

# Evaluation Report

## Essay Writing - Usability of Prototype Results For Information Literacy e-Learning Modules - Reusable and Portable across a College of Education, a Polytechnic and a University Project

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# 1. Introduction

Usability testing of the essay writing module prototype was conducted over a week in December 2005 with six student and eight staff participants from the three institutions involved in the project. Participants were given an information sheet about the project, and observed using the module. All sessions were voice recorded so that the observers' notes could be verified if required. Participants were observed to answer the following overarching question: How does the user engage with the module to find, use and evaluate information to plan and construct an essay?

Following the observation, participants were asked to fill in a questionnaire as feedback about four main elements: Navigation, instructional design, content and effectiveness for learning. Comments about these elements have also been collected. No students from the Dunedin College of Education were available for the testing of this module. There were two polytechnic students tested and one 7<sup>th</sup> form student enrolled at the University of Otago for 2006. Three students from the University of Otago were also involved in the usability evaluation for the essay writing module.

## 2. Results

The results are set out in two parts and have been kept separate for staff and students so that comparisons could be made.

1. Feedback from the observation sessions – summarised.
2. Summary of responses from the questionnaire about four main elements tested in the usability evaluation: Navigation, instructional design, content and effectiveness for learning.

Feedback from the observation sessions is summarised in this section. Responses to the questionnaire have been calculated as percentages. Only some comments gathered from the questionnaires have been reported in this section.

### 2.1 Observation Sessions

The findings for students (6) and staff (9) have been kept separate and are presented as summaries; these are related to the 14 questions examined in the observation sessions (see process and template, Appendix A: Part One). User competency ranged from being cautious computer/online users to being very competent computer/online users. The time taken to complete the modules ranged from 45 minutes (student user competent with essay writing) to two hours (staff member from Arts department who provided a lot of extensive suggestions). The average time taken to complete the module by students was 1 hr 20 min, and 1 hr 50 min by staff.

Students were overall very enthusiastic about the module and even those experienced at essay writing were interested in some of the exercises and found content they weren't familiar with already. Staff were also very enthusiastic and provided lots of extensive and positive suggestions for improvement. Read on for summaries of what the student and staff users found.

## 2.1.1 Summary of Student Observation Sessions

Question	Summary
i. How does the user begin using the module?	Overall people began at the start of the module - Welcome and <i>start your essay</i> . Two people did want to change the context for the student. Some clicked on starting graphic to enter module.
ii. Does the user follow the icons and instructions easily?	Icons were not clearly identified. For example, icons for activities did not stand out enough. Instructions for some activities not clear enough. For example, <i>leaving it there</i> .
iii. Is each section used sequentially or does the user jump around the sections?	Sections and menu followed sequentially. When using embedded links went back to original place in module and continued on sequentially.
iv. Does the user get lost at any time, and if so, how?	Not generally. Some confusion between 'making a plan' and 'develop your plan'.
v. Does the user find the content relevant to <b>the</b> stated purpose?	Overall content regarded as very helpful for essay writing. Exercises challenging.
vi. Does the user find the content relevant for <b>their</b> purpose?	Ranged from very relevant right now to would have been relevant when starting tertiary education if they did not already know how to write essays.
vii. Is the level of the module appropriate to <b>the</b> stated purpose?	Yes overall.
viii. Is the level of the module appropriate for <b>their</b> purpose?	If the topic was relevant, yes. Overall for most students apart from at honors level.
ix. What features does the user like?	Several features were regarded positively e.g. visual content, most of the activities, planning tools – mindmap, questions.
x. What features does the user not like?	Several items e.g. icons, cat essay, <i>choose your tools</i> exercise, if too much text, lack of arrows for navigation, the topic.
xi. Did the user find what he/she expected or not? State examples.	Overall, module was as expected and more.
xii. Did the user find what he/she considered necessary for the purpose?	Overall, yes. Some referencing different to what was needed (bibliography) and missing end notes/footnotes.
xiii. What other learning activities would he/she like to see included?	Several suggestions. For example, more visual and interactive activities would be good. More emphasis on reflection.
xiv. What suggestions does the user make overall?	More exercises, more colour and clarity, navigation arrows. Very helpful suggestions.

**Table 1: Summary of Student Observation Sessions using the Essay Writing Module**

## 2.1.2 Summary of Staff Observation Sessions

Question	Summary
v. How does the user begin using the module?	More confusion with clicking on starting graphic to enter module. Hyperlinks not understood by all.
vi. Does the user follow the icons and instructions easily?	Icons a problem overall e.g. <i>Do it</i> button. Instructions for some activities confusing e.g. instruction words and matching exercise.
vii. Is each section used sequentially or does the user jump around the sections?	Sections and menu followed sequentially. went back to original place in module and continued on sequentially.
viii. Does the user get lost at any time, and if so, how?	More staff got lost overall especially when using embedded links and with menu. Also confusion between 'making a plan' and 'develop your plan'.
v. Does the user find the content relevant to <b>the</b> stated purpose?	Overall content regarded as very useful for essay writing.
vi. Does the user find the content relevant for <b>their</b> purpose?	Yes overall, e.g postgraduate students returning to study.
vii. Is the level of the module appropriate to <b>the</b> stated purpose?	Should appeal to both staff and students. May be too academic for some e.g first year.
viii. Is the level of the module appropriate for <b>their</b> purpose?	Postgraduate and undergraduate. Certificate and diploma students generally write reports not essays.
ix. What features does the user like?	Like the students, several features were regarded positively e.g. visuals, most activities, planning tools – mindmap, questions. Also like send to tutor, save and <i>Tips for visual learners</i> .
x. What features does the user not like?	Lots of suggestions. Some items were hidden e.g plagiarism and others appeared to be out of sequence e.g. reading
xi. Did the user find what he/she expected or not? State examples.	Yes, and more. Not sure if user could find out about essay writing quickly. Suggestion for more activities.
xii. Did the user find what he/she considered necessary for the purpose?	Overall, yes with suggestions for improvement. Considered to be a <b>major resource</b> .
xiii. What other learning activities would he/she like to see included?	Several suggestions for more activities and improving existing ones e.g. examples of instruction words in context.
xiv. What suggestions does the user make overall?	Overall very positive. Seems long, extremely worthwhile, language and level need to be re-assessed.

Table 2: Summary of Staff Observation Sessions using the Essay Writing Module

## **2.2 Questionnaire**

### **2.2.1.1 Navigation: Students**

Overall navigation was regarded as satisfactory or more than satisfactory by the six students involved in the usability testing. Some features were not obvious to some and are listed:

- The user can enter and exit from the module at any time;
- There is a printing facility;
- Work can be saved and returned to at any time.

Only the features that students did not find satisfactory are mentioned here. For example, half the students did not find the return to the start clearly and regularly displayed (c.f. staff 33%); a third could not determine their position in the module easily (c.f. staff 56%), or find the navigation icons consistent and readily available (c.f. staff 56%), and a minority (17%) did not find either entry into the module is easy and obvious, instructions for using the module clear or the printing facility obvious (c.f. staff, %, 11% and 44% respectively).

### **2.2.1.2 Navigation: Staff**

Overall navigation was regarded as satisfactory or more than satisfactory by the eight staff involved in the usability testing. One feature was not obvious to some staff i.e. work can be saved and returned to at any time.

Only the features that staff did not find satisfactory are mentioned, and features which were perceived differently to the students. For example, 56% of staff could not determine their position in the module easily nor did they find the navigation icons consistent and readily available (c.f. students 33%). Also 44% of staff did not find the printing facility obvious (c.f. students 17%), and 33% of staff did not consider the return to the start was clearly and regularly displayed (c.f. students 50%). A minority of staff (11%) did not find instructions for using the module were clear, (33%) did not agree that users had a choice about pathways nor that the ability to save and return to their work at any time was present, whereas all students agreed these items were available.

**Note:** Video, audio or animation sequences were not available for either group, therefore could not be replayed.

**Selective comments from students and staff on navigation:** The menu down the left hand side was popular. Consistency with icons and links and all features was regarded as important.

### 2.2.2.1 Instructional Design: Students

Overall instructional design was rated positively, apart from sound and video which were not available, and peer and instructor interaction, features which were not predominant or particularly obvious. This was similar to the feedback from staff participants.

The following features were *not* regarded as satisfactory by a small number of students:

Range of skill levels is catered for (17%; c.f. staff 44%);

Starting instructions are explicit (33%, c.f. staff 22%);

Important concepts are highlighted (33%, c.f. staff 33%);

Features which a small number of staff found unsatisfactory were regarded positively by all students, i.e. graphics, layout of content, instantaneous feedback and visual layout.

### 2.2.2.2 Instructional Design: Staff

Overall instructional design was also rated positively by staff, apart from sound and video which were not available, and peer and instructor interaction, features which were not predominant or particularly obvious.

The following features were *not* regarded as satisfactory by a small number of staff:

Range of skill levels is catered for (44%, c.f. students 17%);

Starting instructions are explicit (33%; c.f. students 33%);

Important concepts are highlighted (33%; cf. students 33%);

Graphics are clear (22%; c.f. students 0%);

Layout of content is uncluttered (22%; c.f. students 0%);

Colour is used effectively (11%; c.f. students 0%);

Some instantaneous feedback is provided (11%; c.f. students 0%);

Visual layout is appealing (11%; c.f. students 0%).

**Selective comments from students and staff on instructional design:** The 'do it' button was confusing for some users. The content was regarded as dry, therefore needed humour in the design. The skill level was seen as too high for many certificate level students, with too much information plus it could be more colourful.

### 2.2.3.1 Content: Students

Content was regarded as satisfactory or more than satisfactory overall by student participants. Features such as feedback and problem-solving were rated as not applicable.

Four features which were each perceived as unsatisfactory by a minority of students (17%) were as follows:

- Terminology is supported by a glossary (c.f. staff 0%);
- Content maintains attention and interest (c.f. staff 33%);
- In-depth content is provided on a specific topic (c.f. staff 0%);
- Material is culturally appropriate (i.e. considers differences of ethnicity, gender etc) (c.f. staff 0%).

### 2.2.3.2 Content: Staff

Content was also regarded as satisfactory or more than satisfactory overall by staff participants. Three features which were perceived as *unsatisfactory* by a minority of staff were as follows:

- Content is presented logically (33%, c.f. students 0%);
- Language is concise and clearly written (33%; c.f. students 0%);
- Content maintains attention and interest (33%; c.f. students 17%);
- Content is pitched at an appropriate level (11%; c.f. students 0%);
- Learning objectives/goals are stated clearly (11%, c.f. students 0%).

**Note:** A minority from both groups did not find that the content maintained attention and interest.

**Selective comments from students and staff on content:** The need for humour was mentioned in this section as well. The module was regarded as suitable for beginning level university students rather than 200 level or higher Arts students, however, it was not clear who the target group actually was, e.g. the language was too concise for some students, and needed to be more basic for others, plus the content was only likely to maintain the interest of motivated students. The option of a bibliography was needed to cater for Arts students. Something about reading/summarising/recording information needed to come earlier. Ethnicity was catered for but not gender.

### 2.2.4.1 Effectiveness for Learning: Students

Overall students were in agreement that the module was an effective learning resource. A minority (17%) believed that four features were *not* effective and these are listed below:

- Design motivates learning (c.f. staff 22%);
- Problem-solving is encouraged (c.f. staff 11%);
- Activities and examples enhance understanding of ideas and concepts (c.f. staff 0%);
- Learning activities are interesting (c.f. staff 11%).



### 2.2.4.2 Effectiveness for Learning: Staff

Overall staff participants agreed or strongly agreed that the module was an effective learning resource. A minority (22%) were *not* positive about the following features.

- Design motivates learning (c.f. students 17%);
- Overall design encourages exploration of topic (c.f. students 0%);
- Activities aid effective learning (c.f. students 0%).
- A further minority (11%) were *not* positive about the following features.
  - Learning activities are interesting (c.f. students 17%);
  - Activities encourage thinking about the topic (c.f. students 0%).

**Note:** Both groups had a similar negative response by a minority to how well the design motivated learning and how interesting the learning activities were on the whole.

**Selective comments from students and staff on effectiveness for learning:** Overall the module was considered a good resource, but there were differing opinions about the level it would suit, either those who aren't so skilled at essay writing and first year students, or a wide range of users but bearing in mind that some activities might not suit first year students . Instant feedback was appreciated for exercises. The need for humour was mentioned again in this section.

### 3. Discussion

A lot of useful information was obtained by observing users interacting with the essay writing module. The summaries of the observation sessions for students and staff (Tables 1 and 2) illustrate several areas for improvement, but also several areas where the module was working well. The different ways in which users engaged with the module to find, use and evaluate information to plan and construct an essay were observed and recorded and passed on to the project team.

By conducting usability testing with both students (beginning and experienced at tertiary level) and staff, a variety of perspectives were obtained. There were clear differences in the way the two groups approached the module. During the observation sessions, staff tended to spend more time focussing on the content than the student users did. Students tended to be less likely to get lost or find the process of navigation confusing. All the users worked sequentially through the module but moved about the module as well by clicking on the embedded hyperlinks. There were some instances when users got lost in the module after doing this, but they soon found their way back by returning to the menu.

Overall, users found the content and activities relevant to purpose and appropriate. There was some difference of opinion about the level of user who would benefit most from the content. Some students found the content very useful and would have really liked to have used the module when they started tertiary study. Others felt that although some of the activities introduced some new ideas about essay writing, the module would not teach them anything they didn't already know about essay writing. There were some comments made about making the content less "heavy" and more humorous, and some activities were regarded as onerous or confusing e.g. the referencing activity needed the examples to be clearer and the example essay was too long.

There were features about the content and navigation users both liked and did not like and no overwhelming response towards the negative. Generally, users found it easy to navigate around the module by using the browser back button, but there were suggestions for a "next" or "back" button on each page. For example, although the graphics at the entry to each section, confused some people who tried clicking on them to enter, people really liked the images. Data from the observations was very helpful and would be used to modify the prototype to ensure usability of the module was at a highly functional level.

Additionally, the overall responses to the questionnaire, affirmed that features of navigation, instructional design, content and effectiveness for learning were rated very positively. The main areas where modification of navigation and instructional design features was needed, related to the need to cater for a range of skill levels (students 17%; staff 44%), and to provide more explicit starting instructions (students 50%; staff 33%). Staff in particular found it difficult to determine their position in the module easily (students 33%; staff 56%), and navigation icons were not seen as consistent and readily available (students 33%; staff 56%). Apart from those features,

two thirds of staff and students were satisfied that important concepts were highlighted adequately.

Staff and students differed in their perceptions about the content. For example, a third of staff did not find that content was presented logically or that the language was concise and clearly written whereas all students surveyed were satisfied with these aspects. And although only sixty-six of the staff considered that the content maintained attention and interest, eighty-three percent of the students were satisfied it did.

Features relating to effectiveness for learning (e.g. design motivates learning, learning activities) were perceived by both staff and students, to be satisfactory overall. In other words, greater than or equal to seventy-eight percent were satisfied that the features of the module aided learning.

The raw data from the observation sessions and questionnaire will not be included in the public report, as the information is not relevant to anyone other than the developers.

## **4. Conclusion**

The usability testing of the essay writing module has accessed a broad range of users across the three institutions, and as such has provided an extensive amount of information to enable improvements to the module to be carried out. The full data from the observation sessions and the questionnaire has been reported fully to the production team and the Concept Development Group so that careful attention can be paid when modifying the module in accordance with users' suggestions.

The usability testing has also confirmed that the concept of essay writing, the overall design and the content is relevant for users' needing to improve information literacy skills in this area.

## **Appendix A: Part One - Process and Questions for Observation Sessions**

Observe the user as he/she works through the module. Ask the user to verbalise as they go, and obtain their permission to record the session. Use the following fourteen questions as a guide and note down any other aspects you observe or actions and comments the user makes. Ask the user to fill out the questionnaire at the end of the session.

### **Overarching Question**

- 2) How does the user engage with the module to find, use and evaluate information to plan and construct an essay?

**User details and role (name not required unless interested in testing further modules):**

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**Time taken using module from start to finish:** \_\_\_\_\_

Question	Observation:
i. How does the user begin using the module?	
ii. Does the user follow the icons and instructions easily?	
iii. Is each section used sequentially or does the user jump around the sections?	
iv. Does the user get lost at any time, and if so, how?	
v. Does the user find the content relevant to <b>the</b> stated purpose?	
vi. Does the user find the content relevant for <b>their</b> purpose?	
vii. Is the level of the module appropriate to <b>the</b> stated purpose?	
viii. Is the level of the module appropriate for <b>their</b> purpose?	
ix. What features does the user like?	
x. What features does the user not like?	
xi. Did the user find what he/she expected or not? State examples.	
xii. Did the user find what he/she considered necessary for the purpose?	
xiii. What other learning activities would he/she like to see included?	
xiv. What suggestions does the user make overall?	