writes:

> Scaffolding is not a permanent crutch. It serves a particular purpose in facilitating the erection of a building. It never replaces the building and it is removed once it has achieved its end. At university, we

need to facilitate learning and achieve excellence through better teaching, particularly at first-year level. Our objective remains the same: to produce students capable of mastering our subjects and obtaining degrees which will be accredited internationally. What we need to reconsider are the lecturers' roles in the success of their students.

The researchers on this project argue that one way of improving the teaching practice of lecturers in distance education is to ensure that study materials are accessible to learners.

In effect, the principle of scaffolding was articulated by one of the test subjects who, referring to first-year studies at Unisa, said: 'We should come in white, you know, it should be white for a while, but we should go out pink.' (General agreement.)

General comments on Unisa's study materials (focus groups)

After discussing the sample texts in some detail, the facilitators proceeded to ask questions about Unisa's study materials in general. Since the test subjects were registered for a variety of courses, they had been exposed to different materials. As one might have expected, their experience differed. Some described their study guides as 'pink', others as 'white'.

One student commented:

> The problem is, the study material is white all year, and so are the assignments, but when you get to the exams, suddenly it's pink.

This is a comment that reflects on the validity of the examination in question and suggests that a critical reconsideration of assessment practice should be undertaken.

Another student, when asked whether she had any problems with Unisa's study material, answered quite confidently that she did not. Nor had she found the 'pink' text difficult. However, the facilitators were able to match this student's comment with her performance on the objective tests. Her score on the unedited (pink) material was 3/10 and on the edited (white) material it was 9/14. This apparent lack of insight into her inadequate understanding illustrates the observation made by Bransford et al. (1984), that is, that poor learners often lack insight into their own level of competence. Interestingly, in her response to the item asking readers to rate their ability to read, write and understand the medium of instruction being used, this learner rated her ability as 'good'.

These discrepancies emphasise the importance of combining quantitative sources of information with qualitative sources if researchers wish to obtain dependable data. This applies particularly to research in the field of the humanities (Potter 1991).

LIMITATIONS OF THIS RESEARCH

The primary limitation was the small sample size. This was to some extent offset by the richness of the data that were obtained, but it is still not possible to generalise broadly about the total population of the target group.

Another limitation was the fact that all participants came from one subgroup of first-years at Unisa, namely young, black ESL learners, studying full time, probably from poor schools. Thus, no information was gained about how other members of the total population of first-years at Unisa would experience the edited materials. A large pro-

portion of this group consists of middle-aged white females, whose responses could well be quite different. These people might be irritated by a sense of being 'talked down' to. This possibility still needs to be investigated.

A third limitation was that 20 objective items are rather too few to provide truly reliable results. Since this was a pilot study, one can, however, accept that the results provide adequate indications that might be supported by a more comprehensive study, using a more reliable assessment instrument.

A fourth limitation was that, although permission to use the course materials was granted by the course lecturers, their evaluation of the edited materials was not sought. It would hardly be helpful to learners to edit materials in such a way that the lecturers seriously felt that standards were being compromised. Since this was deemed to be a serious limitation, the teaching advisor subsequently interviewed a senior lecturer in the department concerned, asking her to evaluate the edited copy. She had no objections to the edited version.

CONCLUSION

The researchers are of the opinion that there is solid evidence that the editing intervention did, in fact, effectively increase the accessibility of the study materials for these learners. Although it was a small sample, the evidence is sufficiently compelling to suggest a strong likelihood that similar editing interventions would generally increase the accessibility of study materials for learners belonging to this subgroup of first-years at Unisa.

RECOMMENDATIONS

In the light of these findings, the researchers would recommend that all first-year study guides at Unisa be edited at the level of intervention that was involved in this pilot study. That is, not merely copy-editing, but editing at word and sentence level, with additional explanations and minor restructuring of paragraphs. This level of editing would require close co-operation between the editor and the academic author, and would probably work better in a team approach than in a Fordist model, where the editing happens right at the end of the development process (Heese and van Zyl in BUT team 1997).

Further and more comprehensive research into the effects of such interventions should be undertaken. Such investigations should form an integral part of ongoing course evaluations and such evaluations should characterise distance learning materials development (Thorpe 1993; Moore and Kearsley 1996). Should the university institute a Quality Assurance Unit, this type of initiative would belong within its ambit.

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