THE UNIVERSITY OF QUEENSLAND

CLEARANCE NOº (office use only)

Application Form for Ethical Clearance for Research Involving Human Participants

- **Behavioural & Social Sciences Ethical Review Committee** (*BSSERC*)
- **Dental Sciences Human Ethics Committee** (*DSHEC*)
- **Medical Research Ethics Committee** (MREC)*
- **Departmental Committee** (*Honours, Postgraduate Diploma, Coursework Masters And Supervised Projects*)

*Where applications to the MREC are for funded research, the investigator may answer questions on this form by indicating the relevant sections within the grant/trial proposal, e.g., refer to section 6 pages 3 & 4.

Please insert relevant Committee name:

Behavioural & Social Sciences Ethical Review Committee (*BSSERC)*

QUESTIONNAIRE FOR ETHICAL CLEARANCE

Project Title: Undergraduate Bachelor of Information Environments Students' Conceptions of Technology

Principal Investigator:	Sarah Stein
Staff Noº:	2003451

Co Investigators:	n/a

Supervisor: (if applicable)	n/a

Department:	Teaching and Educational Development Institute (TEDI)
UQ Unit ID: **Refer to:**	

Contact Details of Principal Investigator:	***Phone***	***Fax***	***E-mail***
	3365 7346	3365 1966	s.stein@tedi.uq.edu.au

Funding Body/Degree Enrolled:	New Staff Research Start-up Fund
If Project Funded - What year? **- Reference Noº available?**	N/A

Project Location:	UQ Ipswich Campus	**Project Duration:**	12 months

Does this submission relate to a previous protocol? (similar or an amendment) **YES/NO** *(circle)*

(***Note****: if YES, please provide clearance no*)

Does this submission hold other ethical clearance? (similar or an amendment) **YES/NO** *(circle)*

(***Note****: Attach copies from Other AHEC Fully Registered Ethics Committees*)

PLEASE ANSWER ALL OF THE FOLLOWING QUESTIONS:

1) Who are the participants?: *Children, University Students, or other persons.*
NOTE; Details of approximate number, age range, and male/female ratios are required.

The subjects of the study will be drawn from a cohort of about 50 students enrolled in a first year, second semester subject, IV121/IENV1802 - Studio 2, of the University of Queensland's three year undergraduate Bachelor of Information Environments course. Three students will be selected from each of two scheduled groups (8 students in total, four pairs) as focus students for the study.

2) Participant recruitment details:

A preliminary sample of about 30 students randomly selected from the cohort will be invited to complete (voluntarily) an open-ended instrument asking questions about their perceptions of the nature of technology. They will also complete a Repertory Grid, which will give further indication of their perspectives upon the processes involved in technological activity. The 30 students will be interviewed about their responses to the open-ended instrument and the Repertory Grid. Eight focus students will be purposefully selected from the preliminary sample to represent a range of views as evidenced in their survey and Repertory Grid responses. The eight focus students will be invited to be part of the study and will be given the option to withdraw at any time during the project. As focus students their actions and interactions within the classroom setting will be monitored throughout the 13 weeks of the semester.

3) In 'everyday/lay language' please provide a summary of the project::

The project's aim is to investigate the conceptions of technology held by a group of undergraduate information technology students and how those conceptions change and develop across the period of one semester. The students will be undertaking a subject which aims to help them examine, critique and develop design features of information environments (e.g., web pages). Through close monitoring of what happens during the course of the semester, the researcher intends to examine the perspectives of each of eight students, in detail, and of the rest of the cohort in general terms, on technology and how those understandings develop and change. By observing classroom activities and discussing classroom teaching practices and beliefs about learning and teaching with the lecturer, the researcher also intends to examine links between the students' development of ideas, and the structure, content and teaching within the subject that they experience throughout the semester. The data will be gathered through a variety of means, including, semi-structured interviews, survey instruments, video recordings of classroom interactions, and the collection of artefacts, such as teaching planning notes, handouts and student work. Case studies will be assembled at the end of the data collection period. These case studies will trace the developments and changes in students' conceptions of technology. Reflection upon the case students will be made in the light of current issues in technology education in school and higher education contexts.

4) Please explain briefly the validity and benefit of the project: (refer to guidelines: http://www.uq.edu.au/research/services/human/)

Investigations into the content, structure and nature of teaching and learning that occurs within specialised technology courses at higher education levels, such as this Bachelor of Information Environments course, can help inform general technology education and the education of teachers for school and higher education contexts. Examination of the conceptions of technology that students develop throughout specialised courses and of the support offered by their teachers would provide insights into how learners beyond school acquire the necessary understandings and skills to enter a professional technology community. Such understandings will inform teachers to plan for and implement meaningful and authentic school technology programs to provide a foundation for the further development of students as they enter more specialised courses after their general education years.

Expected outcomes

- Case studies of changes in students' perceptions on technology as a result of conducting technology projects within an information technology context.
- Broad assertions on the changes in students' perceptions and characteristics of projects causing such changes in perception.
- Implications for incorporation of project activities in information technology courses as a mechanism for developing appropriate perspectives on technology.
- Implications for learning and teaching at compulsory school levels and for the professional development of preservice and inservice school and higher education teachers.
- Publications in research and teacher journals, and conference presentations at researcher and teacher conferences.

5) What are the specific aim(s) of the project?:

1. To investigate students' perceptions of technology within an information technology context.
2. To develop assertions relating changes in students' perceptions of technology and their experiences in technology projects within the Bachelor of Information Environments course.
3. To develop assertions about the design processes used by students as they engage in design projects within an Bachelor of Information Environments course.
4. To draw implications for student education in information technology contexts and for teaching and teacher education at the university and compulsory school level.

(In this proposal, the use of the term "technology" refers to both the nature of technology and the technology process.)

6)Give details of the research plan and method of analysis of data:

An interpretive research methodology (Erickson, 1998) will be utilised as this approach is able to provide "the meanings and purposes attached by human actors to their activities" (Guba & Lincoln, 1989, p. 106) which is the focus of this study. The study will employ the criteria of Guba and Lincoln (1989) for quality interpretive inquiry - trustworthiness, authenticity and the benefits of the hermeneutic process. Trustworthiness will be enhanced by prolonged engagement over 13 weeks, persistent observation, peer debriefing, and member checks with participants including returning transcripts of interviews for checking. Authenticity will be enhanced by fair presentation and analysis of assertions including actively seeking negative examples and a range of interpretations. A hermeneutic cycle will be employed in developing and testing assertions as the study progresses. Emerging assertions will be discussed with students and colleagues and tested and refined in the light of further evidence. Triangulation involving the use of multiple data sources maximises the probability that emergent assertions are consistent with a variety of data. With extended classroom observations, the tendency for participants to exhibit contrived behaviours will be minimised.

Phase 1 [July, August, September, 2000]. *Preliminary: Relates to Objective 1 (above): To investigate students' perceptions of technology within an information environments context.*

A preliminary sample of about 30 students randomly selected from the cohort will complete an open-ended instrument asking questions about their perceptions of the nature of technology and will be interviewed about their responses to provide further elaboration of their views. Following a process developed by Shapiro (1996), and enhanced through work undertaken in an investigation into preservice teachers' perceptions of technology (Stein, McRobbie & Ginns, 1998) a Repertory Grid reflecting the views of the interviewed group will be constructed. The interview and survey responses will be coded and categorised to confirm and further develop the set of constructs (10-15) consisting of terms and phrases commonly used by students about technology and the conduct of technology investigations within an information technology environment (e.g., technology is*: following directions, creating your own ideas, challenging, problematic, easy, simple*) and the set of elements (10-15) of the technology process consisting of typical situations or experiences in the conduct of an investigation (e.g., *a problem or topic is selected for investigation*; *materials and equipment needed are selected*; *an unusual or unexpected result is obtained*). (Examples are adapted from Shapiro (1996) on open-ended science investigations and by Stein, et al. (1998) in an open-ended, self-selected design and technology project for pre service primary school teachers). The Repertory Grid will consist of a seven point rating scale situated between pole positions on the individual constructs, for each element, as in for example:

creating my own ideas	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**just following directions**
challenging, problematic	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**easy, simple**

The Repertory Grid will be administered to the preliminary sample of 30 students who will rate their perceptions for each element for each construct in turn; that is, if the first element was *A problem or topic is selected for investigation*, students would rate each of the constructs as they pertained to this element and then the same constructs on the next element (e.g., *An unusual or unexpected result is obtained*). The eight focus students will be purposefully selected (Guba & Lincoln, 1989) from the preliminary sample to represent a range of views as evidenced in their survey and Repertory Grid responses, and again will be interviewed on their Repertory Grid responses to further elaborate their perspective on the nature of technology within an information technology environment.

Phase 2 [July, August, 2000]. *Using observations/field notes and student journal reflections to develop tentative assertions relating to incidents and actions of students, which are perceived to bring about change in their perceptions of the nature of technology.*

Students, working in small groups, will be asked to conduct technology projects that focus upon the analysis and construction of information environments. The projects will be conducted at various times throughout the semester during two hour contact per week in the form of "studio sessions". These projects will involve students in designing, making and appraising information environments. The actions of these groups as they conduct their projects will be videotaped and radio microphones used to capture the discourse within the groups. Stimulated recall at key points in the technology process and at the completion of the projects will provide further descriptions of what students were thinking at various stages as they worked on the projects. Field notes will be made by the researcher who will observe each of the focus groups and develop tentative assertions on the effect of the experience on the students' perceptions and actions, for ongoing testing as the study proceeds. During the conduct of the project, all students will also complete a journal of their reflections on their progress, their perceptions of the technology processes they are experiencing, critical incidents and project notes.

Phase 3 [September, October, 2000]. *Relates to Objective 2 (above): To develop assertions relating changes in students' perceptions of technology within an information technology context and their experiences in their technology projects.*

After completing the technology projects the focus students will again complete the Repertory Grid and the grids will be analysed to identify changes in perceptions on each construct for each element. The individual grids of the focus group students showing pre- and post-perceptions will then be the stimulus of further interviews for those students. Particular attention will be given to pre-post responses that differ by two or more units on the seven point scales of the constructs within particular elements of the Repertory Grid, and critical incidents recorded in the student journals or noted in field notes, so as to provide further description of the perceived reasons for the changes noted and relating those changes to particular experiences in their project work. Replay of videotape segments will be utilised as required to stimulate recall of events discussed in the interviews. This phase will further test and develop the tentative assertions in phase 2 and develop case studies of change in relation to particular projects and the initial perspectives held by the participants.

Phase 4 [November, December, 2000, January, 2001]. *Relates to Objective 3 (above): To draw implications for student education in information technology contexts and for teaching and teacher education at compulsory school levels.*

In this phase, the final assertions and the case studies developed in phase 3 will be reviewed for their implications for the influence of student technology projects on changing students' perceptions of technology. The results will also be reviewed to identify particular projects, which were more promising in bringing about such changes with a view to suggesting that projects with those design attributes become core components of information technology students' education. The results will then be reviewed to identify implications for technology education as part of general education at primary and secondary schools, and for the education of preservice and inservice teachers. Research papers will be produced for dissemination at research and teacher conferences and for publication in research and teacher journals.

7) Give details of the ethical considerations attached to the proposed project:

There is a need to assure students that

- their identities will be kept confidential
- there will be no advantage or disadvantage to their assessment or participation within the subject by being involved as focus students or by being in a class in which research is being undertaken
- data gathered from the investigation will be used for research purposes only.

8) How will informed consent be obtained from participants?

- All students will be informed, through an information sheet, of the nature of the research project, their possible involvement and what their involvement will mean.
- Students will be *invited* to be a part of the initial group of 30 students.
- All students will be asked to sign a consent form to indicate that they understand that their actions and words may be recorded on videotape and/or audio tape, even if they are not focus group students.
- Focus group students will be informed orally and in written forms of their role in the project and that their words and actions will be captured on audio and videotape to be used for research purposes only.
- Students will be given the option to participate and will be given the option to withdraw from their focus group role at any time throughout the course of the semester.
- The room will be organised in such a way as to ensure that the wishes of those students who do not want to be recorded on tape will be complied with.

9) Provide details of procedures for establishing confidentiality and protecting privacy of participants:

- All students in the cohort will be *invited* to be involved.
- Students will be assured, in writing, that data collected will be used only for research purposes.
- When extracts from videos, conversations, written work are quoted or drawn upon in analysis and any papers, pseudonyms will be used always.

10) Provide details of data security and storage:

Audio and videotapes will be kept securely in a filing cabinet in the office of the researcher. The only people who will have access to the tapes will be the researcher and the research assistant, for purposes of transcription and analysis of the data. A student who has had his/her words and actions recorded will be given access to the tapes that have been made of him/her, as part of the clarification of ideas, e.g., through stimulated recall during post-interviews with the researcher; and also upon the student's request. Audio and video recordings will be viewed or listened to only by the researcher and the research assistant. Excerpts from recorded interviews and classroom action will appear in publications as quotations or descriptions, accompanied by pseudonyms.

11) In what form will the data be <u>accessed</u>?:
(NOTE: *Tick the most appropriate box – Refer to the Guidelines*: http://www.uq.edu.au/research/services/human/)

(i) Identified ☐ (ii) Potentially Identifiable ☐ (iii) De-Identified ☑

12) In what form will the data be <u>collected</u>?:
(NOTE: *Tick the most appropriate box – Refer to the Guidelines*: http://www.uq.edu.au/research/services/human/)

(i) Identified ☑ (ii) Potentially Identifiable ☐ (iii) De-Identified ☐

13) Give details of how feedback will be available to participants:

Feedback will be invited throughout the course of the semester upon the conduct of the investigation particularly where data gathering processes are concerned. During interviews and classroom interactions, the researchers' theories about students' ideas and conceptions will be fed back to them for comment. Assertions about the students' understandings, their conceptions of technology and the aspects of the classroom interactions that are affecting the development of their ideas will be presented for their feedback and their comment.

14) 'Risks, inconveniences and discomforts' – How have these issues been addressed?:

Some of the data will be collected through already planned assessment tasks to ensure that being a participant does not mean excessive extra work. The classroom will be organised to ensure that those students who do not wish to have their words or actions recorded will be able to work away from microphones and the video camera.

15) Does the project involve any of the following procedures? If <u>YES</u>, give details.	
a) The use of drugs	NO
b) Any invasive procedures (e.g., blood sampling)	NO
c) The possibility of physical stress/discomfort	NO
d) The possibility of psychological/mental stress/distress, discomfort	NO
e) Deception of/or withholding information from, participant at ANY stage of the project	NO
f) Access to data held by a Commonwealth Department or Agency	NO
g) Access to data by bodies of people other than the investigators (e.g., Medical Records)	NO
h) Participants involvement by any "Vulnerable Groups" (*Refer to the Guidelines*: http://www.uq.edu.au/research/services/human/)	NO

16) Please indicate your estimate of the risk for participants against the scale below: *(Tick the most appropriate box)*

- ☐ **Extreme risk**
- ☐ **High risk**
- ☐ **Some risk**
- ☐ **Minimal risk**
- ☑ **No foreseeable added risk above the risks of everyday living**

17) How has the possibility of withdrawal from the project been addressed?:
(**NOTE:** *Ensure that details and effects of withdrawal without prejudice AT ANY TIME have been considered and explained.*)

Students will be made aware of the implications of their involvement as focus students within the project in terms of their contribution of time for interviews and completion of surveys. The video taping situation and how the recordings will take place within the classroom will also be explained to them. This should minimise the situation of focus students' withdrawal from the project. It is intended that at least 8 students will participate as focus students, to provide rich, thick data, and that at least 30 will complete surveys and be interviewed, to provided overall and more general data. A small number of withdrawals will not change the nature of the investigation. Withdrawal by the students at any time will not disadvantage them in any way.

18) Please provide details of project funding:

Application is made for a New Staff Start-up Grant

Justification of the budget

a) **Personnel**: The support needed to conduct this research will be research assistance for transcription and some analysis of the interviews and critical incidents of video/audio classroom tapes (Research Assistant - RA 5/0104 @ $21.85+15% per hr). About 60 hours of audio/video tapes will require transcription which will require about 280 hrs transcription, together with about 24 hrs of video camera operation in the classroom. The Research Assistant will need to have some experience in observing classroom interactions and some understanding of issues related to design and technology education.

(b) **Maintenance/Equipment**: About 12 video (@$3.98 each) and 52 audio tapes (@ $1.56 each) will be required together with hire of video camera ($40.00 per day x 12 days) and the hire of audio recording equipment ($40.00 per day x 12 days), plus delivery fee to Ipswich ($20.00 per day x 12 days).

Sub Total: $8867.64 **GST** (10%): $ 896.76 **Grand Total**: $9864.40

19) In undertaking this research do any 'Conflict of Interest' issues arise? If YES, please provide details.
(**NOTE:** *Conflict of interest may arise because a researcher, or someone close to the researcher, stands to benefit financially from the research or the carrying out of the project or because inconsistent or incompatible obligations exist. Refer to the Guidelines: http://www.uq.edu.au/research/services/human/)*

NO

20) Will the participants be reimbursed (in any manner) for their involvement?:

NO

21) Is this project a multi-centre or site project?
If YES provide the name of the principal ethics committee. Please provide copies of any conditions or requirements placed by other AHEC registered human ethics committees:
(**NOTE:** *The principle ethics committee is the institutional ethics committee from where the budget is to be administered.)*

NO

22) Some projects may involve permits from National Parks and Wildlife in relation to collection of data and native title issues. Have you addressed this issue?

N/A

23) If the project related to Aboriginal and Torres Strait Islander people, what additional measures have you used in the project?:

N/A

ATTACHMENTS:

1) Consent Form **YES/NO**

2) Information sheet **YES/NO**

(NOTE: *for external use – forms should be released on letterhead and contain University Ethical paragraph. Refer to the Guidelines:* http://www.uq.edu.au/research/services/human/*)*

3) Questionnaire **YES/NO**

***(NOTE:** Please attach ONLY those developed or adapted specifically for this project.)*

4) Indemnity **YES/NO**

5) Gatekeepers **YES/NO**

***(NOTE:** A 'Gatekeeper' is a letter of authority and recognition from an organisation of ANY type involved with the research on the project.)*

6) References **YES/NO**

7) Clinical trial notification form (CTN) **YES/NO**

8) Other – please specify **YES/NO**

We/I, the undersigned researcher(s) have considered the ethical issues in relation to this project and agree to abide by the University of Queensland's Human Ethics Guidelines 1999. It is understood that this includes the reporting and monitoring roles associated with the approval by the Human Ethics Committee.

Signature of Principal Investigator:

Date: **11.5.00**

Signature of Supervisor (if applicable):

Date:

An Original and 12 copies should be submitted to the:

Ethics Officer
The Office of Research and Postgraduate Studies
Cumbrae-Stewart Building (72)
St Lucia Q 4072

Ph: (07) 3365 3924
Fax: (07) 3365 4455

Email: l.martin@research .uq.edu.au

General information for submissions can be found on out webapage:
http://www.uq.edu.au/research/services/human/)