

Appendix A1

FRAMES EVALUATION:

Questionnaire used in a general evaluation, September 1997

This questionnaire contains general effectiveness questions, of which many also provided information for the parallel study, namely an evaluation from the viewpoint of learning theory.

The questionnaire survey was supplemented by random, unstructured telephone interviews.

Dept of Computer Science
Tel 012 429 6559 (Mrs de Villiers)
Tel 012 429 6817 (Secretary)
19 September 1997

Dear

Thank you for volunteering to join in evaluating the prototype of the interactive practice environment, FRAMES. It covers the more difficult kinds of relations covered in COS101-S. We hope that by now you have had hands-on experience of using FRAMES and can take a short while to complete the evaluation form. We would really appreciate your answers to the questions and any additional comments you might like to make. Please use the enclosed envelope to post it back to me in the Department of Computer Science.

All the best for your exam preparation. You are welcome to contact me or any one of the other lecturers mentioned in tutorial letter 103.

Yours sincerely

Mrs Ruth de Villiers

Before you look at or fill in the forms, please just write down BRIEFLY your strongest impressions about FRAMES in the space below and pop this into the envelope too. Thanks!

STUDENT-EVALUATION OF THE FRAMES INTERACTIVE PRACTICE ENVIRONMENT

NAME _____

DEGREE OR DIPLOMA FOR WHICH REGISTERED _____

STUDENT NUMBER _____

ADDRESS _____

PHONE NUMBER (H) _____ (W) _____

OTHER UNISA MODULES THIS YEAR _____

UNISA MODULES PREVIOUSLY PASSED _____

Please put a cross in the appropriate block

1 The demo screens are easy to use.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
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2 The demo screens helped me get started, so I knew what to do when I started the RAM exercises.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
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3 When I do RAM exercises, I can easily access the one I want.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

4 I like practicing examples on the computer.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

5 The FRAMES system is easy to operate.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

6 The blackboard-style definition of the current relation (P, Q, S, etc) at top left is helpful.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

7 The step-by-step build-up of answers:

Really helps	Makes no difference	Puts me off	Forces me to work in a way I might not choose
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8 It is easy to access the HELP information such as definitions and graphic aids.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
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9 The definitions (cartesian products, reflexivity, transitivity, etc) are a useful form of HELP.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

10 The attribute called 'EG' (for synthesis of ordered pairs in the relation) helps me to understand the relation.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

11 The graphic aids help me get a feel of the relation.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

If yes, how? _____

12 I used the elaboration of maths symbols:

Not at all	Once or twice	The first few times I used FRAMES	Most of the time
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13 FRAMES is complicated to use.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

14 It is easy to understand the meaning of the icons and symbols in the right-hand quick-control column.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

If not, which are not easy to understand?

15 I got stuck.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

If so, where? _____

16 I appreciate the learner-control that lets me do what I want, as much as I want and in the way (i.e. the mode) of my choice.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

At a typical practice session with FRAMES, I usually do _____

17 The feedback (i.e. the system's responses to my typed-in answers) was useful.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

Please elaborate on your answer above - how and why the feedback was useful or otherwise.

18 I learned to use FRAMES:

Very quickly	Fairly quickly	Gradually	Slowly	Could not use it at all
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If slowly or not at all, why? _____

19 There is too much information on the screen, i.e. the screens are too crammed.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
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20 The mode I enjoy using most is:

Mode 1	Mode 2	Mode 3
--------	--------	--------

Why? _____

21 The mode that helps me learn the most is:

Mode 1	Mode 2	Mode 3
--------	--------	--------

Why? _____

22 I find the processes lengthy and laborious.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

If so, which ones? _____

23 The mode I like least is:

Mode 1	Mode 2	Mode 3
--------	--------	--------

Why? _____

24 I prefer doing exercises on paper.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

25 I find it difficult to use the RAM access method.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

26 It was useful having the structure of the proof set out in Mode 2 and Mode3.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

27 It is difficult using both the mouse and the keyboard to enter answers in Modes 2 and 3.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

28 After using the pre-set structures in FRAMES, I will know how to approach written examples in the exams.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

29 It is a waste of time doing interactive practice when I can read worked examples in the tutorial material.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

30 FRAMES helped me with the more complex proofs in the section of COS101-S on relations.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

31 I would use FRAMES in different ways at different stages in my studies.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

32 I know that FRAMES is intended to be a non-threatening practice environment, nevertheless I would like a scoring facility.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

33 I should like similar practice environments for other sections of my studies.

Strongly agree	Agree	Maybe	Disagree	Strongly disagree
----------------	-------	-------	----------	-------------------

34. Please make any further comments about FRAMES, including:

- the impression it made on you
- frustrations you experienced
- in what way it helped
- which examples of relations you found the easiest/ hardest/ most useful, etc.
- anything else you want us to know.

THANK YOU FOR YOUR INVOLVEMENT!

Appendix A2

'FIVE C' EVALUATION OF FRAMES:

Questions used a structured interview survey on aspects of learning theory, September 1998

(This was called the 'Five C' evaluation, since the sixth 'C', *collaborative learning*, was not envisaged for FRAMES. The evaluation indicated that students were, however, using FRAMES co-operatively.)

1 COGNITION

Has FRAMES changed the way you think when you solve a problem in the 'relations' section of COS101? If so, how?

Did the structures in Mode 2 help? If so, how?

Does it affect the way you will think in general problem-solving?

e.g. Will you classify a problem as a certain kind? / Be aware of a pattern to follow?

Think of the objects on a FRAMES screen and the way you interacted with an exercise - what helped you and how?

(Look for chunking, bridging from known to new, use of graphics, revision, use of rules and principles, etc)

2 CONSTRUCTIVISM

How does FRAMES help you learn new skills?

Do you enjoy being in active control (as opposed to passive , e.g in a book / video)

Would it help you do new problems? If so, how?

In what way do you use the graphic aids? (real-world, etc)

What about the step-by-step development?

How did you find working on FRAMES together with another student?

3 CUSTOMIZATION

How do you feel about being able to take the initiative in learning? / organize you own learning experience?

How do you find the feedback (FRAMES=responses to what you type in)?

How and when did you use the elaborations?

Would you use it in different ways at different times? (i.e. time-customization)

4 CREATIVITY

What do you find different about the way FRAMES lets you practice?

Do you get bored quickly when you use it?

Do you enjoy it?

Does it give you, on the screen, all you need to solve problems?
(i.e. virtual table-top)

Talk about ARCS (Attention? / Relevance ? Confidence ? Satisfaction?)

Could you maintain concentration?

Is it directly relevant to the type of problems you are asked in assignments and exams?

Does it help you develop confidence about this section of the work?

How do you feel when you=ve finished a FRAMES session?

5 COMPONENT-THEORY

How do you feel about the three different performance modes?

How did you find the different things you could do with the different attributes? (content)

Is it worthwhile to have the choice between doing very small and easy componts
(e.g. a Mode 1 proof for one attribute) and at the other extreme, doing a whole Akind of relation@
anaysis in Mode 2 or Mode 3?

Note: There were no questions on co-operative learning, since co-operative use of FRAMES was nor envisaged. During the interviews, it emerged that three of the four interviewees were using FRAMES with a fellow-student.

Appendix B

RBO EVALUATION:

Questionnaire used in the comprehensive evaluation, May 2000

Questionnaire used in the evaluation of May 2000, in which two researchers co-operated and included their questions in a single survey.

Section F is devoted exclusively to questions on aspects of learning theory that were not included in the other sections. Section F does not address *collaborative learning*, which was incorporated elsewhere in the questionnaire, nor does it explicitly enquire about *components* of learning, since these were implicit, rather than explicit in RBO.

Questionnaire for the evaluation of the RBO course of 1999 and 2000

This questionnaire is to evaluate your perceptions and experiences of the RBO course on Internet-based learning / Computer-Assisted Communication and Management.

Section A: General information

1. Name: _____ (optional)
2. Email address: _____
3. Age: (please mark the appropriate square with an "X")

18 - 24	<input type="checkbox"/>
25 - 29	<input type="checkbox"/>
30 - 39	<input type="checkbox"/>
40 - 49	<input type="checkbox"/>
50 - 59	<input type="checkbox"/>
Over 60	<input type="checkbox"/>

4. Gender: (please mark the appropriate square with an "X")

Male	<input type="checkbox"/>	Female	<input type="checkbox"/>
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5. Are you studying full-time or part-time?

Full-time	<input type="checkbox"/>	Part-time	<input type="checkbox"/>
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6. Job title and sector of employment:
-

7. Before doing the RBO course, had you used the Internet and the World Wide Web in teaching / training?

Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
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7.1 If “Yes”, please elaborate.

8. With the RBO course behind you, what do you classify yourself as:
a newbie or a webbie?

Newbie		Webbie	
--------	--	--------	--

9. I am part of the RBO course of:

1999		2000	
------	--	------	--

10. I did the course as:

A credit for the MEd (CIE)?	
An “extra” module for the MEd (CIE)?	
An outsider – to be exposed to Internet-based learning?	
None of the above?	

Section B: Pedagogical issues

Please mark an “X” in the applicable box.

		Strongly Agree	Agree	Disagree	Strongly Disagree
	The course, without the provision of face-to-face contact:				
1.	Adequately guided, facilitated and enhanced my learning.				
2.	Met my needs as an adult learner, i.e. relevant, self-directed, self-paced, flexible, hands-on, etc.				
3.	Provided adequate and effective communication amongst the learners and between learners and the instructor.				
4.	Facilitated individual tasks.				
5.	Facilitated collaborative tasks.				
6.	Supplied feedback to and assessment of our various tasks.				
7.	The course was a real learning experience.				
8.	I felt a sense of community building.				
9.	The environment was supportive.				
10.	I benefited from the electronic communication.				
11.	I would have preferred some face to face interaction, rather than e-mail only.				
12.	The course met my expectations.				
13.	I found the course exciting.				

14. What were the most important things you learned from this course?

15. How did you experience interaction with your class mates, e.g. useful/
supportive/complex/frustrating, etc?

16. Were there any issues relating e-mail communication and the chat sessions – other
than technology-related – that were problematic, e.g. misunderstandings of meanings or
intentions?

17. Besides the discussion that took place in the collaborative group tasks, why did / didn't you
contribute to the discussion in general?

18. Did you use any other means of communication during the course with the facilitator
or other learners, e.g. phone, face-to-face, fax, etc.

Yes		No	
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18.1 If “Yes”, why did you use this alternative method of communication?

Section C: Motivational and Affective issues

		Extremely effective	Very effective	Effective	Ineffective
19.	The course was effective in providing me with materials, models and metaphors that motivated me to learn?				

20. Did the course affect your self-esteem and confidence in any way?

Yes		No	
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20.1 If “Yes”, how?

21. One of the problems in collaborative learning is getting started. What factors influence group members to take initiative?

22. Were you at any point so engaged and absorbed by certain activities that you seem to “flow” along with it, experiencing a sense of happiness and satisfaction – glued to your computer?

Yes		No	
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22. 1 If “Yes”, which activities did this occur in, and what led you to this state?

23. If you were NOT registered for the M. Ed. (CIE) course, i.e. you took RBO as a guest, do you think there were any disadvantages you experienced from not having been in a previous study class with other participants. If so, what were they?

24. To what do you attribute your success/failure to perform during the course?

Section D: Learner Interface issues
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Please mark an “X” in the applicable box.

		Strongly agree	Agree	Disagree	Strongly disagree
25.	The site layout and page layout was effective.				
26.	I could find my way around the site.				
27.	The design of the classroom motivated me to explore the site.				
28.	The page where the course’s objectives and expected outcomes was helpful.				

		All of them	Most	Some	Did not follow links
29.	I read the instructions and followed the links from the RBO home page.				

30. What do you think of the design of the online classroom? Please elaborate.

Section E: Technological issues
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31. Did you experience any problems with the following during the course?

		Yes	No
31.1	Hardware		
31.2	Software		
31.3	Internet connection		
31.4	E-mail communication with the Instructor / class members		
31.5	Chat room		

31.6 If “Yes”, describe the problem(s) briefly, along with any others not mentioned above.

Section F: Learning Theories

32. Constructivism in RBO

Constructivist aspects in RBO				
To what extent did you experience the following aspects of constructivism in RBO880?	Very great extent	Great extent	Moderately	Little
32.1 Learning situated in the real world				
32.2 Discovery learning				
32.3 Anchored instruction				
32.4 Integrated testing				
32.5 Active construction of knowledge				
32.6 Transfer of skills				

32.7 As an educator yourself, how does it feel to be on the receiving end of constructivism – please describe your emotions honestly.

Cognitive learning in RBO

33.1 Describe how the knowledge and skills required in RBO related to your prior learning.

33.2 Where you lacked prior knowledge, how did you bridge the gap?

33.3 RBO students largely plan their own study / learning experiences. How does this work for you in terms of scheduling and monitoring your time, other priorities and obligations, self-discipline, etc?

33.4 Did you at any time experience overload and/or anxiety? If "Yes", please elaborate.

Yes		No	
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34. Creativity in the presentation of the module

34.1 RBO is offered in an innovative, unconventional manner. Describe the innovative aspects you experienced, both in terms of the presentation of the module and in the content of the assignments, and how you feel about the approach.

34.2 What aspects and styles of this innovative approach did you incorporate in your own RBO project, or plan to use in your subsequent teaching ethos?

35. Customised learning in RBO

35.1 What are your personal learning preferences, and in what way did RBO match / mismatch these preferences?

35.2 Despite the “virtuality” of the classroom, most of us had some direct contact with the instructor, officially or unofficially. Do you find him approachable?

Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
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35.2.1 Please elaborate.

36. The **conventional instruction paradigm** includes marks at intervals for students' interim test / assignments. How do feel about the lack of this in RBO?

37. How did you find the course useful in your personal or professional life?

Section G: General

38. What difficulties / barriers, if any, did you experience in participating in this course, that have not been mentioned in this questionnaire?

39. How did you find the course useful in your personal or professional life?

40. Is there anything else you'd like to say? Feel free!

Thank-you for your participation.

Appendix C

EVALUATION OF MKAMBATI PROJECT

Questionnaire used in the learning theory evaluation, October 2000

This questionnaire relates specifically to the elements of the Hexa-C Metamodel, with the exception of knowledge and skill *components*, since these were not explicitly part of this fieldwork project.

**241 Fremontia St
Lynnwood Ridge
Pretoria 0001
October 2000**

Dear Ecotourism Student

It was great to be at Mkambati with you - it's a week I will not forget. I was very impressed with your attitudes and approach to this real-world project. Thank you so much for the CD Rom of photos; it is so well done.

For my own academic work, I am doing research into learning theories. I have been given permission to use your Mkambati project, a form of 'problem-based learning', as a case study and I'd really appreciate if you would take some time to complete this questionnaire.

Thank you so much and all the best for your future studies and careers.

Ruth de Villiers

Tel (012) 361 6080

CASE STUDY: Problem-based learning in the Mkambati 2000 project of GGY 787 (Ecotourism)

Questions related to learning theory

1. Constructivist learning in the Mkambati Project of GGY 787 (Ecotourism)

Constructivism is a philosophy of learning that involves aspects such as:

- active participation by learners,
- construction of one's own knowledge, instead of direct instruction,
- authentic settings for learning, and
- problems which do not have a single fixed solution.

One of the implementations of constructivism is problem-based learning (PBL), where students, in groups, use resources in investigating open-ended, real-world problems, and the instructor acts as a facilitator. The Mkambati Project was an example of PBL - for a real, not a hypothetical, problem.

1.1 How did you find this experience of constructivist learning – please describe your emotions honestly.

1.2 Describe strengths and shortcomings, in your opinion, of this experience of problem-based learning. The strengths and weaknesses may relate to any aspect or any stage of the project.

Strengths: _____

Shortcomings: _____

1.2.1 What sources of information did you use?

Before the trip to Mkambati _____

At Mkambati _____

During write-up time afterwards _____

2 Cognitive learning in the Mkambati project

2.1 Describe how the knowledge and skills required of you in the Mkambati project related to your own prior learning (i.e. what you know from previous study).

2.2 In situations where you lacked prior knowledge, how did you bridge the gap?

2.3 Problem-based learning is open-ended. It has no fixed ending stage, and is flexible in terms of the type and quantity of content. How did you find this in terms of deciding how far to take your section of work, and how did it impact on scheduling and monitoring your time, your other priorities and obligations, self-discipline, etc?

2.4 Did you at any time experience overload and/or anxiety?

Yes		No	
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If "Yes", please elaborate.

3. Creativity in the presentation of the Mkambati project

3.1 What motivated you in the Mkambati learning experience?

3.2 The requirements of learners in this project were innovative and non-conventional. Describe what you experienced as innovative and how you feel about the approach.

3.3 How did you feel about this project and the problem-solving approach?
For example, did it engross you, hold your attention, stimulate you, or did it frustrate you, bore you, cause you to lose interest, etc?
Please answer for all the occasions listed below:

Before the trip to Mkambati _____

At Mkambati _____

During write-up time afterwards _____

4. Customized learning in the Mkambati project

4.1 What are your personal learning preferences, and in what way did this experience match/mismatch these preferences?

4.2 Were you able to personalise this problem-based learning experience to your own particular style, needs, passions, expertise, etc.?

Yes		No	
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Please elaborate. _____

4.3 Which of the following computer systems did you use?

Word processor	Database	Spread-sheet	E-mail	World Wide Web	Graphics Packages	Other (specify)

4.4 Did you experience the Mkambati project as learner-centred?

Yes		No	
-----	--	----	--

Please explain. _____

5. Collaborative learning in the Mkambati project

5.1 How did you experience the teamwork in this problem-based learning? Please elaborate.

5.2 What is your opinion about joint accountability and a team mark?

6. General

6.1 How did you experience the balance between instruction (lecturing related to the Mkambati) and independent work in this project?

6.2 Please give your comments about the value of the Mkambati project to you as an individual.

6.3 Please give your comments about the value of the Mkambati project to the class.

Finally (optional)

Your name and contact number, just in case I'd like to call you and ask a few more questions.

Any thing more you'd like to say.
