Evaluation Plan for Usability Testing of Module Prototypes

For the Project Called: Information Literacy e-Learning modules: Reusable and Portable across a College of Education, a Polytechnic and a University

Prepared by Analysis and Evaluation Group
December 2005

Table of Contents

List of Tables

Introduction:

The plan describes the background, purposes, limitations, audiences, decisions, methods, sample, instrumentation, procedures, logistics and timeline for an usability evaluation for the *Information Literacy e-Learning Modules - Reusable and portable across a College of Education, a Polytechnic and a University* project. The audience, decisions, methods, sample and instrumentation to be included in this plan are based on decisions of the Analysis and Evaluation Group (AEG), and findings from a usability evaluation conducted in July 2005.

Background:

The project between the University, Polytechnic and College of Education to develop interactive information literacy modules for the tertiary sector is now at the stage of developing prototype modules. The modules will be for stand-alone use, as well as to support accredited courses, and will be designed for delivery via Blackboard or any other standards conformant LMS. This is to ensure that project benefits can be disseminated across the tertiary sector. The resources produced will be firmly grounded on the experience in information literacy which already exists in each of the participating institutions, and will be at the forefront of current thinking and practice in e-learning with respect to portability and reuse.

The project was conceived to address four main areas in the tertiary sector associated with information literacy learning:

1. Barriers to tertiary study which can occur as a result of poor information literacy[1] skills and the diverse needs of marginalised, mature and distance students.
2. A shortage of high quality online information literacy modules which are reuseable, portable and have pedagogical flexibility.
3. A need for professional development opportunities for staff in the area of information literacy.
4. A tertiary sector requirement for centrally maintained and managed, standards conformant online resources in this important foundation field.

Modules will be either context-based (e.g. essay writing)or skills-based (e.g. Information Organisation and Management). There will be options for linear pathways and multiple pathways, and access to authentic examples and activities to engage the user. The usability evaluation is the second phase of the process, and the results will inform development of the modules by confirming the type of content and format which will best suit target learners in the sector.

---

[1] Information literacy is the lifelong ability to recognise the need for, to locate, evaluate and effectively use information (ALA, 1989).

Purpose:

The usability evaluation will establish contact with users and ascertain their opinions about the design and usability of the prototype information literacy modules. We are catering for learners who have the following characteristics:

- Information literacy skills which range from elementary to advanced, including traditional, non digital to advanced digital.
- Unfamiliar with New Zealand contexts, but needing to function effectively in New Zealand Society
- Need to develop their own skills in order to support and teach their students
- Uncertain, and possibly anxious, in an unfamiliar learning environment.

Limitations:

There is a time restriction, therefore the information to be gathered as part of the usability evaluation will be obtained by the most time efficient means possible.

Fewer participants may be available because prototype testing will need to occur at the end of the academic year.

Audiences:

Both students and staff from the three institutions participating in the project will be sampled for an evaluation of the paper prototypes and the initial online prototypes. For the latter part of the evaluation staff and students from other training organizations in the tertiary sector will also be sampled.

Decisions:

o Content and design appropriate for target groups will be tested.
o Format for the interactive learning system will be clarified.
o Make recommendations for Concept Development Group (CDG)

Questions:

1. What are the user reactions to the e-learning information literacy prototypes?
2. Does the module design engage learners and sustain their interest?
3. Is the design of these modules appropriate for use across the New Zealand tertiary sector?
4. Do the modules meet the standards of the ANZIIL framework?
5. Do the modules meet SCORM standards guidelines?
6. Are the modules easy to update or recontextualise?

Methods:

A multiple methods design will be used to ensure triangulation of data. Usability testing of each prototype of each of the five modules will be conducted as each module becomes available.

The data collection methods and evaluation questions to be investigated are laid out in the matrix below:

METHODS	What are the user reactions to the e-learning information literacy prototypes?	Does the module design engage learners and sustain their interest?	Is the design of these modules appropriate for use across the New Zealand tertiary sector?	Do the modules meet the standards of the ANZIIL framework?
Questionnaire	X	X	X	X
Interview/focus group	X	X	X	
Usability observation	X	X	X	
Expert review	X	X	X	X

Table 1: Matrix of data collection methods

METHODS	Do the modules meet SCORM standards guidelines?	Are the modules easy to update or recontextualise?
Questionnaire		
Interview/focus group		
Usability observation		
Expert review	X	X

Table 2: Matrix of data collection methods continued

Sample:

The following groups will be consulted:

- ANZIIL members
- Library staff
- Academic staff
- Post Grad Students
- Undergraduate students

Instrumentation:

An information sheet about the project will be provided to participants who are invited (Appendix A). This has been developed in consultation with the CDG[1]. A questionnaire will be used to ascertain aspects of usability. Testing will also include observations of participants using the module prototypes, and unstructured interview/focus groups. Expert reviewers will be asked to fill out the questionnaire while working on the prototypes, and be asked to consider how the prototypes meet the ANZIL standards.

Logistics:

Three members of the AEG team will be involved in the usability evaluation. A member of the CDG will conduct usability evaluations with university staff and students.

Time Line:

Deliverable/ Milestone	How it will be achieved	Expected completion date
▪ Data Collection – evaluation of the prototype of the essay writing module.	▪ University, Polytechnic and College of Education staff and students ▪ Questionnaire ▪ Observation ▪ Expert review	11/12/05
▪ Analysis and collation of data	Frequencies and graphs	14/12/05
▪ Summaries		16/12/05
▪ Usability evaluation report	Doris	19/12/05
▪ Report to SMG and CDG	Barbara	19/12/05
Final deadline		**19/12/05**

Table 3: Deliverables/Milestones

---

[1] Concept Development Group

Appendix A

Information sheets, observation questions and the evaluation questionnaire are in this section.

INFORMATION SHEET FOR STUDENT PARTICIPANTS – Usability Evaluation of Information Literacy[1] e-Learning Modules – Reusable and Portable across a College of Education, a Polytechnic and a University

Please read this information sheet carefully before deciding whether or not to participate in the usability evaluation. If you decide not to take part there will be no disadvantage to you of any kind. The module prototype[2](s) you are being asked to test is/are being developed as part of an ECDF[3] project for the Ministry of Education with the intention of providing online, high quality resources for information literacy in the tertiary sector. The project is being conducted by staff from the University, Polytechnic and College of Education. The module(s) will be for stand-alone use, as well as to support accredited courses, and will be designed for delivery via Blackboard or any other standards conformant LMS (Learning Management System). Your input is very valuable to ensure, the design (layout and content) of the modules is appropriate for users.

1. **What is the purpose of the usability evaluation?**
The usability evaluation (testing of module prototype(s)) will establish contact with users and find out your opinions about the design and usability of the information literacy module prototype(s). In other words ascertain how easy the module(s) are to use and whether the design (layout and content) is relevant and appropriate for the intended purpose.

2. **Who is invited to participate?**
Students from the University, Polytechnic and College of Education who can spend 1 – 2 hours testing prototypes of the modules.

3. **What will be required?**
The testing will include you being observed as you use the module(s) and filling out a questionnaire at then end. During the observation you will be asked to speak your thoughts out loud as you use the module (this is similar to what you are asked to do when taking a driving test). The observer will also ask you some questions, during and after the observation. You will be recorded while using the module (to ensure the observer doesn't miss anything), and when the observer questions you he or she will also jot down some notes. In consideration of the donation of time involved, each *student* taking part in, and completing testing of prototypes will be paid a sum of $20.

4. **What use will be made of the data?**
Data will be collated and reported to the project team. The confidentiality of all people providing information is guaranteed absolutely. The data gathered will inform a report, which the project team will provide for the Ministry of Education. However, in no way will this report identify individuals.

If you have any questions about the evaluation, either now or in the future, please feel free to contact: Barbara Smith, Analysis and Evaluation Group Chairperson
Phone: xxxxx or email: xxxxx

---

[1] Information literacy is the lifelong ability to recognise the need for, to locate, evaluate and effectively use information (ALA, 1989).
[2] A prototype in this case is an original, full-scale, and usually working model of a new product.
[3] eLearning Collaborative Development Fund.

INFORMATION SHEET FOR STAFF PARTICIPANTS – Usability
Evaluation of Information Literacy[4] e-Learning Modules – Reusable and Portable across a College of Education, a Polytechnic and a University

Please read this information sheet carefully before deciding whether or not to participate in the usability evaluation. If you decide not to take part there will be no disadvantage to you of any kind. The module prototype[5](s) you are being asked to test is/are being developed as part of an ECDF[6] project for the Ministry of Education with the intention of providing online, high quality resources for information literacy in the tertiary sector. The project is being conducted by staff from the University, Polytechnic and College of Education. The module(s) will be for stand-alone use, as well as to support accredited courses, and will be designed for delivery via Blackboard or any other standards conformant LMS (Learning Management System). Your input is very valuable to ensure, the design (layout and content) of the modules is appropriate for users.

1.   **What is the purpose of the usability evaluation?**
The usability evaluation (testing of module prototype(s)) will establish contact with users and find out your opinions about the design and usability of the information literacy module prototype(s). In other words ascertain how easy the module(s) are to use and whether the design is relevant and appropriate for the intended purpose.

2.   **Who is invited to participate?**
Staff at the University, Polytechnic and College of Education who can spend 1 – 2 hours testing prototypes of the modules, and have an interest in good quality resources for teaching and learning.

3.   **What will be required?**
The testing will include you being observed as you use the module(s) and filling out a questionnaire at then end. During the observation you will be asked to speak your thoughts out loud as you use the module (this is similar to what you are asked to do when taking a driving test). The observer will also ask you some questions, during and after the observation. You will be recorded while using the module (to ensure the observer doesn't miss anything), and when the observer questions you he or she will also jot down some notes.

4.   **What use will be made of the data?**
Data will be collated and reported to the project team. The confidentiality of all people providing information is guaranteed absolutely. The data gathered will inform a report, which the project team will provide for the Ministry of Education. However, in no way will this report identify individuals.

If you have any questions about the evaluation, either now or in the future, please feel free to contact: Barbara Smith, Analysis and Evaluation Group Chairperson
Phone: xxxxx or email: xxxxxxx

---

[4] Information literacy is the lifelong ability to recognise the need for, to locate, evaluate and effectively use information (ALA, 1989).
[5] A prototype in this case is an original, full-scale, and usually working model of a new product.
[6] eLearning Collaborative Development Fund.

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

Observation questions to use as a guide
      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 the stated purpose?
      vi. Is the level of the module appropriate to the stated purpose?
      vii. What features does the user like?
      viii.   What features does the user not like?
      ix. Did the user find what he/she expected?
      x. Did the user find what he/she considered necessary for the purpose?
      xi. What other learning encounters would he/she like to see included?
      xii. What suggestions does the user make overall?

User details and role (name not required): ——————————————————

————————————————————————————————————

  ————————————————————————————————————

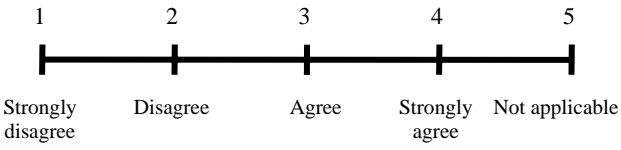**Time taken from start to finish:** ——————————————
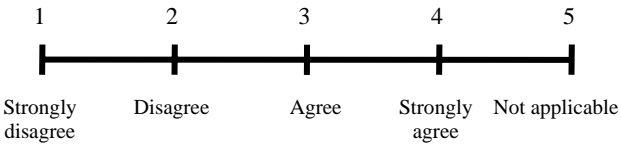
Questionnaire   - Usability of prototype

Information Literacy e-Learning Modules – Reusable and Portable across a College of Education, a Polytechnic and a University Project
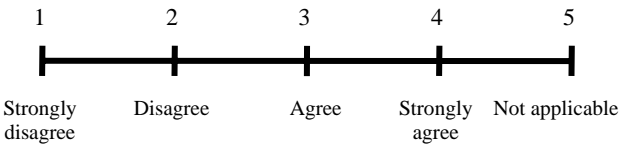
Are you a staff member or a student?   _____

Please tick the following items as relevant using the five point Likert scale.

Items	1 — Strongly disagree	2 — Disagree	3 — Agree	4 — Strongly agree	5 — Not applicable
A. Navigation	**1**	**2**	**3**	**4**	**5**
1. Entry into the module is easy and obvious					
2. Instructions for using the module are clear					
3. User is given choices about pathways					
4. Position in module is easily determined					
5. User is able to move freely throughout module					
6. Navigation icons are consistent and readily available					
7. User can enter and exit from the module at any time					
8. Printing facility is made obvious					
9. Video, audio or animation sequences can be replayed					
10. Return to start is clearly and regularly displayed					
11. Work can be saved and returned to at any time					
Comments on Navigation:					

Items					
	1	2	3	4	5
	Strongly disagree	Disagree	Agree	Strongly agree	Not applicable
B. Instructional Design	**1**	**2**	**3**	**4**	**5**
1. Starting instructions are explicit					
2. Range of skill levels is catered for					
3. Self-analysis opportunities are provided					
5. Layout of content is uncluttered					
6. Important concepts are highlighted					
7. Interaction with the material is possible					
8. Peer interaction is enabled					
9. Interaction with an instructor encouraged					
10. Critical thinking encouraged					
11. Graphics are clear					
12. Colour is used effectively					
13. Animation is relevant					
14. Some instantaneous feedback is provided					
15. Visual layout is appealing					
16.Design is creative and interesting					
17. Sound enhances module					
18. Narration is easy to hear and understand					
19. Video segments are of appropriate length					

Comments on Instructional Design:

Items	1	2	3	4	5
	Strongly disagree	Disagree	Agree	Strongly agree	Not applicable
C. Content	**1**	**2**	**3**	**4**	**5**
1. Learning objectives/goals are stated clearly					
2. Content relates to objectives					
3. Information is accurate					
4. Content is relevant					
5. Language is concise and clearly written					
6. Terminology is supported by a glossary					
7. Concepts are presented clearly					
8. Content is presented logically					
9. Content is pitched at an appropriate level					
10. Content maintains attention and interest					
11. In-depth content is provided on a specific topic					
12. Material is culturally appropriate (i.e. considers differences of ethnicity, gender etc)					

Comments on Content:

Items	1 Strongly disagree	2 Disagree	3 Agree	4 Strongly agree	5 Not applicable
D. Effectiveness for Learning	**1**	**2**	**3**	**4**	**5**
1. Design motivates learning					
2. Overall design encourages exploration of topic					
3. Feedback is given promptly					
4. Feedback is clear and helpful for learning					
5. Problem-solving is encouraged					
6. Activities and examples enhance understanding of ideas and concepts					
7. Learning activities are interesting					
9. Activities encourage thinking about the topic					
10. Activities encourage exploration of the topic					
11. Activities aid effective learning					

Comments on Effectiveness for Learning:

Additional comments:

Thank you for your time in completing this questionnaire