

THE

TEACHER

EDUCATION

EXPERIENCE

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by

Howard Thomas

Queensland University of Technology

Abstract:

Recent research on the experiences of first year secondary teacher graduates from the former Brisbane CAE has pointed to differentiated experiences according to the teaching subject area, with the latter affecting the perceived difficulty of, adjustment to, and satisfaction from teaching; problems; and concerns. Mathematics and English student teachers, based on significant differences found between these two groups in the study of first year

teachers, have been chosen to follow through their four years of teacher education and their first year of teaching. Data from the first year of their teacher education experience will be presented.

THE TEACHER EDUCATION EXPERIENCE

Research into the relationship between teacher education and beginning teaching has had several different foci:

- . the degree to which any changes in students' knowledge, skills and attitudes occurring during the period of the teacher education program have continued into the period of teaching (e.g. Zeichner & Tabachnick, 1981);

- . how graduates have viewed the relevance and applicability of their teacher education for their career, and specifically for their first year of teaching;

- . the relative strength of the preservice teacher education program compared with such other influences on teachers as "experiences predating formal training" (Zeichner, 1986: 25), and the impact of experiences in schools to which the teachers are appointed.

Students' views about their preservice education, as revealed by the literature (e.g. Petty & Hogben, 1980), have tended to be consistent:

- . students have preferred what could be called the practical elements;
- . consequently they have also tended to react unfavourably to what is easily called "theory";
- . they tend to be impatient to become involved in what they see as the sole purpose of their teacher education, i.e. teaching in a school.

Some of the more traditional material on teacher education emphasises

- . Lortie: the effects of previous teacher models from the students' own schooling, prior to their preservice training (Lortie, 1975);

- . Zeichner and Tabachnick: students are influenced and changed by their teacher education experiences, but it is likely that many of the attitudes and ideals change within a short period (Zeichner & Tabachnick, 1981);

- . Corcoran: a sense of paralysis grips graduates as they exhibit an inability to easily apply what they have learnt in their preservice

program, and even an inability to recognise the relevance of aspects of that program for their present teaching situation (Corcoran, 1981).

A strong component of research into the beginning teacher has grown from the developmental perspective of Fuller (e.g. Fuller, 1969; Fuller & Bown, 1975), who believed that beginning teachers progressed through a number of stages in their professional experience, each stage being characterised by certain concerns held by the teachers being predominant. Thus beginning teachers moved from survival-based concerns for the self, through concerns for getting the teaching task right, to concerns with the impact that their teaching was having on the students. Such a perspective could easily be viewed as operating separately from the socialisation perspectives concerned with how teacher education students and teacher graduates "learnt" those attitudes and behavioural characteristics that are considered to be at the heart of the profession.

There have been some Australian studies which have looked at what happens to teacher education students as they experienced various components of their course. Petty & Hogben (1980) explored concepts held by teachers and student teachers, finding a consistent strain of the "practical and task oriented" in their defining of school, and low toleration of "theory" when practice is called for. They concluded that "socialization for teaching is largely anticipatory socialization" (Petty & Hogben, 1980: 59). Beasley (1981) found a decline in post-graduate Diploma of Education science students' confidence in their teaching skills after a period of practice teaching. The Professions in Australia Project (cited in Anderson, 1987) compared the socialisation of two groups of science student teachers, one from an end-on course and one from a concurrent course. Apart from other findings, it was concluded that the students in concurrent courses most "came to resemble practising teachers in their beliefs and dispositions" (Anderson, 1987: 56). Carpenter, Hyde and Foster followed groups of primary and secondary education students through their three year course and into their beginning teacher year (e.g. Carpenter, Foster & Hyde-Mullins, 1982).

Both the developmental and the socialisation perspectives have tended to act as if all teachers were the same, and as if all teaching contexts were similar. But research into the experiences of beginning secondary school teachers, six months out of graduation from the then Brisbane CAE (Smith, Cook, Cuddihy, Muller, Nimmo & Thomas, 1991), suggested that:

(a) the "progression" the beginning teachers were making with regard to the Fuller-style concerns differed according to the principal curriculum teaching area the graduates were in;

(b) there was a consistency in this difference at each of the identified self, task and impact concerns stages;

(c) graduate teachers who had prepared for different curriculum teaching areas differentially found their teaching year to that point satisfying or difficult;

(d) the beginning teachers viewed the usefulness of components of their preservice program differently according to the curriculum teaching area they had studied.

This paper will review the major details of those findings, and describe the outcomes of the initial stages of an intended five year longitudinal study of two groups of teacher education students as they experience their teacher education, chosen because of the hypothesised differential socialisation expected to occur during the four years at university, and its attendant consequences during the first year of teaching.

The Experiences of Beginning Secondary Teachers in Queensland

265 beginning teachers who had graduated from the Brisbane College of Advanced Education in 1989, having completed either a three year diploma of teaching or a one year graduate diploma of teaching, responded to a questionnaire in July of their first teaching year. In addition, 62 of these respondents were interviewed. Frequency data provided by the computer analysis of the questionnaires provided the following major findings:

1. Those beginning teachers who had undertaken Commercial Studies, Home

Economics or Manual Arts as their curriculum Principal Teaching Area (PTA) in their preservice course tended to rate their overall adjustment to teaching positively. Art, English, Mathematics and Music graduates tended to perceive their adjustment in less positive terms. A similar sense of a patterned range of responses applied in the degree of overall satisfaction which the teachers claimed they had derived from their year of teaching to that point. English, Mathematics and, not so strongly, Art teachers achieved lesser satisfaction than Commercial Studies, Home Economics and Manual Arts teachers.

2. When relationships were examined between responses to a question asking the beginning teachers to rate the degree to which they believed the components of their preservice course had equipped them well for their role, it was found that those who believed their PTA or co-major had equipped them well tended to experience a lower overall level of difficulty with their first year of teaching. Those teachers who most found the year difficult were the Art, English and Social Studies teacher graduates.

3. Responses to the Fuller Teacher Concerns Questionnaire contained as a sub-section within the total questionnaire revealed a fairly consistent pattern on each of the concern scales derived from it. Thus, as was

reported at the 1991 AARE Conference Nimmo, Smith & Thomas, 1991), "graduates in Manual Arts, Mathematics and Physical Education displayed the lowest scores on both the Self and Impact Scales, with Manual Arts and Mathematics graduates also displaying lowest scores on the Task Concerns scale. Graduates in Art, English, Music and Drama showed the highest levels of concerns on the Task and Impact scales. Art, Music and Drama showed the highest levels of concerns on the Self scale.

This consistent expression of stronger concerns by beginning teachers in certain subject areas compared to teachers in other subject areas could have several origins, one of which could be the nature of the subject matter being taught, in terms of the degree to which teachers were able to be comfortable with their role, with their perceptions of achieved outcomes, etc. Another possible origin of higher concerns could be the nature of the teacher education program which the now graduated teachers had experienced, in particular those components specific to their curriculum areas.

It was therefore decided to follow up the research in two ways:

(a) re-analyse the data from the original questionnaire with regard to beginning teachers who had taken as Principal Teaching Areas in their preservice course two of the subjects which seemed to bring out strong contrasts - English and Mathematics;

(b) begin a study of students who commenced Bachelor of Education study at the Queensland University of Technology in 1992 with the intention of becoming secondary English or secondary Mathematics teachers.

Each of these follow-up activities will now be looked at in turn.

1990 Beginning English and Mathematics Teachers

26 teachers who had taken English as their Principal Teaching Area (PTA) or co-major in their preservice course, and 23 teachers who had taken Mathematics as their PTA or co-major originally responded to the 1990

questionnaire. The SPSS one way analysis of variance program and crosstabulations were used to examine the differences between these two sub-groups, in addition to the frequency data from the total group of respondents to the Beginning Teacher survey.

The following findings came out of this examination:

(a) 65.2% of the Mathematics teachers and 60.7% of the English decided that their experiences so far had been satisfying or very satisfying, providing no significant difference. The larger proportion of Mathematics teachers claiming satisfaction compared to the English teachers may seem to be in contrast to the 34.8% of Mathematics teachers

reporting that their first year of teaching "up to this point" had been difficult or very difficult, compared to 46.4% of the English teachers making that report.

(b) Both of the sub-groups of beginning teachers reported that they contributed more often to discussion at (subject) department meetings than at whole staff meetings. 64.3% of the English and 65.2% of the Mathematics respondents answered that they "seldom" contributed to staff meeting discussion, whereas 3.6% of the English and 13.0% of the Mathematics teachers answered that "seldom" contributed at department meetings. Beginning Mathematics teachers portrayed a higher degree of involvement in school committees than did the beginning English teachers.

(c) When asked to indicate time spent on lesson planning each day, and on marking per week, 68.9% of these English teachers claimed they spent more than 2 hours a day planning lessons compared with 65.2% of the Mathematics teachers who claimed they spent less than 2 hours a day on lesson planning. 57.1% of the English teachers indicated they spent more than 3 hours a week marking, compared with 65.2% of Mathematics teachers indicating spending less than 3 hours a week marking. Perhaps it is understandable that more Mathematics teachers participate in the work of school committees! However it is only the data on time spent on marking which shows a statistically significant difference between the English and the Mathematics teachers. And the standard deviation for the English teachers is more than twice that of the Mathematics teachers, suggesting that there is much variation amongst the English teachers in those hours spent. Conversely there are 13% of the Mathematics teachers who claim they spend between 5 and 6 hours planning lessons.

(d) The beginning teachers were asked to indicate the extent to which a number of factors had "presented problems", and also complete the Fuller-based Teacher Concerns questionnaire. Those items from both of these areas for which the differences between the two groups were found to be statistically significant are shown in Table 1.

Table 1

Results of One Way Analyses of Variance: English PTA and Mathematics PTA Groups

Variable	English PTA		Maths. PTA		F Ratio	P
	Mean	S.D.	Mean	S.D.		
. Problems with tiredness	25.04	10.36	17.77	8.15	7.26	.01
. Problems with						

feelings of inadequacy	21.81	9.41	16.43	6.43	5.37	.02
. Concern with doing well when a supervisor is present	3.44	1.25	2.43	1.08	9.16	.00
. Concern with too many non-instructional duties	3.04	1.18	2.39	.89	4.58	.04
. Concern with feeling adequate as a teacher	3.33	1.30	2.52	1.12	5.47	.02
. Concern over working with too many students	2.85	1.38	1.96	1.15	6.10	.02
. Concern over guiding students toward intellectual and emotional growth	3.74	1.02	2.91	1.04	8.01	.01
. Concern over whether each student is getting what he/she needs	3.78	.89	3.17	.94	8.01	.02

However, in addition, 26 % of the Mathematics teachers report major or very severe problems in obtaining suitable teaching resources, compared to 14.2% of the English teachers; and 30.4% of the Mathematics teachers claim major or very severe problems with motivating students, compared to 17.8% of the English teachers. These two problems are probably linked to each other.

It seems that underlying the sense of the teaching year being a difficult one for the first year teacher in both of these subject areas is a continuing feeling of tiredness, and the challenge to the teacher's professional and perhaps personal self-esteem of such self-questioning as

- . "Am I really doing any good? Can I really teach?"
- . "Is what I am doing with my students the right thing?"
- . "Is what I am doing achieving what it should be achieving, especially for the students as individuals?"
- . "Am I doing things in a way which will be approved of by those who count?"

A large proportion of the English teachers may well be having this combined physical and mental assault exacerbated by the time that they find they need to devote to their lesson preparation and marking, with a smaller proportion of the Mathematics teachers also finding they need to devote much time to the planning of lessons, and the finding of suitable

resources, before they are satisfied with them. 26% of these Mathematics teachers found the locating of such teaching resources to be a major or very severe problem.

(e) When the concerns items are grouped to allow the sub-scales of concerns to be calculated, a comparison can be made of where the English

teachers and the Mathematics teachers stand, as groups, with regard to the Task, Self and Impact Scales. This information is presented in Table 2.

Table 2

Means and Standard Deviations of the Task, Self and Impact Scales of Beginning English and Mathematics Teachers, on T.C.Q.(Fuller, 1969)

Scale	English (N=26)		Mathematics (N=23)		F Ratio	P
	Mean	S.D.	Mean	S.D.		
Task	14.40	3.65	12.04	3.68	4.94	.03
Self	16.11	4.61	12.83	4.04	6.97	.01
Impact	18.27	3.82	15.65	4.30	5.09	.03

A consistent trend can be seen for those teachers whose PTA had been English to display higher levels of concern on all three sub scales measured by the T.C.Q. It should be noted that the differences between the two groups on all of the sub-scales was significant to the .05 level.

1992 First Year Bachelor of Education English and Mathematics Students

The Queensland University of Technology no longer has the three year Diploma of Education course for preservice teachers. All teacher education students complete 6 discipline subjects and two education subjects during their first year. The education subjects are Education in Context and Adolescent Development and Human Relationships. Curriculum subjects related to their two chosen teaching areas begin in their second year, during which year there is also a two week period of field experience in a school.

This year Graham Nimmo, David Smith and I commenced what was planned to

be a five year longitudinal study of English and Mathematics Bachelor of Education students who commenced their studies in 1992. The aims of the study which were relevant to this first year of the students' course were:

1. Is the teacher education experience of English and Mathematics students significantly different?
2. If so, to what extent is that difference due to the "culture of teaching" associated with each of those curriculum areas, established through
 - (a) a different conception of the subject communicated through the student teachers' program?
 - (b) a different conception of aims and objectives for each of the curriculum areas?

Plans were to administer a preliminary questionnaire to the students before they commenced any studies at the start of first semester, and a second questionnaire towards the end of their second semester. This latter questionnaire would be followed up by interviews with a randomly selected proportion of the students from each curriculum area. This second questionnaire was administered in October, but the interviews have not yet been conducted, for reasons to be given later.

(a) February: the Preliminary Questionnaire

In February, as well as collecting personal data on the respondents, the questionnaire sought to obtain some picture of what already-held viewpoints and experiences students were bringing into their teacher education program, and specifically their views as to:

- . why they liked English/Mathematics, and why they had chosen to study the subject "as a teaching area at university";
- . what the value of including English/Mathematics "in the secondary school curriculum" was;
- . in what ways English and Mathematics were like or different from each other;
- . the appropriateness of certain goals, teaching methods or learning experiences, and interaction processes for English/Mathematics "in secondary school".

In addition, their own experiences in the subject at secondary school were briefly probed.

53 questionnaires were received from the English students, of whom 18.9% were male and 77.1% female, and 33 from the Mathematics students, with 60.2% from male and 34.4% from female students. At the time this was thought to be the full group for each of those discipline areas, of the

first year B.Ed. students.

Looking at responses given on the open-ended questions:

a. 45.5% of Mathematics students said they chose to study maths because of interest or enjoyment, compared to 52.8% saying that for English.

b. 28.3% of English students claimed they chose to study English because they would like to teach English or they believed they would make a good teacher, but no Mathematics students said that with regard to maths. However, 9.1% indicated they had previously taught or tutored maths and had enjoyed it.

c. English students gave far more responses for ways in which their subject is like the other. 30% of Mathematics and 26% of English respondents said that both require thought and work. 28% of English students said there are laws, formulas, problem solving, etc. in both, but no Mathematics students see this similarity.

d. In looking at differences between the subjects, both groups wrote about one answer or correct answers in Maths - 47.2% of English and 42.4% of Mathematics students. 60.4% of English students said that English allows one to give opinions/be creative/express ideas, and 21.2% of Mathematics students claimed that opinion is not part of maths.

e. For the qualities of their English or maths school teachers that appealed to them, 32.1% of the English and 18.2% of the Mathematics group said their teacher had made the subject interesting or enjoyable. 43.4% of English students said that the teachers were open to others' opinions or were broad-minded, but this kind of response did not appear with the Mathematics people. 18.9% of English and 27.3% of Maths respondents talked in terms of teachers relating to students - but it was "ability to relate to students" for maths compared to "friendly/easy to approach" for English. Both talked about being helpful - 24.5% for both groups.

When asked to what degree English or Mathematics "in secondary school [is] a subject in which" certain items are appropriate, the responses are as shown in Table 3, using a 5 point scale from very appropriate to very inappropriate.

The aspect on which both groups of students most agree for their respective subjects is that a vocational emphasis is important, and on only one other item is there no significant difference. The impression given is of English preservice teachers seeing in their curriculum subject less of an emphasis on content, set sequencing, and things being correct, and more of an emphasis on the personal, values, diversity,

8	a range of student opinions should be accepted?	4.6604	3.2500	.000
9	a diversity of student responses should be expected and accepted?	3.4063	.000	4.7358
10	it is important to cater for individual student differences?	4.2813	.029	4.6604
11	it is more important to be interested in the subject than to achieve highly in it?	3.7925	3.5455	.223
12	it is possible to achieve highly even though a student may not be very interested in the subject?	3.8750	.037	3.4151

Even though the acceptability of each learning experience item, as judged by the means, is reasonably high, with the exception of "Reading around the class from a (text)book", Table 4 reveals a marked distinction in the way in which these first year teacher education students perceive the appropriateness of certain learning experience formats for the subject they will be teaching. The use of discussion, projects, and videotapes are those with the strongest differences, while problem-solving and lecture-style presentation being most perceived as appropriate for English and Mathematics. Mathematics students are not at all keen on reading round the class, and only one Mathematics student claimed that such an activity had been "primarily used in Mathematics classes you were in at secondary school". By contrast, 32 of the 53 English respondents claimed that reading around the class had been used in English classes at school.

Other major contrasts in the students' experiences in their chosen teaching subject at school were in the use of a videotape (34/53 English students compared to 2/33 Mathematics students), and individual or group projects (42/53 English students compared to 7 Mathematics students).

Table 4

Means and Levels of Significance (.05 level)
of Appropriateness of Certain Teaching Methods

for Teaching the Students' Subject Area
in Secondary School

		Mean	Sig.
English Maths			
1 Teacher lecture-style presentation 212		3.5283	3.8125 .
2 Teacher-directed question and answer session	3.9623	4.2424	.087
3 Reading around the class from a (text)book	2.8868	1.8750	.000
4 Use of a videotape 2.5313 .002			3.3019
5 Small group discussion 3.4545 .000			4.4528
6 Whole class discussion 3.9394 .007			4.4350
7 Individual working on set exercises	3.8491	4.2188	.052
8 Educational excursion 3.6226 3.1250 .041			
9 Individual or group projects 000		4.4231	3.7419 .
10 Group problem-solving 4.3019 4.1212 .338			

(b) October: The Second Questionnaire

Two problems arose when the second questionnaire was administered towards the end of second semester. Because of the procedure for obtaining students, the respondents in October were not exactly the same group as they had been in February. Half of each subject group were different. This means that the longitudinal nature of the research project had to be abandoned (at least to this point). And the number of Mathematics

students has at present been reduced to just 13. This latter situation makes for difficult statistical analysis to be drawn with regard to the Mathematics group, and in comparison with the English students. Respondents were not randomly selected, but were those who attended class on a particular occasion. This was the same procedure as used for the February questionnaire. Some of the results across both of the student populations suggest that they were no less representative than the groups in February, but it needs to be said that they were not randomly representative.

However, duly recognizing this, analysis has been made of the results of the second questionnaire, which probed the experiences in their university classes during 1992, placing a greater emphasis on the classes associated with the curriculum subject for which they were preparing to teach [termed in the questions "discipline (Mathematics/English) subjects"]. In addition, students were questioned as to any changes to the way in which they viewed the nature of their discipline subject.

Table 5 shows the degree of "very great" and of "great" relevance which students ascribed to the subjects they studied, relevance to their teacher education course and relevance to themselves as teachers of Mathematics or English. The students' extent of relevance were expressed on a 5-point scale.

Table 5

Perceived Relevance of Subjects Studied During
First Year at University -
% for Of Very Great and of Great Relevance

	Mathematics N=13		English N=44	
	For you as ed. course	For teach. Eng teacher	For you as ed. course	For Math teacher
. Discipline subjects	68.2 (mean:3.80)	79.5 (mean:4.18)	46.2 (mean:3.70)	77.0 (mean:4.15)
. Education in Context	70.4 (mean:4.02)	54.5 (mean:3.59)	46.2 (mean:3.54)	61.6 (mean:3.62)
. Adol. Develop. & Human Rel'ships	75.0	61.3	38.5	46.2

in Context	97.7	4.6	43.2	70.4	69.3	7.7	45.5	48.5
. Adol.Dev. & Human Rel'ships	84.1	36.3	56.8	52.3	76.9	7.7	53.9	48.5

Made Aware of Views of Fellow Students	86.3	60.3	56.8	79.6	53.9	61.6	38.5	46.2

It would appear that wherever English students are located, issue kinds of topics are more likely to emerge in conversation or within class than

they are with Mathematics students. Paralleling this, lecturers and tutors in English subjects are more likely to reveal views associated with a philosophy of life or about society and politics than are Mathematics lecturers and tutors. 53.9% of the Mathematics students said they were made aware of "to no extent" or "to little extent" the views of their maths lecturers or tutors about a philosophy of life, and 76.9% about political or social views "to no extent" or "to little extent". Views overall about education were less likely to be communicated in the discipline subjects or classes than in the education classes. And the two education subjects provided opportunities for philosophies of life and political and social views to be apprehended.

The differences between the responses of the English and the Mathematics students that were statistically significant at the .05 level for the above items were:

- . discipline lecturers' views about a philosophy of life (.016);
- . discipline lecturers' political or social views (.000);
- . fellow students' political or social views (.022).

Another aspect of university class experiences relates to the interaction between lecturers or tutors and students, and the relationships and acceptance expressed. Students were asked the extent to which lecturers and tutors showed an interest "in you as an individual?...shown an interest in what they are teaching?...been accepting of student opinions?...been accepting of opinions differing from their own?", using a 5-point scale. The results for the "to a very great" and "to a great" extent are shown in Table 7. The English subject lecturers are portrayed as showing the

least interest in the students as individuals, but the Mathematics

subject lecturers are perceived to show the lowest interest in what they are teaching, and to be least accepting of student opinions, and of differing student opinions. The Adolescent Development and Human Relationships lecturers/tutors were perceived by both groups of students to be highest in accepting student opinions, and accepting differing opinions. However, differences between the responses of the English and the Mathematics students were statistically significant (at the .05 level) only with regard to discipline lecturers showing an interest in what they were teaching (.025) and discipline lecturers accepting student opinions (.012).

Students were asked if they had changed their views "as to what the nature of [their discipline subject] is over the course of 1992". 47.2% of the English students indicated that they had, and 23.1% of the Mathematics students. 13 out of those 20 English students who had changed their mind did so because they were now looking for, and seeing, far more breadth and depth to the subject than they had previously thought of it, making it generally a more diverse and complex subject. The reasons given for these changes occurring related to:

- . the way in which the discipline subjects were conducted;
- . the actual subject content they had to deal with;
- . the lecturers or tutors who taught them; and
- . the very fact of studying these subjects at university.

For the Mathematics students who changed their mind, one reason from each of these above areas was provided.

And yet, when presented with the same question as appeared on the preliminary questionnaire, as to the appropriateness of various types of goals for their subject areas, there were no great changes revealed. A smaller percentage of the Mathematics students believed that "it is important to follow a particular sequence in content learning", and slightly more English students considered it more important to be interested in the subject than to achieve highly in it. Otherwise the results from October are very similar to the results from February. However it must be stressed that, in spite of intentions, only approximately half of these groups were respondents for both of the questionnaires.

Three questions specifically focussed on teaching methods and styles of the discipline subject lecturers, and on the atmosphere of classes in those subjects. Table 8 provides a comparison of choices students from the two groups made on descriptions of teaching styles. This table reveals that students perceived the English lecturers to be more

Table 7

Perceived Interest and Acceptance
Shown by Lecturers and Tutors -
% for To a Very Great and To a Great Extent

	Discipline subject lecturers	Education in Context lecturers/	Adol. Develop. and Human Rel. lecturers/ tutors
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English:

. shown an interest in you as an individual	36.4 (mean:3.20)	61.4 (mean:3.86)	54.6 (mean:3.77)
. shown an interest in what they are teaching	95.4 (mean:4.41)	90.9 (mean:4.48)	79.5 (mean:4.19)
. been accepting of student opinions	75.0 (mean:4.02)	77.3 (mean:4.07)	84.1 (mean:4.25)
. been accepting of opinions differing from their own	65.9 (mean:3.77)	70.4 (mean:3.77)	86.3 (mean:4.23)

Mathematics:

. shown interest in you as an individual	61.6 (mean:2.62)	46.2 (mean:3.45)	46.2 (mean:3.55)
. shown an interest in what they are teaching	53.9 (mean:3.54)	61.6 (mean:4.00)	69.3 (mean:4.00)
. been accepting of student opinions	38.5 (mean:3.23)	53.9 (mean:3.91)	61.6 (mean:4.00)
. been accepting of opinions differing from their own	38.5	46.2	61.6

(mean:3.15) (mean:3.73) (mean:3.91)

Table 8

% of Cases Items Chosen to Describe Teaching Styles
of Discipline Subject Lecturers

	English (N=44)	Mathematics (N=13)
(a) expository (i.e. tending to lecture)	79.1	69.2
(b) interactive (i.e. encourages and uses student responses)	60.5	30.8
(c) theoretical (i.e. seems to favour theory rather than practice)	44.2	76.9
(d) encouraging of student inquiry	53.5	30.8
(e) providing flexibility in the program	27.9	7.7
(f) providing individual assistance	39.5	46.2
(g) providing useful feedback from your work for assessment	55.8	23.1
(h) subject rather than student-oriented	51.2	69.2

interactive and encouraging of the students, though the Mathematics lecturers provided more individual assistance, presumably because of the attention given to working out of examples and the use of weekly exercises in many of the maths classes. Mathematics lecturers were chosen by many to be described as theoretical.

In indicating what teaching methods had been used in their discipline subjects, 61.4% of English students claimed that small group discussion was used very frequently or frequently, compared to 23.1% of the Mathematics students, while 56.8% of the English students compared to 15.4 % of the Mathematics students claimed that student seminars were used very frequently or frequently. Audio-visual media were claimed by 15.4% of the Mathematics students to be used very frequently or frequently, while such media were seen to be used very frequently or frequently by 65.9% of English students.

Finally, students were provided with a large number of words from which to choose those "which in general best describe the way in which class sessions are conducted, or the atmosphere in those sessions", in their discipline classes. Observations which can be made about those words selected by students are:

. No Mathematics students chose the following words which were chosen by English students: warm (22.7%), welcoming (36.4%), accepting (22.7%), inclusive (27.3%), free flowing (31.8%), irrelevant (13.6%), personal (20.5%), aloof (4.5%).

. No Mathematics student chose any words not chosen by English students;

. The biggest differences between the groups' choices were for:

thought-provoking - 65.9% English, 30.8% Mathematics

lighthearted - 34.1% English, 7.7% Mathematics

interesting - 70.5% English, 53.8% Mathematics

repetitive - 30.8% Mathematics, 20.5% English

formal - 46.2% Mathematics, 20.5% English

relevant - 50.0% English, 30.8% Mathematics

inspiring - 29.5% English, 15.4% Mathematics

involving - 31.8% English, 15.4% Mathematics

The impression is given of the English students having experienced a more positive atmosphere in their discipline subject classes, not quite so centred on the requirements of content to be learnt per se, of feeling that they were being made to be a part of what was happening and being dealt with. There were not all positive responses from the English students, however, with 27.3% of "boring", and 20.5% of "plodding", and 15.9% of "slow".

The open-ended questions gave students the opportunity to comment on any of their answers to the closed-structure questions, and also to explain the effect of the various assessment methods which were used in their discipline subjects. Without having had time to process all of these comments, it certainly becomes clear that students responded in differing ways to the teaching methods being used by their lecturers and tutors, responded in differing ways to the subjects themselves, and saw differing values in the procedures used to assess them. Discussion situations were indicated as being overall the most suitable for much of the kind of work that English-related subjects involved, and two students claimed that "discussion of a problem was most useful" in the maths classes. English students saw the value and useful role of audio-visual media for their classes, particularly in lectures. 7 students suggested that different methods were needed to do different things in their classes. We therefore perceive variety in students' learning styles wanting variety

in teaching/learning experiences, and this conclusion is reflected in the way in which each of the assessment techniques is seen as having particular value in achieving particular end-points. English students commented on the good diversity there was in the assessment, though people recognised some of the disadvantages of or weaknesses in various assessment methods. Both English and Mathematics students commented on examinations having the effect of encouraging continued attendance at lectures, and the perception that "exams keep you working".

Conclusions

Having established through a previous study that secondary teachers of different subjects experienced varying degrees of difficulty, confronted varying problems, and held varying concerns during their first year of teaching, and that there were particular significant differences in the responses of English and Mathematics graduates to beginning teaching, the researchers set out to use a longitudinal study to seek answers to the following questions:

1. Is the teacher education experience of English and Mathematics student teachers significantly different?

2. If so, to what extent is that difference due to the "culture of

teaching" associated with each of those curriculum areas, established through

(a) a differing conception of aims and objectives for each of the curriculum areas?

(b) different teaching/learning strategies advocated as appropriate for each of the subject areas?

(c) different assessment techniques advocated as appropriate for evaluating student learning outcomes for each of the curriculum areas?

(d) different resources advocated as appropriate for each of the curriculum areas?

3. Do prospective English and Mathematics teachers prepare for their first teaching appointment in different ways that become significant for the nature of their experiences as first year teachers?

4. What are the appropriate ways in which to compare the experiences of first year English and Mathematics teachers that become significant for understanding differences to the beginning of their careers?

For the first year of the proposed five year study, only questions 1 and 2 (a) and (b) could be begun to be studied. So far this has been done through the use of two questionnaires. In moving towards answers to these questions that are appropriate for this stage of the research, at the end of the students' first year of a four year preservice Bachelor of

Education degree, the following can be said about the students' teacher education experience:

a. Students enter their course holding views of the curriculum subject they will be teaching such that they see English and Mathematics as having different aims or being of a different nature. Mathematics appears to be viewed at that stage, by the future maths teachers, as more structured, more content-oriented, and less concerned with the person and values than the way in which English is viewed by the future English teachers.

b. These students enter their course believing that certain teaching methods are more suited than others for teaching their respective subjects, with small group discussion, use of videotape, and projects being significantly more advocated by English than by Mathematics students

c. These first year English and Mathematics student teachers have had experiences through being taught in their subject at school, which are markedly different between the two subjects. The degree to which those experiences of their own secondary schooling will provide a standard or measure of the way those subjects should be taught, and any possible conflict with teaching strategies advocated during their teacher education course, remains to be seen.

d. Having nearly completed a year of their university course, but before arriving at the stage of having to examine and plan for teaching activity, the English and Mathematics students have already experienced variety within their subjects.

(i) English students generally ascribe greater relevance to the subjects they have studied than do the Mathematics students, except for Education in Context, though the difference between the two groups was

only statistically significant (at the .05 level) for the relevance of Adolescent Development & Human Relationships to their teacher education course.

(ii) English students have become more aware of their discipline subject lecturers' views on a philosophy of life, and social or political views, and their fellow students' social or political views, than have the Mathematics students, the differences being statistically significant in each case. This may reflect the personalities and teaching styles of the relevant lecturers; it may reflect the looser boundaries between areas of study or between intellectual subject areas and life matters, as held by English lecturers; or it may reflect the nature of English and Mathematics as areas of intellectual inquiry. Whatever the case, English students would appear to be receiving a more "diversified" educational experience than their Mathematics counterparts, and also receiving the

perception of English as a more complex subject area than Mathematics students are receiving about maths.

(iii) Close to half of the English students have changed their mind as to the nature of English, with their new conceptions representing a broader, more complicated and diverse view, with greater analysis and reasoning being involved, and more of the individual him/herself being part of the subject. However there has not been any real change in the way in which either the English or the Mathematics students speak of the appropriateness of certain aim-type statements for their respective subjects. The significant differences that existed at the beginning of the university year, before classes began, still exist. It must be remembered, however, that these students have not yet had any classes on the teaching of their discipline in school.

(iv) English students described the teaching styles of their discipline subject lecturers as being more interactive and more encouraging of student inquiry, as well as being expository, than did Mathematics students, who saw their discipline lecturers as strongly theoretical and expository, though providing individual assistance. Small group discussion had been used much more often in the English subjects than it had been in maths subjects, as were student seminars and audio-visual media. The atmosphere of their discipline subject classes were described by English students in more personal and involving terms than Mathematics students described their maths classes. Each of these aspects, if impacting on the students in a modelling fashion, and if carried through into their own ways of teaching, would present a challenge for the English teacher, and possibly bring a concern for the degree to which the subject was meeting the needs of the school students.

(v) English students perceive their discipline subject lecturers as showing more interest in what they are teaching, as well as being more accepting of student opinions, than do Mathematics students, the differences being significant. This may be setting the basis for the English students seeing teaching of their subject as needing to personally involve them more, as well as not being taught in isolation from school students and their opinions, both of which could make English teaching more challenging.

So far, then, English student teachers in their first year of university are being presented with ways of teaching the subject in the university context that are different to those presented to Mathematics students, and are having their conception of the nature of their curriculum subject

made more complex and often diffuse as to where it starts and finishes. Both English and Mathematics students are having the subject-appropriate aims they came into their teacher education course with reinforced.

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