

The influence of learning environment on the satisfaction of
pre-service teacher education students

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Paper presented at the annual conference of the Australian
Association for Research in Education, University of
Adelaide, December 1989.

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ABSTRACT

This paper examines the effect of student perceptions of the learning environment on their satisfaction with that environment. Previous research has focussed either on the influence of actual perceptions or the influence of dissonance between preferred and actual perceptions per se. This study extends that work by suggesting that, depending on the circumstances, it may be actual perceptions, dissonance in perceptions, or some combination of these that is more influential. 130 teacher education students in a 3 year integrated course and from a variety of content area backgrounds classified either as an Arts/Humanities or a Science/Technology course completed the College and University Classroom Environment Inventory (CUCEI) prior to (preferred) and at the end of (actual) a semester unit in Educational Psychology. The CUCEI consists of 7 scales: Personalization, Involvement, Student Cohesiveness, Satisfaction, Task Orientation, Innovation and Individualization.

On the assumption that classroom behaviour is complex and perhaps not realistically explicable by strongly parameterized statistical models, a categorical model

explaining student satisfaction is built up from the data by making few assumptions about the statistical characteristics of the data. Four discrete groups of students are identified for each scale: Low actual-low dissonance (labelled INDEPENDENTS), low actual-high dissonance (ACERBICS), high actual-low dissonance (EMPATHETICS) and high actual-high dissonance (IMPRESSED) and for each scale, the level of actual satisfaction for each group is computed. Initial analysis indicates that there is a strong course effect. Subsequent analysis carried out on Arts/Humanities and Science/Technology students separately indicates that for the former, satisfaction is related to actual perceptions of a number of classroom psychosocial characteristics, while, for the latter, satisfaction is related to the dissonance between actual and preferred perceptions on some characteristics. The results are explained in terms of the types of students attracted to the different courses and the history and ethos of teacher education institutions. Implications for teacher educators are discussed.

In addition, the validity of the CUCEI is checked, with scale reliability measures using both the student and the class as the unit of analysis confirming for the most part the already reported internal consistency of the 7 scales. Also, the four groups of INDEPENDENTS, ACERBICS, EMPATHETICS and IMPRESSED tend to behave in a way that is theoretically predictable and may well be worthy of further research.

The Study of Learning Project

The Study of Learning Project is a large scale research project being undertaken by the authors which has the aim of improving the learning environments of, and the approach to study taken by, tertiary students. It is investigating the interaction between their learning styles and learning processes, their preferred and actual perceptions of their learning environment and cognitive and affective outcomes of their learning experiences. Data on all of the above has been collected over a semester period from students in both integrated and end-on preservice teacher education courses in a large metropolitan teacher education institution. This paper focuses on one aspect of that data - the influence of the perceptions of the learning environment on the satisfaction of students in integrated courses.

Learning Environment Research

There is a twenty year long and rich history of research on learning environments in primary and secondary schools. The prolific work of Moos (Moos; 1979), Walberg (Walberg, 1976, 1979) and in particular Fraser (Fraser, 1980, 1981a, 1981b, 1985a, 1985b) both individually and together (Fraser and Walberg, 1981; Fraser, Anderson and Walberg, 1982) has produced not only a substantial body of research findings but also a collection of reliable and validated instruments for measuring the psychosocial characteristics of actual and preferred classrooms. These instruments include the Learning Environment Inventory (Anderson and Walberg, 1974; Fraser, Anderson and Walberg, 1982), its simplified version the My Class Inventory (Fisher and Fraser, 1981; Fraser, Anderson and Walberg, 1982), the Classroom Environment Scale (Trickett and Moos, 1973; Moos and Trickett, 1984) and the Individualized Classroom Environment Questionnaire (Fraser, 1985c; Rentoul and Fraser, 1979). The description,

development, validation and research associated with these instruments are reviewed in detail by Clarke (1987).

In response to the dearth of comparable research at the tertiary level,¹ Fraser and his co-workers (Fraser and Tregaust, 1986; Fraser, Tregaust and Dennis, 1984) recently developed and validated an instrument for use in post-secondary education, the College and University Classroom Environment Inventory (CUCEI). The instrument is designed for use with small higher education classes (e.g. seminars, tutorials) and contains seven scales: Individualization, Innovation, Involvement, Personalization, Satisfaction, Student Cohesiveness and Task Orientation. Descriptions of, and a typical item associated with, each scale is shown in Table 1.

Table 1 somewhere here

In using this instrument, Fraser and Tregaust (1986) report that Satisfaction was higher in classrooms characterized by greater Personalization, Involvement, Student Cohesiveness,

1 Although there has been some notable work focussing on the institutional level (e.g. Halpin and Croft, 1963; Pace and Stern, 1958; Stern, 1970), there has been limited studies at the classroom level (e.g. Genn; 1975) and instrument development seems to have focussed on specific environments, in particular medical schools (e.g. Feletti, 1983; Feletti and Clarke, 1981; Marshall, 1978; Wakeford, 1984).

Task Orientation, Innovation and Individualization and that, with other climate variables held constant, Satisfaction was significantly greater in more cohesive and task-oriented classrooms.

However, they note that "...further research is needed before too much confidence is placed in the specific results... It would be desirable to replicate the research with other samples..." (Fraser and Tregaust; 1986, 47-48). They also note that, since pre-tertiary research has revealed that "...student outcomes depend, not only on the nature of the actual classroom environment, but also on the match between students' preferences and the actual environment" (ibid; p. 51), another desirable direction for further research with the CUCEI is "...to replicate this line of research in higher education" (ibid).

With regard to the discussion above, this paper has two aims:-

(a) to provide further validation data for the CUCEI; and

(b) to use the CUCEI to investigate the factors influencing the satisfaction of preservice teacher education students with their learning environments. It extends previous theory and research in this area by examining combinations of "actual" and "dissonance" perceptions and in so doing, identifies different types of students based on these combinations.

Combinations of "Actual Perceptions" and "Dissonance in Perceptions"

One of the features and advantages of the CUCEI is that it allows data to be collected in two forms - actual and preferred perceptions of the learning environment. This allows a measure of dissonance to be obtained. Such dissonance has been used as a measure of person-environment fit in determining student outcomes (Fraser and Fisher; 1983a, 1983b).

One of the problems of considering the dissonance between actual and preferred perceptions alone is that within a group of students whose dissonance is high, there are those who may have either high or low actual perceptions. Similarly, among a group of students whose dissonance is low, there are students whose actual perceptions may be either high or low. In a matrix form, these groups would be

		Dissonance	
		Low	High
Actual Perceptions	Low	A	B
	High	C	D

Each of these groups could well behave differently. A possible "pen-picture" of each group is given below.

GROUP A Low Actual - Low Dissonance

Low expectations matched by low actual perceptions.

This group don't expect much and don't get much. Even though they are not impressed with the environment, there is a low probability of them being influenced by it because they don't expect much anyway. Their levels of satisfaction are likely to be independent of the environment.

This group could be labelled "INDEPENDENTS".

GROUP B Low Actual - High Dissonance
 High expectations not matched by actual perceptions

This group expect a fair bit but don't get it. Like GROUP A, they are not impressed with the environment but there is a high probability of them being influenced by it because they are likely to be disillusioned. Their level of satisfaction in all probability will reflect that.

This group could be labelled the "ACERBICS".

GROUP C High Actual - Low Dissonance

High expectations matched by high actual perceptions

This group expect a fair bit and get it. They are impressed with the environment and there is a high probability of being influenced by it because they are likely to feel an empathy with the environment. Their

satisfaction will most likely reflect that.

This group could be labelled the "EMPATHETICS"

GROUP D High Actual - High Dissonance

Low expectations exceeded by actual perceptions

This group don't expect much but get a fair bit.
They are likely to be most impressed with the
environment and consequently, there is a high
probability of them being influenced by it. Their
satisfaction will most likely reflect that.

This group could be labelled the "IMPRESSEDS".

Although speculative, a possible expectation of how satisfied
these groups would be with their learning environments
relative to each other could be IMPRESSEDS > or = EMPATHETICS
> ACERBICS with the behaviour of INDEPENDENTS being
unpredictable.

Previous theory and research has focussed on those students
whose dissonance has been relatively high or low with the
prediction that the latter would be more satisfied than the
former. The corresponding groups in the matrix above are
Group B, the ACERBICS and Group C, the EMPATHETICS. The
model proposed in the matrix identifies two additional groups
- A, the INDEPENDENTS and D, the IMPRESSEDS.

Other relevant information that is available about the
students is their gender and discipline orientation of their
course. A typical input-process-output research model
summarizing this is shown in Figure 1. Note that the outcome
variable of satisfaction is obtained from the students'
actual perceptions of Satisfaction, one of the CUCEI scales.

Figure 1 somewhere here

Sample and Methodology

The sample consists of 130 teacher education students in 10
classes with 8 lecturers in a large tertiary education
institution in Brisbane, Australia. All students are
involved in a 3 year preservice integrated teacher education
course and are from a variety of content area specializations
("Principal Teaching Areas" or PTAs). These PTAs are
classified either as Arts/Humanities (Art, Drama, English,
Foreign Languages, Music, Social Sciences) (N = 46) or
Science/Technology (Commercial, Home Economics, Mathematics,
Physical Education, Science) (N = 84).

In the semester in which this study was carried out, semester
2 of 1988, the students were enrolled in a compulsory unit
called "Educational Psychology". This is a unit in the
Studies in Education strand of their course. The students
are in their second or third year of their course and have
already completed two foundation units in that strand viz.
"Learners and Teachers" and "School, Community and Society".

In week 1 of the semester involving "Educational Psychology",
students indicated what they hoped would happen in that unit

by completing the Preferred Form of the CUCEI along with information on their age, sex and PTA. In the final week of the semester, students indicated their perceptions of what actually happened in the "Educational Psychology" unit by completing the Actual Form of the CUCEI.

Analysis and Results

(a) Analysis of the CUCEI

1. Description and Reliability of the Scales

Relevant descriptive statistics associated with each scale, reported for all students and also by gender and course, are shown in Table 2.

Table 2 somewhere here

The Cronbach alpha measure of reliability (Cronbach; 1951) was calculated for each scale using both the student and the class as the unit of analysis. Fraser (1985a), although acknowledging the validity of both units of analysis, puts forward a case for the class as the more appropriate unit. Both are reported here. In this study however, the "class" data may be a little questionable because there are only 10 classes. The results and a comparison with already published validity data based on 372 students in 34 classes (Fraser and Tregaust; 1986) is shown in Table 3.

Table 3 somewhere here

The results obtained here and the already published results are very similar with the exception of the Task Orientation scale.

2. Some Characteristics of the Scales

From the large number of comparisons that can be made among the data in Table 2, a set of summary statements about the preferred and actual perceptions for each scale related to the major Presage Variables is given below. Because of the multiple comparisons, only statistically significant levels where $p < 0.01$ are regarded as having any practical significance. Hence, statistically significant differences where $0.05 < p < 0.01$ have been ignored.

All students:-

(i) As a total group of students, there are significant differences between the actual and preferred perceptions on all scales. In all cases, preferred > actual and $p < 0.001$.

Males and Females:-

(ii) There are no significant differences between the preferred perceptions of males and females on any scale with the exception of Personalization (females > males; $p < 0.001$).

(iii) There are no significant differences between the actual perceptions of males and females on any scale.

(iv) There are significant differences between the preferred and actual perceptions of males on all scales except Personalization and Task Orientation. In all other cases, preferred > actual and $p < 0.001$

(v) There are significant differences between the preferred and actual perceptions of females on all scales. In all cases, preferred > actual and $p < 0.001$.

Arts/Humanities and Science/Technology Students:-

(vi) There are no significant differences between the preferred perceptions of Arts/Humanities students and Science/Technology students on any scale.

(vii) There are no significant differences between the actual perceptions of Arts/Humanities students and Science/Technology students on any scale.

(viii) There are significant differences between the preferred and actual perceptions of Arts/Humanities students on all scales except Personalization and Task Orientation. In all other cases, preferred > actual and $p < 0.001$.

(ix) There are significant differences between the preferred and actual perceptions of Science/Technology students on all scales. In all cases, preferred > actual and $P < 0.001$.

In summary, where "Y" means Yes and "N" means No:

All M F A/H S/T

Significantly less than what was expected

- Individualization	Y	Y	Y	Y	Y
- Innovation	Y	Y	Y	Y	Y
- Involvement	Y	Y	Y	Y	Y
- Personalization	Y	N	Y	N	Y
- Satisfaction	Y	Y	Y	Y	Y
- Student Cohesiveness	Y	Y	Y	Y	Y
- Task Orientation	Y	N	Y	N	Y

(b) Major Analysis

1. Rationale for the Analytic Procedure Used

In situations where there are a multitude of independent variables being related to a dependent variable, the tendency is to impose some form of modelling procedure that is strongly parametric. The usual choice is normally a variant of multiple linear regression which attempts to identify significant relationships. The authors previous experience with linear regression and, in particular, the interpretation of interaction factors (Clarke, Dart and Chant; 1988) indicates that because of the complexity of classroom life, such an approach may well be inappropriate. The approach adopted here is that a model of what is happening is built "from the ground up" rather than being imposed at the outset. In similar vein, statistical processes that make as few assumptions as possible about the data are probably more appropriate than those procedures that require specific statistical characteristics of the data. Hence, procedures

that are essentially non-parametric are preferable. Once a model is developed on the basis of a minimal set of statistical assumptions, it may then be appropriate to apply more rigorous parametric procedures by way of complementary analysis.

The steps involved in the approach are

(i) Classify students as INDEPENDENTS, ACERBICS, EMPATHETICS or IMPRESSEDS by a median split on each scale.

(ii) Look for any major effects which could influence how subsequent analysis should proceed.

(iii) Within any "major effect", identify any significant relationships between each of the scales and Satisfaction.

(iv) develop a model from the relationships identified, and
(v) apply any appropriate complementary analysis procedure.

2. Outcomes of the Process

The outcomes of testing for any major effects are shown in Tables 4 and 5. Students are nominated as having high satisfaction if their Actual Satisfaction score is strictly above the median Actual Satisfaction score for all students. They are nominated as having low satisfaction if their Actual Satisfaction score is strictly below the median Actual Satisfaction score for all students. Students are classified by gender and course in Table 4 and the percentage of each subgroup who obtained more than the median Actual Satisfaction score is indicated.

Table 4 somewhere here

For example, the first cell of Table 4 indicates that there are 16 male Arts/Humanities students. 5 of these had Actual Satisfaction scores below the median Actual Satisfaction score and 11 had scores above, a percentage of 68.8%.

Maintaining the categorical modelling approach and consistent with Kennedy's (1988) approach to educational research, the data in Table 4 was analyzed by a logistic regression analysis (Wilkinson; 1988) and the results are shown in Table 5. The latter identifies a significant course effect and Table 4 indicates that it is the Arts/Humanities students who are generally more satisfied than the Science/Technology students. There is no significant gender effect.

Table 5 somewhere here

Because there is a significant main effect for course, subsequent analysis deals with Arts/Humanities and Science/Technology students separately. The relationships between Satisfaction and each of the other CUCEI scales for students in each course are shown in Table 6.

Table 6 somewhere here

This table is quite comprehensive and indicates for each scale the relationship between the actual perceptions and the

dissonance in perceptions for those students who have indicated high or low satisfaction with their learning environment.

For example, with respect to Personalization for Science/Technology students:

- there are 5 students who have "low actual" and "low dissonance" perceptions (INDEPENDENTS); there are 34 ACERBICS (low actual-high dissonance), 22 EMPATHETICS (high actual-low dissonance) and 7 IMPRESSEDS (high actual-high dissonance).

- Of the 5 INDEPENDENTS, 1 is below the median Actual Satisfaction score for all students and 4 are above, the latter a percentage of 80%; the percentage of ACERBICS, EMPATHETICS and IMPRESSEDS who indicate high Actual Satisfaction are 17.6%, 68.2% and 42.9% respectively.

- The expected rank ordering (E) of the groups as predicted on page 5 matches the observed rank ordering (O).

The data in Table 6 was analyzed by a logistic regression analysis and the results are presented in Table 7.

Table 7 somewhere here

This indicates that Satisfaction in Arts/Humanities students is significantly related to Actual Personalization and Involvement along with a statistical Actual x Dissonance interaction on Student Cohesiveness. On the other hand, the Satisfaction of Science/Technology students is significantly related to Dissonance on Personalization, Involvement and Individualization and Actual Involvement.

3. Complementary Analysis

By way of providing a complementary analysis, the data were also analyzed by fitting a simple structural equations model via LISREL (Joreskog and Sorbum; 1988). The scheme of the model is given in Figure 2 and the results of the analysis are presented in Table 8.

Table 8 somewhere here

They indicate that some of the relationships identified in the categorical model re-emerge: for the Arts/Humanities students, the Actual Involvement is significant as is the Actual x Dissonance interaction on Student Cohesiveness. For the Science/Technology students, Actual Involvement is significant and Dissonance on Individualization is approaching significance.

Summary of All Major Outcomes

(a) CUCEI Scales

1. Reliability.

With the exception of the Task Orientation Scale, the reliability of the CUCEI scales matches previously published results.

2. Student Responses to the Scales

- There were no significant differences between the actual perceptions of any sub-groups of students (male/ female, Arts/Humanities-Science/Technology) or in the preferred perceptions (expectations) of any sub-groups of students with the exception that female students expected classes to be more personable than the male students did.

- There were significant differences, consistent across most sub-groups, between the actual and preferred perceptions of students on all scales. Students expected classrooms to be more personable and cohesive, to provide more opportunity for them to get involved in classroom activities, to be better organized, to cater more for student individual differences and to provide them with more innovative and exciting classroom activities.

(b) Major Analysis

- The satisfaction of Arts/Humanities students is significantly related to Actual Personalization and Involvement and Actual x Dissonance interaction on Student Cohesiveness.

- The satisfaction of Science/Technology students is significantly related to Actual Involvement and Dissonance on Personalization, Involvement and Individualization.

- Students can be grouped on the basis of combinations of high and low Actual and Dissonance perceptions to produce groups whose behaviour can be predicted with considerable success.

Discussion of Results

(a) CUCEI

- With regard to the Instrument

With the exception of the Task Orientation scale, the CUCEI scales performed as predicted by its developers. On the whole, reliability outcomes are similar to already published data. The difference in sample sizes and the different types of students in both samples could account for some of the variations. The failure of the Preferred Form of the Task Orientation scale to perform adequately using the class as the unit of analysis may be explained by the small number of classes.

- With regard to students reactions to learning environments

There is one major finding here and it is of significance to teacher educators. Students would like their classrooms to be much better learning environments than they actually are. This finding is consistent with research on the psychosocial characteristics of primary and secondary learning environments (For reviews see Fraser; 1981a, 1985b). Students want their instructors to interact with them in a more personable way, they would like to become more friendly with other students. They would appreciate more opportunity to get involved in classroom activities and would like classroom learning activities to be better organized, to cater more for student individual differences and to be more innovative and exciting. The implications of these student expectations are discussed later.

(b) Satisfaction

The major general outcome here is that, as hypothesized, sometimes it is the actual perceptions of the classroom environment that are important and sometimes it is the dissonance between the actual and preferred perceptions that most influence behaviour. The particular finding here is that Arts/Humanities students are different from the Science/Technology students. Although this difference is a commonly accepted stereotype, its characterization here in terms of student perceptions sets it apart from previous research in this field (Hudson; 1967, 1970).

The most difficult outcome to explain is the statistically significant Actual x Dissonance interaction on the Student Cohesiveness scale for Arts/Humanities students. Table 6 provides an explanation. None of the INDEPENDENTS or IMPRESSEDs on the Student Cohesiveness scale are above the median for high satisfaction. Consequently, the Low Actuals increase markedly from Low to High Dissonance (0% to 63.6%) while the High Actuals decrease markedly from Low to High Dissonance (82.4% to 0%). Hence the significant interaction. In other words, the interaction is a statistical artifact caused by the low numbers in two groups. Within the LISREL framework, the same outcome emerges. However here, the interaction is modelled by an unwieldy set of cross product terms which obscure the simple explanation provided by the categorical model.

The other significant differences however have more substantive explanations. The satisfaction of both the Arts/Humanities and Science/Technology students in the main is related to how person-oriented their classrooms are and how much opportunity there is for them to get involved in the learning activities of the classroom. However, the two groups differ in that Arts/Humanities students respond to what they actually experience in their classrooms irrespective of what they expected to happen while Science/Technology students use their expectations as a yardstick against which to evaluate their learning experiences.

It should be noted that the Personalization outcome for the Arts/Humanities students is bought about in part by the low numbers of INDEPENDENTS. The effect is similar to the Actual x Dissonance interaction on Student Cohesiveness above although not to the same degree. However, this aside, the Arts/Humanities findings are consistent with but not as extensive as those of Fraser and Tregaust's (1986) who, in addition to Personalization and Involvement, found, by using a "...simple correlational analysis" (p. 46), a significant relationship between Satisfaction and Cohesiveness, Task Orientation, Innovation and Individualization.

For Science/Technology students, what is important is the dissonance between their preferred and actual perceptions of Personalization, Involvement and Individualization. There is no corresponding published research on the effect of dissonance on satisfaction at the tertiary level. Existing research focuses on pre-tertiary students (Fraser and Fisher;

1983a, 1983b).

Of interest here is why there is this difference between the Arts/Humanities and Science/Technology students. Some speculations are:

- Arts/Humanities students are "people" individuals while Science/Technology students are "thing" individuals. In this context, "people" manifests itself as the actual behaviour of the lecturers, "thing" manifests itself as the more amorphous institution.

The "people" vs "thing" dichotomy is consistent with the research on the behaviour of field dependence/independence individuals. Arts/Humanities individuals are generally more field dependent than Science/Technology individuals (For a review, particularly as it relates to teachers of Arts/Humanities and Science/Technology content areas, see Witkin, Moore, Goodenough and Cox; 1977) and field-dependents are also more oriented to "people" than field-independents who prefer "things" (For a review, see Witkin and Goodenough; 1977). The focus of Science/Technology students is on the institutional context. Their expectations are of the course rather than the people running it and these expectations provide them with a frame of reference against which to evaluate their experiences.

- The academic quality of the students

Arts/Humanities students in this sample achieve at close to a significantly higher rate than the Science/Technology students. This is shown in Table 9 which summaries the number of students in each course who achieve a 6 or 7 ("high") or 4 or 5 ("low") and also indicates the percentage of "highs"².

Table 9 somewhere here

It is difficult to interpret the finding that high achievers have satisfaction that is related to actual perceptions while low achievers have satisfaction that is related more to dissonance in perceptions. It could be argued, albeit rather speculatively, that high achievement is independent of dissonance because those students are simply "getting on with the job" of learning. They are not being hindered by a set of expectations which could be getting in the way of learning. In the latter situation, energy is used continually making comparisons between what is wanted and what is actually happening, leading to a decrement in achievement.

- The career motivations of the students

A significant number of the Science/Technology students move into teacher education by default - it is the last option available to them after missing out on a variety of other tertiary careers in the Science/Technology field. They have negative feelings towards teaching and the institution. These expectations tend to dominate their involvement with the institution and its courses. Hence, again, the

The final achievement in the unit "Educational Psychology" is on a 7 point scale. However, the lowest rating achieved by

students in this sample is 4 expectations are the yardstick against which learning environments are evaluated.
(c) Analysis Procedure Used

1. Grouping of Students

The grouping of students into INDEPENDENTS, ACERBICS, EMPATHETICS and IMPRESSEDS seems to have been successful in that the theoretical predictions of their behaviour as outlined on page 5 match quite well with the actual behaviour exhibited and summarized in Table 6. The rank order of the satisfaction of the INDEPENDENTS is random and therefore unpredictable while the rank ordering of the IMPRESSEDS, EMPATHETICS and ACERBICS is generally in line with predictions. It is not possible to explore these groups in depth here. They are however worthy of further research.

2. Model Building

The "building a model from the ground up" approach used here, one that makes few assumptions about the statistical characteristics of classroom data, appears to have been successful in the sense of generating a model of classroom behaviour which is not only realistic and comprehensible but also can be complemented by a more strongly parametric modelling procedure. The latter with its built-in statistical demands was not able to map the data as effectively as the categorical model. The generative approach used here is consistent with the authors ongoing development of a realistic approach to understanding classrooms (Clarke, Dart and Chant; 1988).

Implications for Teacher Educators

One of the advantages of focussing on Process Variables as predictors of behaviour is that they are manipulable. If any can be shown to significantly influence behaviour, a change in behaviour can be brought about by manipulating the environment so that students' perceptions change (DeYoung, 1977; Fraser and Deer, 1983; Fraser, Seddon and Eagleson, 1983). This study has identified a number of psychosocial climate dimensions that are related to student satisfaction with their learning environments but has also indicated the complexity of that relationship with respect to students with different content area specializations.

Students generally are expecting more from their own learning experiences. This expectation is important in any educational context but assumes immense significance in a teacher education situation. Students are undoubtedly looking for good models on which to base their own teaching and are looking to the "experts", the teacher educators, to provide these models. This is a realistic and understandable expectation on the part of student teachers. The challenge is there for the teacher educators to answer.

Students in this sample generally have high expectations of teacher education courses but, depending on their content area specialization, may be affected by these expectations in different ways. The recruitment patterns of students into the two content area groups is not likely to change dramatically in the near future. Therefore, induction

programs and early course experiences, particularly for Science/Technology students, need to focus on the development and maintenance of positive perceptions about teaching as a profession and about teacher education courses and institutions.

The transition of Colleges of Advanced Education to University status along with a simultaneous movement to four year degree pre-service teacher education courses and away from the three year diploma courses may help to overcome societal perceptions of such institutions and courses as essentially inferior to other tertiary institutions and courses. However, the ultimate responsibility for teacher education courses lies with the teacher educators. Only they can improve students' perceptions of the quality of teacher education courses by their own performance in classrooms. The message is clear that students want their learning experiences to be pleasant, exciting and challenging - something they can ultimately model in their own classrooms. In addition, teacher educators along with practising teachers have the responsibility of working together to raise the status of the teaching profession as a whole.

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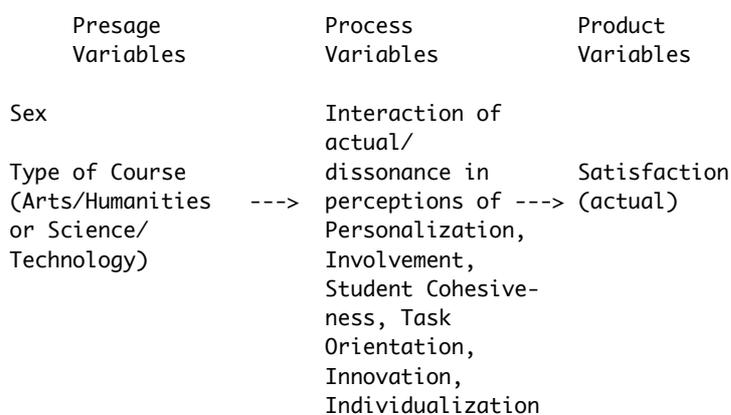


Figure 1
A Model of the Study

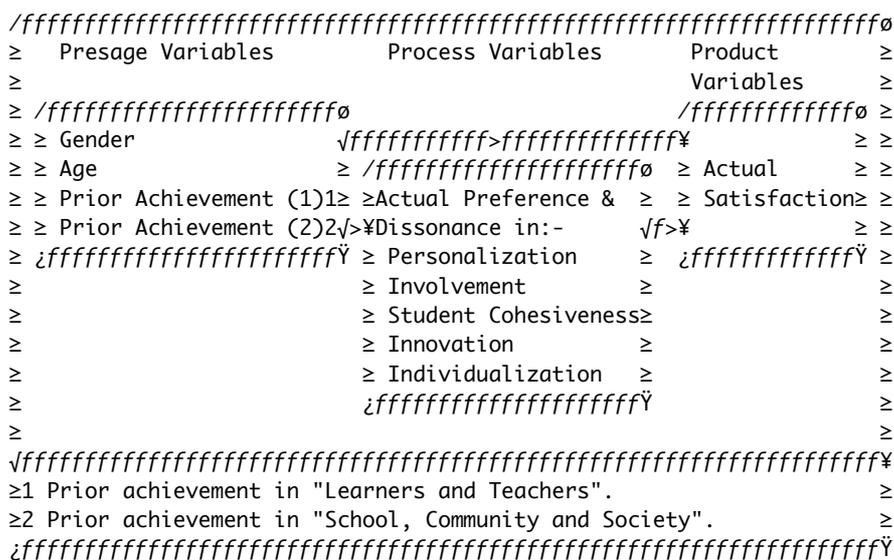


Figure 2.

A Simple Structural Equations Model with Actual Satisfaction as Outcome

Table 1

Description and Sample Item of the CUCEI Scales

Table 2.
 Descriptive Statistics for CUCEI Scales by Gender and Course

	CUCEI Scale															
	≥	≥	≥	≥	≥	≥	≥	≥	≥	≥	≥	≥				
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD				
	Median	Median	Median	Median	Median	Median	Median	Median	Median	Median	Median	Median				
≥ Overall Results	4.01	4.1	0.66	3.60	3.6	0.68	2.89	2.9	0.93	3.62	3.6	0.83	3.84	3.9	0.47	3.12
≥ Arts/Humanities	4.18	4.3	0.58	3.61	3.5	0.75	2.78	2.4	0.98	3.75	4.0	0.91	3.93	4.0	0.44	3.18
≥ Science/Technology	3.91	4.0	0.67	3.60	3.6	0.65	2.94	2.9	0.91	3.54	3.7	0.77	3.79	3.7	0.48	3.09
≥ Male	4.06	4.1	0.51	3.55	3.6	0.63	2.93	2.9	0.87	3.71	4.0	0.72	3.80	3.7	0.49	3.08
≥ Female	3.99	4.1	0.71	3.63	3.6	0.71	2.87	2.9	0.96	3.58	3.7	0.87	3.86	4.0	0.46	3.14
≥ Arts/Humanities	4.41	4.4	0.36	4.14	4.3	0.48	4.00	4.1	0.67	4.43	4.6	0.51	4.06	4.0	0.46	4.05
≥ Male	4.25	4.3	0.41	4.02	4.1	0.41	4.03	4.1	0.55	4.39	4.4	0.46	4.00	4.0	0.40	3.89
≥ Female	4.44	4.4	0.32	4.19	4.3	0.50	3.99	4.1	0.72	4.45	4.6	0.53	4.08	4.0	0.48	4.11
≥ Arts/Humanities	4.41	4.6	0.35	4.24	4.4	0.53	3.97	4.1	0.77	4.47	4.7	0.58	4.04	4.0	0.44	4.19
≥ Science/Technology	4.37	4.4	0.37	4.10	4.1	0.44	4.02	4.1	0.61	4.41	4.4	0.47	4.06	4.1	0.47	3.97
≥ Male	4.25	4.3	0.41	4.02	4.1	0.41	4.03	4.1	0.55	4.39	4.4	0.46	4.00	4.0	0.40	3.89
≥ Female	4.44	4.4	0.32	4.19	4.3	0.50	3.99	4.1	0.72	4.45	4.6	0.53	4.08	4.0	0.48	4.11
≥ Arts/Humanities	4.41	4.6	0.35	4.24	4.4	0.53	3.97	4.1	0.77	4.47	4.7	0.58	4.04	4.0	0.44	4.19
≥ Science/Technology	4.37	4.4	0.37	4.10	4.1	0.44	4.02	4.1	0.61	4.41	4.4	0.47	4.06	4.1	0.47	3.97

Table 4.

Satisfaction1 by Gender and Course

	Course	Total
Male	16	39
Female	30	91
Total	46	130
Male % High	68.8%	
Female % High	66.7%	

≥1 The percentage obtaining more than median satisfaction.
 √ The percentage obtaining more than median satisfaction.

Table 5.

Logistic Regression Analysis of Satisfaction by Gender and Course

Source of Variation	d.f.	Chi-squared	P-value
Gender	1	2.42	0.120
Course	1	8.19	0.004
Gender ~ Course	1	1.94	0.163

Table 6.

Satisfaction1 by CUCEI Scales, Course and Actual-Dissonance Interaction

	DISSONANCE						
	Personalization	Involvement	Student	Task	Innovation	Cohesiveness	Orientation
ARTS	12	5	17	2	22	5	12
HUMANITIES	8	4	2	3	10	7	2
Total	20	9	19	5	32	12	14
% High	57.9%	40.0%	60.0%	41.2%	40.0%	63.6%	40.0%
C	(3,3)	(3,3)	(3,3)	(3,2)	(3,2)	(3,2)	(3,2)

\geq
 \geq IVA = Involvement (Actual) IVD = Involvement (Dissonance)
 \geq
 \geq CA = Student Cohesiveness (Actual) CD = Student Cohesiveness (Dissonance)
 \geq
 \geq INA = Innovation (Actual) IND = Innovation (Dissonance)
 \geq
 \geq IDA = Individualization (Actual) IDD = Individualization (Dissonance)
 \geq
 \geq
 \geq
 \geq For the Arts/Humanities model, the following curvature terms are introduced
 \geq
 \geq
 \geq CA2 = CA \wedge CA CACD = CA \wedge CD CD2 = CD \wedge CD
 \geq
 \geq
 \geq

\geq (ii) Solution: the estimates of the direct effects and their standard errors (in round brackets) are for the \geq standardized solution, based on the correlation matrix. The P-values (in square brackets) for the \geq significance of the direct effects are from the unstandardized solution, based on the covariance matrix. \geq

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Table 9.
 Final Achievement1 by Course

	Arts/Humanities	Sci/Technology	Total
Total	46	84	130
Low, High2	25, 21	59, 25	
% High	45.7%	29.8%	

The percentage obtaining "High" grades of 6 or 7
 Chi-square for course main effect of course
 is 3.24 (1 d.f.), P = 0.07.