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Enhancing student satisfaction in higher education: the creation of staff teaching communities

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Abstract

The past decade has seen an increased emphasis on the quality of higher education teaching and learning environments. This study utilised qualitative (focus group) and quantitative (College and University Classroom Environment Inventory) methodologies to evaluate student perceptions of their tertiary classroom environment. Students were asked to both identify their preferred classroom environment and evaluate their actual experience. Qualitative and quantitative analyses emphasised the importance for students of (i) positive relational and communication issues, and (ii) explicit guidelines for, and support with, course expectations. In response to the finding that students’ actual experiences of their classroom environment were significantly below their preferred ratings, a semester long staff development program was established. This program was based on the model of developing a ‘teaching community’ and provided opportunities for staff to explore, in a participatory action research framework, aspects of their teaching practice. Staff rated the program as valuable and engaged actively with the process. Following the intervention there were significant increases in student levels of satisfaction with their tertiary course experience. This paper examines the process and outcomes of this project and highlights some of the methodological difficulties of practitioner based research in tertiary education practice.

The past few years have seen an increased emphasis on the quality of teaching and learning within universities. Educational research has traditionally investigated the factors associated with positive outcomes for tertiary students. This research has often centered on characteristics of the student, the teacher and / or teaching style that correlate with improved performance measures. More recently attention has focussed on the relationship between the learning environment, i.e. the social – psychological context within which learning occurs, and student outcome measures (Fraser, 1994). Positive learning environments have been demonstrated to enhance student satisfaction, engagement with learning, and academic achievement (Ames, 1984; Ames1992; Candy, Crebert & O'Leary, 1994; Ramsden, Margetson, Martin & Clarke, 1995).

The research project reported in this paper aimed to evaluate student attitudes toward their learning environment and explore the potential for a staff development intervention, modeled on a participative action research paradigm, to enhance student perceptions of the quality of that learning environment.
Attempts to evaluate learning environments emerged from the seminal works of Walberg (1968) and Moos and Trickett (1974) who first quantified classroom characteristics such as competition, rule clarity and levels of formality (Fraser, 1994). Subsequently a range of classroom environment measures were developed and used to evaluate the impact of primary and secondary classroom characteristics on educational measures such as academic achievement (Walberg & Anderson, 1972), academic self efficacy (Keyser & Barling, 1981), student inquiry skills (Fraser & Fisher, 1982) and academic motivation (Ames, 1992). In a meta analysis of these early studies, environmental factors of classroom cohesiveness, student satisfaction and goal direction were identified as consistently related to improved outcome measures (Haertel, Walberg & Haertel, 1981).

The extension of this work to higher education has been relatively recent and constrained by the lack of appropriate measures to operationalise tertiary classroom cultures. The College and University Classroom Environment Inventory developed by Fraser, Treagust and Dennis in 1986 provided the first instrument designed specifically for use in higher education. The inventory explores seven dimensions of the tertiary classroom environment, (i) personalisation, (ii) involvement, (iii) cohesiveness, (iv) satisfaction, (v) task orientation, (vi) innovation, and, (vii) individualisation. (See Table 1 for a description of these dimensions). Two parallel versions of the CUCEI allow for the assessment of student perceptions of the ideal tertiary teaching environment (Preferred scale) and the extent to which these ideals have been attained (Actual scale). The development of the College and University Classroom Environment Inventory provides a quantitative measure of the classroom environment that builds on qualitative methods of inquiry such as ethnographic (Macdonald and Hagan, 1996), student interview (Hunter, 1989) and focus group (Mahony & Hodgkins, 1993) methodologies, that have also been used to facilitate insight into higher education classroom processes.

Within higher education, attempts to maximise student learning environments are constrained by a range of issues. It is well documented that contemporary university cultures are dominated by an emphasis on research productivity and that attention to teaching may be seen as counterproductive for academics in terms of employment and promotional opportunities. In addition, student numbers are rapidly expanding, as there is an increased emphasis on school retention and articulation to higher education. Collins (1992) indicates that this new cohort of tertiary students includes increasing numbers of non-traditional students from areas of educational disadvantage such as equity groups and "first generation school stayers" (p.47). These changes to the student population result not only in increased numbers of students but also in increased diversity of learning abilities, skill bases and educational needs. Adaptation to increased student numbers in the absence of significant increments in funding has necessitated a shift in educational practice.
"... resource constraints have increased the pressure on academics’ use of time and this has forced real changes in teaching methods and assessment practices, with negative implications for the acquisition by students of higher order skills" (Chubb, 1992, p.56). Inflated student numbers have also led to the increased use of non-permanent contract, or casual staff, for teaching. These ‘sessional’ staff, who generally comprise post graduate students, report uncertainty about their role as teachers, a lack of content knowledge and a sense of isolation from their department (Macdonald, Mitchell, Gunn, & Carbone, 1996). Despite these difficulties sessional staff often have substantial teaching responsibilities, especially within the first year of undergraduate programs. Paradoxically, whilst teaching of first year students is often managed by the least experienced academics, this transitional year is likely to be critical for both the short term retention of students and the longer term establishment of students’ core attitudinal orientations to learning ((Pascarella & Terenzini, 1976; Tinto, 1993; Volkwein & Cabrera, 1998).

The context of the current study

The Department of Psychology at Victoria University undertook the study reported in this paper. The university, established within the last decade, is a relatively new institution located within the Western Suburbs of Melbourne, Australia. The university services a non-traditional higher education population, a third of students representing low socioeconomic equity groups and 46% of students reporting non-English speaking backgrounds. The undergraduate psychology course has grown rapidly from 200 students in 1991 to over 500 enrolments in 1999. Alongside this growth in student numbers reductions in university funding have resulted in the shift from small group teaching formats to the delivery of material in lecture settings. This shift from a personalised teaching culture occurred within the context of the University’s policy of educational access and equity and a commitment to the pastoral care of students. For current first year Psychology students the only remaining small group teaching setting (where student numbers range from approximately 16-24 per class) is a two-hour weekly laboratory class. Twenty-three laboratory classes are timetabled each week with 70% of the teaching load managed by sessional staff.

As the first year experience has been identified as critical to both the short-term academic goal of student retention and the longer term goal of establishing positive orientations to learning, it seemed essential to work toward maximising the quality of the learning environment within this first year program. The smaller group settings of the laboratory program were seen as providing the most effective way of working toward change within the course.

The first step in the project involved a formative evaluation of student expectations, and actual experiences of, their current teaching and learning environment. This first stage was undertaken in semester two of the first year of the psychology program. Following this evaluative stage a staff
development program, for all staff teaching in the Psychology 1 program was initiated. This commenced during the summer teaching break and extended across all of first semester of the subsequent teaching year. In semester two of this second year a summative evaluation was conducted with this new cohort of Psychology 1 students to evaluate the effectiveness of the staff program on students’ perceptions of the quality of the subsequent learning environment.

Specifically this study aimed to (i) investigate student perceptions of the nature of the first year psychology learning environment, and (ii) evaluate the impact of a staff professional development program on the perceptions of a new cohort of students.

Phase 1: Formative evaluation

The aim of the formative evaluation was to (i) assess student perceptions of their learning environment with a view to identifying areas in need of change, and (ii) provide a baseline for assessing perceptions in the new cohort of students who would be experiencing the changed learning environment. The formative evaluation comprised both qualitative assessment through the use of focus group interviews in which students were asked to reflect on their learning experiences, and a quantitative survey, using a standard classroom climate inventory (Fraser, 1993).

Method

Participants

(a) Focus group interviews. Three groups comprising a total of twenty volunteer Psychology 1 students were interviewed.

(b) Survey of students. Ninety-three students from five Psychology 1 laboratory classes completed the survey (74 females (80%) and 16 males (17%), 3 sex unrecorded). Fifty-six of these students were school leavers (60%), 26 mature age entrants (28%) and 11 did not record their status.

Materials

1. Focus group interview.

In a semi-structured group interview, students were asked to reflect on a series of questions that explored both positive and negative aspects of the laboratory teaching/learning environment. Sample interview questions included "Think back to a lab where you came out feeling really good and thought you learned a lot - what made it a good lab for you?" "What is the role of the tutor within your class?" "What are your expectations of the laboratory program?"
(b) College and University Classroom Environment Inventory (CUCEI, Fraser, 1993). This measure comprises 49 items with seven items designated to each of the seven scale dimensions. The subscale names, a description of the dimension represented, and a sample item for each dimension are shown in Table 1.

Table 1: Description of the CUCEI (Adapted from Fraser, Treagust & Dennis, 1986)

<table>
<thead>
<tr>
<th>Scale dimension</th>
<th>Dimension description</th>
<th>Sample item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personalisation</td>
<td>Levels of concern demonstrated for the welfare of the student and the opportunities for interaction with the teacher</td>
<td>The instructor goes out of his/her way to help students</td>
</tr>
<tr>
<td>Involvement</td>
<td>Degree of active participation of students in class</td>
<td>The instructor dominates class discussion</td>
</tr>
<tr>
<td>Student Cohesiveness</td>
<td>Extent to which students know and interact in friendly ways with each other</td>
<td>Students in this class get to know each other well</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>Overall levels of enjoyment of class</td>
<td>Classes are boring</td>
</tr>
<tr>
<td>Task Orientation</td>
<td>Levels of clarity and organisation associated with class activities</td>
<td>Students know exactly what has to be done in this class</td>
</tr>
<tr>
<td>Innovation</td>
<td>Extent of use of new and unusual class teaching and assessment practices</td>
<td>New and different ways of teaching are seldom used in this class</td>
</tr>
<tr>
<td>Individualisation</td>
<td>Extent to which students make decisions and are treated differentially</td>
<td>Students are allowed to choose activities and how they will work</td>
</tr>
</tbody>
</table>
Each item represents a statement that identifies an aspect of the classroom environment. The wording of the item is adjusted depending on whether students are responding to their preferred or actual classroom experience. For example, Item 21 in the Preferred scale reads "students should have a say in how class time is spent". In the Actual scale, the item reads "students have a say in how class time is spent". Students respond to the 49 statements using a four point Likert scale of Strongly Agree, Agree, Disagree and Strongly Disagree. Both positive and negative items are presented to avoid response set answers. Positive responses are scored 5,4,2, and 1 and negative responses scored in the reverse manner. A total dimension score is then calculated for each of the seven inventory subscales. High scores within each subscale identifying more positive experiences of, or attitudes toward, the classroom factor. Validation data supports the scale’s validity and reliability across both American and Australian tertiary student populations (Fraser, Treagust & Dennis, 1986).

**Procedure**

The focus group interviews and the survey took place in semester 2, 1997. Student volunteers for the focus groups were called for during large lecture classes. The focus groups then met outside class times. To provide a confidential forum for the group, the interviews were facilitated by a staff member external to the psychology department. Sessions were taped and transcribed, and responses analysed thematically (Miles & Huberman, 1994). The preferred and actual versions of the CUCEI were completed by volunteer students from five Psychology1 laboratory classes, during class time.

**Results**

**Focus groups**

The transcribed focus group material was analysed using a cross case analysis methodology. This represents an approach whereby the answers to the specific focus group questions were grouped together and responses clustered under thematic categories (Patton, 1990). To increase the validity of the generated themes this process of analysis was undertaken individually and collectively by members of the research team until consensus was reached. Verification of the emergent themes was also sought by the process of member checking where the derived themes were ‘taken back’ to a group of student participants for discussion.
The textual analysis identified that students were exploring issues relevant to positive classroom environments from both theoretical and applied perspectives. To be inclusive of all this material the researchers developed a hierarchical framework for the representation of the data. This framework incorporates three levels of analysis. These levels were named by the researchers as (i) facilitative factors, (ii) facilitative environmental conditions, and, (iii) facilitative strategies. The progression from facilitative factors to facilitative strategies paralleling the students’ construction of global classroom environment goals and the process of their realisation within classroom practice.

Four major thematic categories or facilitative factors emerged as critical to students’ perceptions of positive tertiary learning environments. These four factors are (i) a high degree of classroom interaction, (ii) a positive relationship with the tutor, (iii) curriculum clarity, and, (iv) students as responsible learners. The presence of these core facilitative factors were in turn seen by students as dependent on their experience of specific environmental conditions which were termed facilitative environmental conditions. For example, facilitative factor one, which identified a high level of classroom interaction, was seen to be dependent on a facilitative environmental condition which affirms a sense of the student’s freedom to speak within the classroom environment free from anxiety related to the "rightness or wrongness" of their contribution. For factor two positive relationships with the tutor were conditional on the experience of an equitable interpersonal power base between the student and the tutor. Curriculum clarity, as facilitative factor three, was described by students as dependent on an environment where course expectations were defined explicitly. The final factor identified by students was the role of students as responsible learners – this factor being described as facilitated by students accepting responsibility for their learning outcomes. For each of these environmental factors students further described a range of classroom facilitative strategies which promoted the necessary condition for positive classroom environments. The strategies named by students which related to each of the facilitative environmental conditions are described in Table 2.

Table 2: Student perceptions of positive learning environments in first year psychology.
<table>
<thead>
<tr>
<th>Facilitative Factor</th>
<th>Facilitative Environmental Condition</th>
<th>Facilitative Strategies.</th>
</tr>
</thead>
<tbody>
<tr>
<td>High degree of classroom interaction</td>
<td>Sense of freedom to speak – right or wrong.</td>
<td>Knowledge of other students.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Use of small working groups.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tutor’s explicit expectations of all students’ interaction.</td>
</tr>
<tr>
<td>Positive relationship with tutor</td>
<td>Equitable power base.</td>
<td>Tutor demonstrating their ‘caring’ for student outcomes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High levels of tutor availability</td>
</tr>
<tr>
<td>Curriculum clarity</td>
<td>Understanding of expectations.</td>
<td>Identification of relative importance of curriculum materials.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clear guidelines for course requirements.</td>
</tr>
<tr>
<td>Students as responsible learners</td>
<td>Students acceptance of responsibility.</td>
<td>Coming to class prepared.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Active participation in process.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acceptance of limitations of ‘system’.</td>
</tr>
</tbody>
</table>

**Student survey**

Mean preferred and actual ratings for students on the CUCEI are shown in Figure 1.
Visual analysis of Figure 1 indicates students' perceptions of the relative importance of the preferred CUCEI factors with respect to the quality of the teaching / learning environment. The global measure of satisfaction is followed in decreasing order of importance by the factors of personalisation, task, involvement, cohesiveness, innovation and individuation. For all seven CUCEI dimensions student actual ratings fall below preferred values. The significance of these differences is verified by t-test analyses. Satisfaction: $t(1,92) = -10.7, p < 0.001$; Personalisation: $t(1,92) = -5.0, p < 0.001$; Task: $t(1,92) = -8.5, p < 0.001$; Involvement: $t(1,92) = -10.4, p < 0.001$; Cohesiveness: $t(1,92) = -10.9, p < 0.001$; Innovation: $t(1,92) = -12.76, p < 0.001$; Individuation: $t(1,92) = -8.5, p < 0.001$. In other words students judged all aspects of the learning environment as less than optimal i.e. their level of enjoyment of the class activity (satisfaction), level of concern expressed for students (personalisation), clarity and organisation of class activities (task), degree of active participation of students in class (involvement), level of innovation displayed in teaching strategies (innovation) and sense of having their individual educational concerns met (individuation). These results will be discussed in further detail in the discussion section at the end of the paper, in which they will be compared with results from the summative evaluation phase of the study.
Phase 2: Staff development program intervention

The staff development program was developed in response to the issues identified by students in Phase 1. Both qualitative and quantitative data collected in Phase 1 indicated that (i) relational and communication issues between staff and students, and the students themselves, were critical to positive learning environments, and (ii) students needed explicit guidelines for, and support with, course expectations.

To respond to these relational and curriculum issues the staff development program was modeled on the work of Macdonald and Gunn (1997) who established that creating course ‘teaching communities’ led to significant increments in staff morale, commitment and skill levels. These staff developments were paralleled by increased levels of within-class interaction, increased student understanding of core curriculum issues and enhanced academic performance (Macdonald & Gunn, 1997). Teaching communities are described by Macdonald and Gunn (1997) as dependent on opportunities for staff to (i) explore, in a collaborative framework, the principles of good teaching and learning, (ii) understand the ‘big ideas’ of the course, and (iii) share experiences of teaching in non-threatening and supportive environments. These principles therefore underpinned the staff development program, the aim of which was to establish a teaching community among the Psychology 1 staff that was able to respond to the relational, communicative and clarity needs of Psychology 1 students to a greater extent than had occurred in the previous year.

Teaching staff to be involved with the following year’s (1998) intake of Psychology 1 students participated in the ten-week action research based staff development program (N=14). These included nine sessional staff, all of whom were postgraduate students within the department and two of whom had taught in the program the previous year. The remaining seven sessional staff had no previous teaching experience. Four permanent staff, two of whom had taught in the course the previous year, also participated. The course coordinator was supported throughout the staff development program by an educational consultant external to the university.

The program commenced with a two-day intensive training workshop. The workshop focussed on the major thematic areas of (i) the principles of good teaching and learning (ii) strategies for increasing student engagement (iii) staff perceptions of their role as a tutor, and (iv) constructing and operationalising the ‘big ideas’ of the course curriculum.

The second phase of the staff development program involved three Psychology 1 team teaching meetings. These were held every 4 weeks across Semester 1 1998 and timed to coincide with curriculum based teaching modules. To promote the integration between reflective practice and operational change these meetings were modeled on Kember and Kelly’s (1993) principles of collaborative action research in education. Issues of
classroom practice identified by staff were explored through cycles of reflection, planning, action and observation. Specifically issues for reflection emerged from the experience and in-class observations of participant staff. Attempts were made to suspend traditional academic hierarchies, instead acknowledging the experiential insights of all participants. Plans of action in response to emergent issues were generated and taken back to the classroom for observation and data gathering. Outcomes of this process were re-evaluated at the following teaching community meeting.

Table 3 identifies the evaluation items presented to teaching staff following the two-day workshop. Participants rated their experience on a 5 point Likert scale with anchor points of ‘agree strongly’ and ‘disagree strongly’. Responses were then scored from 0 to 4 with higher scores indicating stronger agreement with the item. Mean ratings of participants for each of the evaluation items are included in Table 3.

Table 3: Teaching workshop evaluation

<table>
<thead>
<tr>
<th>Statement: This workshop</th>
<th>Mean Rating (0-4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was clearly relevant to my job as a tutor in Psychology</td>
<td>3.6</td>
</tr>
<tr>
<td>Provided a useful framework for thinking about learning</td>
<td>3.4</td>
</tr>
<tr>
<td>Improved my understanding of teaching issues</td>
<td>3.1</td>
</tr>
<tr>
<td>Resolved worries I have about my job as a tutor</td>
<td>3</td>
</tr>
<tr>
<td>Helped define my role as a tutor in Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Helped clarify what I am supposed to teach</td>
<td>2.6</td>
</tr>
<tr>
<td>Contained practical strategies for teaching</td>
<td>3.1</td>
</tr>
<tr>
<td>Increased my confidence about being a tutor</td>
<td>3.3</td>
</tr>
<tr>
<td>Gave me the opportunity to contribute my own ideas</td>
<td>3.4</td>
</tr>
<tr>
<td>Was a valuable use of my time so near to the start of the year</td>
<td>4</td>
</tr>
</tbody>
</table>

Statement: Following this workshop
<table>
<thead>
<tr>
<th>Statement</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel confident that I will be a competent tutor</td>
<td>2.7</td>
</tr>
<tr>
<td>I feel a member of the team teaching first year psychology</td>
<td>3</td>
</tr>
<tr>
<td>I feel I will be able to discuss teaching issues with other staff if I am unsure</td>
<td>3.6</td>
</tr>
<tr>
<td>I would recommend other tutors attend this workshop</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Ratings suggest that participants valued all aspects of the workshop. Of particular interest is the finding that all participants felt that the workshop was a valuable use of their time, with a universal rating of 4 'strongly agree'. Where participants were invited to make written comments on the workshop experience these were again positive, for example "it motivated me to think about ways of learning...seeing the student's point of view" and "it allowed us to share ideas, experiences and to reflect / discuss our role as tutor and the course content."

In line with the recommendations of Winter (1996) and to provide the reader with an insight into the process of interaction within the team teaching meetings, Table 4 provides a verbatim extract from one of these meetings. The content of this text suggests that (a) staff felt comfortable both asking questions about best practice and giving suggestions, (b) that they were highly attuned to the learning problems of individual students and sought ways to assist them, (c) they were interested in ways to improve student group cohesion, seeing this as a way to improve learning, and (d) they recognised that increasing the extent to which students take responsibility for their own learning may be facilitated by staff interventions (eg., reinforcing that supports are available). Thus the extract illustrates staff engaging with the relational and communicative (although not the clarity) needs of students, in an open and apparently non-hierarchical forum.

Table 4: Teaching meeting narrative excerpt.

(C) Does anyone have any teaching stories or experiences since the last meeting that they can share?

(N1) I can share with you having to tell a girl she got 2/20 on a statistics test and it was her birthday, that was pretty awful. She did slightly better last time – I think she didn’t expect to go that badly I said she could come and see me if she liked.

(C) How do you deal with a situation like that?
(N1) It’s easier with a student who doesn’t really try but this girl does really try so I think that’s hard.

(E) Is she using the workshops? (optional support statistics program)

(N1) I don’t really know I have to talk to her about that we didn’t really have time in the lab – I saw her lab so I gave her lots of positive feedback about that to make up for it.

(E1) Usually in those cases where they go really badly I get them to see me and we go through the quiz.

(N1) Yeah she didn’t go very well last time either so I think she might have issues with stats anyway.

(E1) You usually find that out when you work through it – and you find out those students who are genuinely trying to manage. Some of my experience too is that in first year, I suppose it depends on how approachable you are, but they are often reluctant to see you, especially if they are young.

(N1) She’s not a 16-17 year old she works too so that might be a factor.

(E2) I guess to if you see someone working hard within the course and this is just a difficult area I usually say to them we know that in first semester it can take people quite a while to get their head around the stats. So it’s not a hurdle requirement in the first semester and she can make it up across the year.

(N2) But if you are getting 2 out of 20 then isn’t it obvious that in second semester or second year that when it does become a hurdle requirement they are just going to fail... why should we let them go on if their results are so bad?

(E1) I have similar concerns but look at the current stats support program I only had 6 turn up.

(C) Given that they are not doing terribly well is their anything you can do to assist? Are they working in groups or are these people a bit isolated?

(E1) There is a difficulty forming relationships and groups, they still haven’t got to know each other.

(E2) This year they have got those formal study groups set up to help them meet each other. I don’t know how well they utilize it but the structure is there.

(N3) Don’t think any of the students use it anyway.
(N4) I have a student who wasn’t in a group and wasn’t doing very well. But she has started to work in a group with other students and it’s all started to click. She was using the stats workshop but she needed more and her peers are just starting now to come through for her and she was a girl who I seriously thought would have dropped out.

(N1) I think there is a problem with the groups though, sometimes they are forming groups with people who have similar difficulties to themselves and you need a varied ability level so people can learn off each other.

(N5) They seem to be incredibly anxious about these quizzes too and they get thrown by anything.

(E2) I hear the same stories every year I guess, and I think there is a developmental process with the stats. There are lots of support structures available to them – they can make individual appointments, they can go to workshops, the structures are there, it’s about them managing the anxiety and taking the task on board. When you say what’s the point of them going on, I think for most of them stats is the hardest thing and I think we do need to give them time to see if they can manage it or not.

(N1) I wonder if it’s just worth reinforcing to these people that these supports are available. Okay they have been told, but have they taken this on board? When my students handed in their draft labs they said they were told before uni that lecturers wouldn’t help you. They were amazed that someone would sit down and go through things with them. So I’m going to go into my class next week and reinforce that these things are available.

(E2) There are a significant number of students, you’re right, who are just too intimidated to knock on a lecturer’s door.

(C) Yes there is common story around schools that university culture is you are left entirely on your own.

**Phase 3: Summative evaluation**

The aim of this phase of the study was to assess perceptions of the learning environment among a group of students taught by staff who had experienced the professional development intervention. The perceptions of this group of students could thus be compared with the perceptions of students in Phase 1 of the study for whom teaching staff had not received the intervention. This summative phase involved only quantitative assessment using the CUCEI.

**Method**

As in the formative evaluation phase of the study, five laboratory classes were again selected to complete the preferred and actual versions of the CUCEI. One hundred and six students completed the questionnaire at the end of
Semester 1 1998. The sample comprised 83 female (78%) and 18 male (17%) students with 5 of unreported gender. Seventy of these students were school leavers (66%), 26 mature age (25%) and 10 did not report student status. Thus the sample had similar age and gender characteristics to the 1997 sample.

To ensure consistency of the experience of staff who were working with students in the formative and summative evaluation phases of the project, classes were selected for the Phase 3 evaluation which paralleled classes chosen for the Phase 1 evaluation with respect to staff experience. These were, in each case (i) two classes taught by sessional staff with no previous teaching experience (ii) two classes taught by a sessional with a year of previous teaching and, (iii) one class with an experienced permanent staff member.

**Results**

The aim of the summative evaluation was to determine whether the staff professional development program impacted significantly on the students’ actual experience of their classroom environment. However as Phases 1 and 3 of this project involved two different student populations, changes to the actual student experience, subsequent to the professional development program, are meaningful only if preferred ratings remain consistent between student cohorts. On this basis, t-test analyses were undertaken to evaluate differences in mean preferred ratings between student groups. There was no significant difference between Phase 1 and Phase 3 student cohorts on the preferred dimensions of Satisfaction: \( t(1,195) = -0.22, p > 0.05; \)
Personalisation: \( t(1,195) = -0.25, p > 0.05; \)
Task: \( t(1,195) = 0.03, p > 0.05; \)
Involvement: \( t(1,195) = 0.34, p > 0.05; \)
Cohesiveness: \( t(1,195) = -1.38, p > 0.05, \)
and Innovation: \( t(1,195) = -1.27, p > 0.05. \) For the preferred dimension of Individuation however the Phase 1 students preferred a significantly higher classroom orientation to individuation than the Phase 3 cohort, \( t(1,195) = 3.32, p = 0.001. \)

Figure 2 provides a visual comparison of students’ actual experiences of their classroom environment in the formative and summative phases of the project.
Figure 2: Comparison of student 'actual' CUCEI ratings between project Phases 1 & 3.

Figure 2 indicates that for all classroom environment measures, student ratings of the actual quality of the classroom environment were higher in study Phase 3 than in study Phase 1. T-test analyses of differences in ratings between study phases indicate significant differences for the dimensions of Satisfaction: $t(1,195) = -5.99$, $p < 0.001$; Involvement: $t(1,195) = -4.85$, $p < 0.001$; Task: $t(1,195) = -5.12$, $p < 0.001$; Cohesiveness: $t(1,195) = -4.27$, $p < 0.001$ and Innovation: $t(1,195) = -4.5$, $p < 0.001$. The observed difference in the experience of Personalisation approached significance, $t(1,195) = -1.76$, $p = 0.08$. No significant difference in the dimension of Individuation occurred, $t(1,195) = -1.18$, $p > 0.05$. In summary, students in Phase 3 had similar views on preferred classroom interactions to students in Phase 1. However Phase 3 students, rated their perceptions of the quality of the actual classroom environment as significantly higher on five of the seven classroom environment measures. The rating for personalisation also increased and approached significance with only the dimension of individuation remaining non significant.

**Discussion**

This project evaluated student perceptions of the quality of their tertiary learning environment and implemented a staff development program to address areas of concern highlighted by students. The intervention resulted in
a significant improvement in the next cohort of students’ perceptions of the quality of their experience across a range of classroom environment indices.

Phase 1 of the study evaluated student perceptions of the quality of their experience within the first year Psychology program. Results from the CUCEI identified the dimension of ‘personalisation’ as the most important characteristic of the tertiary classroom for these students. Fraser (1993) operationalises personalisation in the CUCEI as both (i) the opportunity for students to interact with the teacher and, (ii) the level of expressed concern of the teacher for students' welfare. The importance of this relational dimension for students within the current project was ratified by the qualitative data where the theme of staff members’ demonstrated ‘caring’ for students was central to student perceptions of positive classroom environments. The importance of staff / student relationships to positive outcomes for students in higher education has been well documented across a range of academic disciplines and student populations. Pascarella and Terenzini in 1976 and more recently Tinto (1993) identified the quality and frequency of staff student interactions, in both formal and informal contexts, as significant predictors of first year college attrition and satisfaction. Similarly Volkwein and Cabrera (1998) in an analysis of the experiences of 750 undergraduate students reported student perceptions of high levels of staff interaction and concern to be associated with students' positive classroom orientations.

Following the dimension of 'personalisation' both qualitative and quantitative data established the importance of 'task orientation' to students. Within the CUCEI this dimension reflects the extent to which class activities are clear and well organised. The qualitative data similarly identified students' concerns about recognising and understanding the critical components of the curriculum and the course expectations. In an evaluation of student experiences Hunter (1989) asked students, across a range of faculty areas, to identify the problems that they both anticipated and experienced in their first year of study. The most highly ranked anticipated problem (85% of students) was 'being uncertain of level and quantity of work required'. This was also rated by students as their most frequently experienced problem (50% of students). Clearly students in the first year of tertiary education require explicit curriculum frameworks to feel positive about their learning environment.

Subsequent to the dimensions of ‘task orientation’ and ‘personalisation’ the classroom environment characteristics of ‘involvement’ and ‘cohesiveness’ emerged as priorities for students. Interestingly, these issues which emerged as perhaps the most significant factors for students in the qualitative data, were seen by students as interdependent, that is, the degree of classroom interaction, which was critical to their perception of a good class, was determined by the extent to which students knew and felt comfortable with each other.
Both the qualitative and quantitative analyses of this study aimed to establish what students wanted from their tertiary classroom environment. The outcomes from these analyses are clearly aligned with theoretical ‘best practice’ for effective teaching in higher education. Ramsden (1993), in identifying critical aspects of effective tertiary teaching, argues for the importance of both ‘really caring for students’ and providing them with explicit guidelines and expectations. Ramsden (1993) also suggests that effective learning demands ‘student responsibility for learning and active engagement with content’ (p.42). Similarly students in the group interviews identified good classes as consequent on students coming to class prepared and subsequently engaging with the classroom process.

The professional development intervention implemented as part of this study was designed to skill and support staff in their establishment of a teaching community that addressed student needs for positive classroom relationships, good two-way class communication and curriculum clarity. These aims were derived from expressed student needs as well as from the literature of best practice. Clearly, such an intervention to be effective must be ‘owned’ by the staff, who need to feel it is good use of their precious time and will improve their practice without reflecting negatively on their career opportunities (for example, not be seen as a remedial measure, or a way of being judged). The teaching workshop evaluation, and the example narrative from a team teaching meeting, both suggest that staff did value this intervention, assess it as supportive and confidence boosting, and were enabled in their discussion of ways to improve classroom climate and responsiveness to individual students. The subsequent cohort of students was more positive in their evaluation of classroom climate than those students who were taught by staff who had not experienced the intervention. While this does not ‘prove’ the intervention worked in that our study is not a control group based true experiment, a working hypothesis of the usefulness of this intervention, based on more confident staff and happier students, is not unreasonable. Indeed, the action research nature of this study, made necessary by real-world constraints, had certain advantages. Staff felt empowered to improve their teaching practice, and students felt they had the opportunity to contribute toward that improvement (in Phase 1) rather than being mere participants in a research study.

**Methodological Issues**

The research reported in this paper has attempted to evaluate a tertiary classroom environment and the possibility of enhancing this environment through staff development practices. Whilst this research is obviously aligned with more general emphases on research accountability in higher education it also serves to highlight many of the methodological difficulties of undertaking and reporting research in this area. The study sought to evaluate the psycho-social context of the tertiary classroom yet limited instruments have been developed for analyses of tertiary cultures and instruments, such as the CUCEI, developed in the late 80’s, and used in the current study, remain to
be validated amongst contemporary university student populations. In addition to difficulties of access to appropriate measuring instruments, educational research is potentially confounded by the constantly changing research environment. The identification of causal relationships between educational interventions and student outcomes is dependent on the ability to hold extraneous variables constant. A major limitation of the current study was that both the student cohort and teaching staff changed between formative and evaluative phases of the study. Whilst some matching of student cohorts was achieved on the baseline measure of preferred classroom environments it is not possible to match staff teaching practices. Changes observed in the perceived classroom environment subsequent to the intervention therefore need to be replicated in other research formats to strengthen the contention that they are related to the intervention rather than current study consequent to the staff intervention need therefore may then be attributed to the intervention or to

In summary, this study applied action research principles to an area of teaching practice in higher education. Specifically the study measured student satisfaction in a modified pre and post intervention design, and demonstrated the effect of the intervention on the dependent variable of students’ experience of their classroom environment. Despite the potential for educational research to impact positively on teaching outcomes, as demonstrated in the current study, and more generally, the status of teaching in higher education (Ramsden et al., 1995), there is limited literature which explores this nexus between applied research and teaching practice. There may be several reasons for this. The current study confronted many of the methodological difficulties associated with ‘practice based’ research in higher education. There are few sociometric indices that have been consistently used in higher education research and therefore operationalising and measuring aspects of the teaching culture or student experience is difficult. Often qualitative methods of enquiry have been used to explore experiences of staff and / or students, and whilst they provide necessary and significant insights, they are imprecise measures of change. Quantitative measures seem however to have gained little credibility in the higher education literature perhaps being seen as too reductionist to reflect the complexities of the teaching/learning culture, or perhaps ‘measuring’ aspects of classroom experience poses a threat to academics who are traditionally resistant to teaching evaluation practices. The current study utilised both qualitative and quantitative methodologies in the formative phase of the study and one of the interesting findings was the level of congruence between the outcomes derived from these approaches. It is also significant that students’ perceptions of quality teaching practice as reported using both interviews and CUCEI measures aligned closely with contemporary theoretical conceptualisations of quality teaching environments in higher education. Concerns that tertiary students have limited insight into appropriate teaching and learning cultures were not confirmed in the current study. Students seemed to have realistic and appropriate expectations of their tertiary environment and it seems that
in the process of working toward quality teaching in higher education there is substantial value in 'listening and responding to student voices'.

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