

Student Teachers' Feelings of Preparedness to Teach*

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A teacher's judgement of her or his ability to accomplish a certain level of teaching performance may be one cognitive factor in a reciprocal deterministic model of behavioural functioning as described in social psychology. Student teachers' feelings of preparedness may influence their ability to perform teaching tasks. According to this research, student teachers' feelings of preparedness to teach increased significantly in a one-year teacher education program. In some aspects—classroom management and instructional planning—there were greater increases than in others—questioning, motivation, record-keeping, and promotion of self-discipline, perhaps because the program's brief field experiences emphasize "survival." Certain subgroups of student teachers, probably because of prior experiences of teaching, initially felt more prepared to teach than others. From a reciprocal deterministic perspective, if student teachers see their program as likely to enhance performance, they may teach more confidently, secure pupil receptiveness, and further augment their confidence.

La façon dont un enseignant juge de ses aptitudes pédagogiques constitue peut-être un facteur cognitif dans le modèle réciproque-déterministe tiré de la psychologie sociale. Le fait qu'un étudiant-maître se sente prêt à enseigner pourrait donc avoir une influence sur son aptitude à mener à bien ses tâches pédagogiques. D'après une recherche menée dans le cadre d'un cours obligatoire d'un programme de formation des maîtres, le sentiment d'être prêt à enseigner augmentait nettement durant le programme d'un an. Ce sentiment augmentait plus nettement pour certains aspects—gestion de la classe et planification de l'enseignement—que pour d'autres—aptitude à poser des questions, motivation, consignation des résultats et promotion de l'autodiscipline—et ce, peut-être en raison du fait que les brèves expériences sur le terrain comprises dans le programme mettaient l'accent sur la "survie." Certains sous-groupes d'étudiants-maîtres, probablement à cause de leurs expériences d'enseignement antérieures, se sentaient, au point de départ, mieux préparés à enseigner que d'autres. Si les étudiants-maîtres ont le sentiment que le programme est susceptible d'améliorer leur rendement, ils enseigneront avec plus d'assurance et réussiront à bien se faire accepter par les élèves.

"All set for the practicum?" "Are you looking forward to the practicum?" Pre-service teachers display responses from noisy and emotional to controlled

* The author acknowledges support from the Centre for the Study of Teacher Education, Faculty of Education, University of British Columbia.

and subdued as they prepare for school experience. Some radiate confidence and enthusiasm; others express dramatically their fears, worries and problems. Still others are quiet, either confident and wishing to avoid undue alarm or perhaps beset by anxieties they do not wish to disclose. One wonders how far these behaviours are outcomes of student teachers' feelings of preparedness to teach. How might these feelings change with greater knowledge of teaching and more classroom experience? To believe that one is well prepared to teach may be as important an antecedent of successful teaching as any acquired credential. This study examines self-estimates of preparedness to teach from the premise of Bandura's (1986) well-developed efficacy theory as applied by Ashton and Webb (1986) to teaching. More specifically it links self-estimates of preparedness for teaching with the concept of personal teaching efficacy.

LITERATURE REVIEW

A recent search of the literature yields nothing about student teachers' feelings of preparedness to teach and very little on confidence in ability to teach. Writers generally claim that it is important to feel well prepared and to be highly motivated to perform a task. Even a poet may petition a muse. My research investigates perceptions of preparedness to perform teaching behaviours but does not measure these behaviours directly.

Self-efficacy is a central motivational concept in current psychological theory. Ashton and Webb (1986, p. 155) think it has the potential to link ideas on intrinsic motivation, notions of personal causation, attribution theory, and expectancy theory in a comprehensive motivational theory. All four theories, like self-efficacy, highlight the importance of the individual's personal control or power to shape events. Deci (1975) found that intrinsic motivation is reduced when one is driven by external events and denied choices. DeCharms (1976) showed that the root of motivation is personal causation—originating action and producing change in the environment. Weiner (1979), in attribution theory, argues that motivation increases when a subject attributes her success to ability and effort, and decreases when she attributes failure to lack of ability. Ability and effort are within oneself and, in the case of effort, more controllable than such external factors as luck or task difficulty. Dusek, Hall and Meyers' (1985) expectancy theory defined the reciprocal relationship between teacher expectations of pupil success and pupil effort and subsequent achievement. Each factor enhances or augments the other, they wrote. The teacher, in expecting pupil success, and possibly in being more prepared to ensure it, is more likely to secure it. The pupil, in succeeding, contributes to the teacher's sense of efficacy, of being able to control pupil learning—all of which illustrates reciprocal determinism (Bandura, 1978).

Reciprocal determinism¹ provides a richer, more complex and yet more plausible explanation of human behaviour than either the simpler view that behaviour is determined jointly by the personal characteristics of the individual and his or her environment, or the view that it is determined by the effect of the interaction between personal factors and the environment. Social learning theory provides a reciprocal deterministic explanation of events in which each of three components, behaviour, internal personal factors, and environmental conditions plays a role in determining each of the others. Behaviour is jointly determined by one's personal characteristics and one's environment; one's personal characteristics are shaped in relation to one's behaviour patterns and environmental conditions, and, in turn, environmental conditions are modified by both one's behaviour and one's personal dispositions. As Bandura (1978, p. 345) states, "from the social learning perspective, psychological functioning involves a continuous reciprocal interaction between behavioral, cognitive² and environmental influences."

A reciprocal deterministic framework, I contend, allows us to reflect on the complex relationships among teaching behaviours, a teacher's personal dispositions—of which feeling prepared would be one—and the educational environment in which the teacher works. Illustrating this with an educational example, B (a teacher's behaviour towards students) is a product of P (her or his established personality characteristics) and of E (environmental factors). Examples of E would include school organizational patterns, the characteristics and size of her or his class, and perhaps wider community influences. At the same time, P (for instance, her or his good will, cheerfulness or feelings of being able to succeed) is affected by E and by B (ongoing behaviours that contribute to long-lasting personal dispositions). Finally, E (the school environment, perhaps its formality, control structures or businesslike operation) is altered by P (the personal disposition of the teacher) and by B.

Perceived self-efficacy, which Bandura (1986, p. 391) defines as "a judgment of one's capacity [at least partially, one's preparedness] to accomplish a certain level of performance," is an important individual personal characteristic or disposition. Efficacy expectations are one part of Bandura's two-component efficacy model. The other part is outcomes expectations. Through outcomes expectations (Bandura, 1977, p. 193), one understands that a particular course of action will produce certain outcomes, whether or not one can perform the necessary activities oneself (efficacy expectations). Bandura (1986) observes that "individuals can believe that a particular course of action will produce certain outcomes, but they do not act on that outcome belief because they question whether they can actually execute the necessary activities" (p. 392). They may question their preparedness to carry out these activities.

Ashton and Webb (1986, p. 4) apply Bandura's theory to teaching, explaining outcomes expectations as teaching efficacy, that is, "teachers' expectations that teaching can influence student learning." Efficacy expectations are labelled personal teaching efficacy or "individuals' assessment [sic] of their own teaching competence." I suggest estimates of preparedness to teach are "self-assessments of teaching competence."

Two Rand Corporation studies (Armor et al., 1976; Berman, McLaughlin, Bass, Pauly, & Zellman, 1977), which measured efficacy as a total score on two Likert-scale items, distinguished between outcome expectations and efficacy expectations of teaching. The items were:

1. When it comes right down to it, a teacher really can't do much because most of a student's motivation and performance depends on his or her environment.
2. If I really try hard, I can get through to even the most difficult or unmotivated students.³

Later research (Ashton, Olejnic, Crocker, & McAuliffe, 1982) showed the two items were not significantly correlated and confirmed the distinction between the outcome expectation of the efficacy of teaching (Rand 1 efficacy) and the teacher's assessment of personal competence (Rand 2 efficacy). Ashton and Webb (1986, pp. 125–144) later investigated and summarized the relationships between both types of efficacy, teacher behaviours, and pupil achievement.

I was led to speculate about the existence or development of both teaching efficacy and personal teaching efficacy in pre-service teachers. Evans and Tribble (1986) found that female pre-service teachers had significantly greater personal teaching efficacy than their male counterparts, and that elementary pre-service teachers had significantly greater personal teaching efficacy and teaching efficacy than secondary ones (Gibson & Dembo, 1984). Cavers (1988) recently found similar effects in research on the personal teaching efficacy of practising teachers.

Teacher education program revision provides an opportune moment to assess changes in feelings of preparedness to teach or personal teaching efficacy. One would expect student teachers in a newly revised and reformed teacher education program to develop greater feelings of preparedness or personal self-efficacy than their counterparts in the program being replaced. With this expectation in mind, I asked the last students of the "old" post-baccalaureate program at the University of British Columbia to indicate on three occasions during their year of teacher education the extent to which they felt prepared to perform a broad range of teaching behaviours. Their responses permitted validation of the scale I used to measure student teachers' feelings of preparedness to teach (PREP Scale) and allowed

monitoring of the development of feelings of preparedness to teach across the existing teacher education program. These responses comprise baseline data for a future comparison with the development of feelings of preparedness to teach in a new program.

In addition to establishing the PREP Scale for use in further research, I here answer three questions about the "old" program:

1. Do student teachers' feelings of preparedness to teach increase significantly during their teacher education year?
2. If so, do student teachers make greater gains in feeling prepared to perform some teaching tasks than others?
3. Are there differences in feelings of preparedness among the subjects; that is, do any subgroups of student teachers identified by gender, program specialization or level of teaching (primary, intermediate or secondary) feel more or less prepared to teach than other subgroups, either initially or at the completion of their preparation?

The answer to the first question simply charts progress in feelings of preparedness to teach through the program. The answer to the second may inform decision making about program emphases, and the answer to the third could be helpful in understanding student teachers' attitudes towards their teacher education experiences and in providing appropriate counseling.

METHODOLOGY

Subjects

Both secondary and elementary students enrolled in the one-year post-baccalaureate teacher education program in the Faculty of Education at the University of British Columbia during the 1986–1987 academic year participated in this study. Post-baccalaureate students were chosen as subjects in order to permit comparison with the following year's entering students, who either hold complete degrees (secondary), or have completed at least three years of coursework in arts or science (elementary). The secondary subjects' specialization areas, on the basis of which the feelings of preparedness to teach of subgroups are compared, included mathematics, business education, home economics, English, social studies, music, art, and physical education. Elementary subjects were not identified as subject-matter specialists; however, some had specializations in either community education or multicultural education, which also permitted a comparison of subgroup levels of feelings of preparedness to teach. The community education specialization provides an opportunity to prepare to teach in community

schools; the multicultural specialization draws together those students who wish to concentrate on teaching children from a variety of cultural backgrounds.

During a regular weekly meeting, seminar advisors—faculty members, graduate student assistants and off-campus personnel—requested student participation in the study and collected the data.

The total numbers of responses from secondary students in October, January and March, just prior to each of three distributed practica, were, respectively, 127, 100, and 105. The total number of elementary students responding at the same points were, respectively, 90, 48, and 46. Group size was reduced over time both by the failure of some advisors to collect the data and occasionally by a student's unwillingness to participate. Some complete seminar groups were deleted in the second and third collections, particularly in the elementary program. The withdrawal of blocks of subjects should not have dramatically altered the nature of the sample, since assignment to seminar groups was not based on any particular criterion. There were no changes in the students' experiences over the course of the term which would have made the subjects in any data collection substantially different from any other. The program continued consistently in the same context throughout the term.

Instrumentation

Construction of Scale

The "Student Teachers' Feelings of Preparedness to Teach Scale" (PREP Scale) was designed to measure the degree to which student teachers felt prepared to perform a set of tasks specified in a course entitled "Principles of Teaching," the calendar description of which includes "introduction to principles and instructional procedures related to classroom management, instructional planning, and the assessment of learning as applicable across grade levels and subject matter fields" (University of British Columbia, 1987, p. 283). The course enrolls both elementary and secondary student teachers in the Faculty of Education's new teacher education program, which commenced in September 1987. Its content is considered to be at the core of a teacher education program, and applicable across grade levels and subject matter fields.

In constructing the scale, each entry (topic, or sub-topic) of the outline was converted to lesson objective format (for example, students will choose the best strategies to motivate pupils), and the wording was altered to provide a suitable completion to the words, "I feel prepared to . . ."

TABLE 1
*"Principles of Teaching" Course Outline and Related Scale Items and Factors**

<i>Topics</i>	<i>Item No.</i>	<i>Factor</i>
Conceptions of teaching	3	IX
Planning instruction		
previews, overviews	1	X
writing objectives	4, 5, 6	II
lesson planning	7	X
unit planning	8	X
locating resources	2	X
Direct instruction		
motivating	10	IX
reviewing	11	IX
presenting clearly	13	IX
providing practice	—	—
monitoring	14	V
providing feedback	15	(III, V, IX)
Inductive and deductive methods	16, 17	I
Questioning		
discourse analysis	22	VI
models	19, 20, 21	III
purposes	18	III
Testing and record-keeping		
types (teacher-made, standardized)	23	VI
assessment during lesson	12	VI
record-keeping/reporting	24	VI
Grouping	25	(VI, VIII)
Motivation	26, 28, 29, 35	VII
Providing for individual differences	27	VII
Management		
spatial factors	—	—
rules	30, 31, 32	V
routines (e.g., transitions)	34	V
maintaining momentum and smoothness	9	IX
building self-discipline	33	(V, I)
individualizing management	39, 36	VII
handling problem behaviour	37, 38	VII
Justifying instructional decisions	40	IV
Selecting materials	41, 42, 43	IV

*Parentheses indicate that the item has factor loadings of <.5.

Three scholars independently checked the 43 items for clarity, unnecessary jargon and possible overlap.

Characteristics of the Scale

Reliability

The PREP scale was found to be highly reliable for the purpose of this study in all three administrations. Hoyt's inter-item reliability coefficients, based on analysis of variance of the item responses, were respectively .95, .96, and .97. A Hoyt's coefficient is essentially an index of item homogeneity.

Content Validity

To ensure the content validity of the scale, items were prepared to cover the spectrum of topics in the "Principles of Teaching" course. Table 1 presents an abbreviated outline of that content. Beside each topic are the numbers of the items on the scale that relate to it. For example, items 41, 42, and 43 test feelings of preparedness to select appropriate teaching materials. Note the absence through oversight of items on the provision of practice for learners and on managing through rearranging the use of classroom space. Table 1 also shows the relationship between the content of the "Principles of Teaching" course and the factors isolated in a factor analysis of the subjects' performances on the individual items of the scale. The factor analysis with varimax rotation accounted for 67% of the variance. A ten-factor solution was obtained:

Factor I—understanding and using inductive and deductive methods.

Factor II—identifying and writing clear, comprehensive objectives.

Factor III—designing appropriate, individualized, clear questions and using them skillfully.

Factor IV—evaluating materials according to student level, curriculum guidelines and community standards, identifying biases.

Factor V—managing the class: teaching and enforcing classroom rules and routines, monitoring and providing appropriate feedback.

Factor VI—assessing and analyzing one's teaching and student learning, keeping daily records and grouping learners as required.

Factor VII—understanding and individualizing the treatment of problem behaviour.

Factor VIII—motivating learners, choosing strategies, conveying expectations and encouragement and grouping to elicit the best possible performance from learners.

Factor IX—performing a teaching role in the school setting—motivating, explaining, providing appropriate well-timed activities and reviewing.

Factor X—selecting and sequencing topics and activities in planning instruction.

Each factor is represented on the scale.

In order further to establish the content validity of the scale, I scrutinized discrimination indices for each item for each of three administrations of the scale. They ranged from 0.39 to 0.75. Eighty-eight percent of the indices exceed 0.50; 44% percent exceed 0.60. These moderate to fairly high discrimination indices are acceptable evidence that the items do indeed discriminate among respondents perceiving varying degrees of preparedness to teach.

Administration and Scoring

Three data collections in mid-October, late January and late March—prior to the October, February and May practica—were carried out with the help of seminar advisors. Response booklets were identified only by students' subject matter or program specialization areas.

The 43 items were scored on a 5-point scale anchored on one end by "very well prepared" and on the other end by "very poorly prepared." Responses were assigned from 1 to 5 points, low scores indicating greater preparedness. A student who answered "very well prepared" on every item would thus score 43 points, while one responding "very poorly prepared" on every item would score 215 points.

DATA ANALYSIS

The data collected in the study were analyzed in three ways for varying purposes:

1. Factor analysis of individual responses provided information on the structure of the scale in terms of subscales within it. I then compared subscales to the content of the "Principles of Teaching" course to establish the content validity of the scale. The subscales (factors) also provided a structure for locating areas of greater and lesser change in the subjects' feelings of preparedness to teach over the year.
2. Item analysis led to assessment of the operating characteristics of the scale and to detailed information on the subjects' performances on each individual item and on the complete scale three times during the year. The mean score, the standard deviation of scores, and a discrimination index were obtained for each item. The standard deviation provides information on the variability of scores within the sample on the item. The discrimination index indicates the degree to which the item discriminates among respondents perceiving differing amounts of preparedness to teach.
3. The MINITAB program was used to obtain graphical descriptive data on the responses of the total group and subgroups of subjects at three times during the year.

TABLE 2
*Mean and Standard Deviation of Scores on
Feelings of Preparedness to Teach Scale*

<i>Month</i>	<i>Mean</i>	<i>S.D.</i>
October	125.8	21.4
January	110.5	22.5
March	99.5	25.2

A comparison of means showed that all the differences were significant at $<.01$ level.

REPORT AND DISCUSSION OF FINDINGS

As Table 2 shows, and in answer to the first research question, subjects' feelings of preparedness to teach grew continuously during their teacher education year. The differences between their mean scores for October and January, and between their mean scores for January and March were significant at less than the .01 level.

It is somewhat surprising that students had feelings of being adequately or more than adequately prepared on 28 of 43 scale items in October, when they had participated in approximately five weeks of coursework and generally had no formal teaching experience. Book, Byers and Freeman (1983) also found that, prior to having experienced any specialized coursework, nearly one quarter of their subjects, students entering teacher education, had similarly high levels of confidence in their abilities to teach. Everyone who has attended school has served an observational apprenticeship (Lortie, 1975), and many are led to believe they can successfully perform the teacher's role.

Initially, the subjects of this study expressed greatest feelings of preparedness for what appear to be the rather general tasks of fitting into the school setting as a teacher, designing and using questions as part of instructing, and encouraging pupils. They felt least prepared to deal with classroom behaviour problems, to group and to assess learners, and to choose suitable methods for teaching, all of which could be viewed as requiring more specialized preparation. There are several possible explanations for pre-service teachers' early and unexpected confidence. Perhaps they had initially moderate-to-high levels of personal teaching efficacy because such feelings are usually prerequisite to entering a teacher preparation program. Those who don't feel able to teach would be less likely to enroll. It may also be that students' feelings of preparedness to teach are enhanced by faculty members' consistent and successful efforts to encourage beginning students and to build feelings of self-efficacy. Also, early in the term, student teachers,

lacking familiarity with the intricacies of teaching, may have overestimated their own teaching abilities. As Bandura (1986) observed: "people generally overestimate the adequacy of their knowledge, especially in areas of limited familiarity. In addition to possessing incomplete, if not reliable knowledge, they tend to use what they know in ways that lead them to overestimate the validity of their judgements" (p. 223).

The sources of self-efficacy, however, are many and the reasons for seemingly premature feelings of preparedness to teach could be equally diverse. According to Bandura (1981, pp. 205–209), self-efficacy sources may be enactive (based on performance achievements), vicarious (based on the observation of a model), persuasory (based on verbal persuasion), or emotive (rooted in states of physiological arousal). He argued that the enactive source is most important, but that vicarious sources are especially influential when subjects have had little experience, lack direct knowledge of their own capabilities and thus rely more heavily on modeled indicators. In this study, the rather high first estimates of feelings of preparedness to teach or personal teaching efficacy were necessarily dependent on vicarious, persuasory, and emotive sources, since students had not, at that point, had formal teaching experiences.

If feelings of preparedness in October were somewhat inflated, one perhaps might have expected the January and March responses to be moderated by three weeks and later a further four weeks of school experience.

In fact, there were substantial increases in feelings of preparedness to teach in the total group of subjects from October to January and from January to March. Student teachers became significantly more assured during the intervening periods. In January and March, in addition to the vicarious, persuasive, and emotive sources of self-efficacy, the field-experience components provided important enactive input. The effects of actual experience on estimates of self-efficacy depend on many factors: the difficulty of the task, the amount of effort expended, the amount of external aid received, the conditions in which the experience occurred, the already existing pattern of success and failure, and any biases in self-monitoring which might have been introduced by previous experience (Bandura, 1981). All of these factors in various combinations could have influenced the student teachers' feelings of preparedness to teach.

To illustrate the application of a few such factors, student teachers have been heard to comment that they worked very hard or didn't have to, that they got a great deal of help or little or no help from their cooperating teachers, or that they had an ideal class or a very difficult group. School experience provides enormous variation in situational factors that, if weighted heavily, could be seen to have impeded what would otherwise have been a

competent performance or enhanced what might otherwise have been a failing performance. Commenting on situations like student teaching, which is at best a simulation of teaching one's own class, Bandura (1986) observed that "disparities [between one's actual and estimated self-efficacy] will . . . arise when efficacy is judged for performances in actual situations but performance is judged in simulated situations that are easier to deal with than the actualities" (p. 393). Student teachers in this study may have judged their self-efficacy or preparedness to *student teach* as opposed to their preparedness to teach independently. Consequently their feelings of preparedness or estimated personal teaching efficacy may be inflated.

Since student teaching is socially judged by ill-defined criteria, the student teacher has to rely on others to find out how well he or she is doing. This may affect the accuracy of his or her judgements of personal teaching efficacy or preparedness to teach (Bandura, 1986). Student teachers in this study, over time, perceived themselves to be increasingly well prepared to teach, an important prerequisite to successful practice, and one that influences thoughts and feelings, choice of activities, amount of effort expended, and the extent of persistence in the face of obstacles. A sense of personal teaching efficacy is an important constituent in the reciprocal deterministic paradigm. Bandura (1978) explains that "in the triadic reciprocal system, [self-generated events (e.g., feelings of preparedness)] not only operate as reciprocal determinants of behaviour, but they play a role in the perception and formulation of environmental events themselves" (p. 348). For example, a student teacher's feelings of preparedness could be instrumental in eliciting desired pupil behaviours that, in a reciprocal manner, would enhance a student teacher's personal teaching efficacy. Increased personal teaching efficacy, in leading the student teacher to plan more ambitious lessons, would enhance the learning environment.

Turning to the second research question, one notes that increases in feelings of preparedness to teach were not uniform across the items. On the previously described 5-point scale, the change in mean scores on the items was as small as .29 (Item 22) or as large as .86 (Item 2). Table 3 shows 2 groups of items: those in which there were greater and those in which there were lesser amounts of change over the year. The items are listed by number with the change of mean score in parentheses.

The ten items (approximately 25% of the total) on which were greatest changes in feelings of preparedness to teach highlighted two aspects, classroom management and instructional planning (choosing materials, sequencing topics, timing, assessment, and choice of method). Student teachers are like novices at the so-called "survival" stage of their development (Fuller & Bown, 1975; Harootunian & Yarger, 1981). When they are at least moderately successful in managing a class, their attention turns to

TABLE 3
*Scale Items of Greater and Lesser Amounts of
Change (in Parentheses) in Mean PREP Scores*

<i>Greater</i>		<i>Lesser</i>	
<i>Item</i>	2 (.86)	<i>Item</i>	22 (.29)
	38 (.83)		33 (.29)
	41 (.81)		24 (.30)
	1 (.81)		19 (.33)
	23 (.79)		26 (.34)
	37 (.79)		35 (.43)
	9 (.76)		5 (.45)
	17 (.73)		10 (.46)
	39 (.72)		4 (.47)
	16 (.71)		3 (.49)
			20 (.49)

problems of instruction and only later, perhaps in their own classrooms, to pupil needs and their own self-actualization. Numerous other studies identify classroom management or discipline as the main concern for student and beginning teachers, (Applegate & Lasley, 1985; Carter & DiBella, 1982; Housego, 1987; Housego & Boldt, 1985; Ratsoy & Sloan, 1981; Wragg, 1985). Other items in the “greater change” category in Table 3 are specific and limited in scope, as, for example, choosing materials according to student level or understanding inductive and deductive methods of teaching. Continuous improvement would not here be anticipated.

The 25% of the items on which there was least change in feelings of preparedness to teach included questioning skills, the encouragement and motivation of individual learners, the specification and writing of objectives, the promotion of self-discipline, and the maintenance of daily records. Some of these tasks, by contrast to the previous, more limited scope behaviours, present continuing challenges to teachers. For example, no teacher is likely to feel he or she is fully prepared to question or motivate all learners. Student teachers may sense the breadth of tasks like motivating and questioning and, as a consequence, feel less well prepared for them. Other items in this group concern tasks seldom assigned student teachers; for example, keeping achievement records, and implementing a management system enhancing the development of pupil self-control, a process which would require both more time and greater knowledge of individual students than is possible in short practica.

Another way to look at the items in which there were greatest and least increases in feelings of preparedness to teach, is in terms of my ten factors.

Student teachers showed greatest increases in feelings of preparedness to teach on items that loaded on factors X, VII, I and IV (aspects of planning, individualized treatment of problem behaviour, understanding and using inductive and deductive methods, and evaluating materials). They showed least change in feelings of preparedness to teach on items loading on factors III, VI and VIII (questioning, assessment of both pupil learning and one's own teaching, and motivation).

Finally, answering research question three, there were some significant subgroup differences between mean scores on the PREP Scale in all three data collections, October, January and March, each of which is discussed in turn.

October Data Collection

Responses were divided into seven subgroups based on the subject specializations of secondary student teachers and program specializations of elementary student teachers.

A one-factor, fixed-effects analysis of variance, ($F=5.69$, $df=6/216$, $p=.000$) indicated significant differences among subgroup PREP Scale mean scores in the October data collection.

The Newman-Keuls pairwise comparison among means showed which pairwise contrasts between subgroup PREP Scale scores were significant at the .05 level.

Table 4 shows that in October—near the outset of their teacher education program—subgroup 3 (secondary art and music student teachers) felt significantly more prepared to teach than subgroup 1 (secondary mathematics, science, business education or home economics), subgroup 5 (elementary multicultural education) and subgroup 7 (elementary regular program) pre-service teachers. Many artists and particularly musicians are already performers and may feel that their talents have been affirmed. They may also have had opportunities to gain enactive evidence of personal teaching efficacy.

Comparing the elementary subjects (subgroups 5, 6 and 7), subgroup 6 (community education students) had a mean PREP Scale score indicating significantly greater feelings of preparedness to teach than subgroup 7 (regular program students). Like the art and music majors of subgroup 3, community education pre-service teachers are called upon to be somewhat more assertive in and committed to the community. They are expected to play an organizational and leadership role in working not only with children, but also with parents and other community members. Feeling prepared to play such a role may enhance personal teaching efficacy.

Subgroup 2 (secondary English and social studies student teachers) felt

TABLE 4
Results of Multiple Comparison Among Pairs of Subgroup Means
(Newman-Keuls Method)

October								
Group	Mean*	3	6	4	Group 2	1	7	5
3	107.42							
6	116.78							
4	120.38							
2	120.47							
1	129.30	*			*			
7	132.98	*	*		*			
5	133.89	*						
January								
Group	Mean*	2	3	7	Group 1	5		
2	103.33							
3	106.05							
7	108.72							
1	110.91							
5	134.15	*	*	*	*	*		
March								
Group	Mean*	6	3	7	Group 4	1	2	5
6	87.67							
3	85.77							
7	89.64							
4	99.06							
1	101.26							
2	107.32		*					
5	116.73		*	*				

*Pair-wise contrast significant at the contrast-based error rate of $\alpha=.05$.

significantly more prepared to teach than either subgroup 1 (secondary mathematics, science, business education and home economics student teachers) or subgroup 7 (elementary regular program student teachers). One might speculate that subject specificity and direct applicability of degree preparation would engender greater feelings of preparedness to teach in secondary student teachers than elementary student teachers, who teach all subjects and may lack coursework in several. This does not,

however, explain the differences between subgroups 1 and 2. Perhaps student teachers feel initially more prepared to teach subjects like English and history that do not rely heavily on the use of specialized equipment and are not scheduled in laboratory-like settings.

January Data Collection

The January data collection occurred partway through the teacher education year, by which time student teachers had completed some methods courses and commenced others, and had spent three weeks in the classroom. A one-factor, fixed-effects analysis of variance ($F=4.74$, $df=4/140$, $p=.001$) indicates significant differences among subgroup mean scores.

As in the analysis of the October data, the Newman-Keuls multiple pairwise comparison among means showed which pairwise contrasts between subgroup PREP Scale scores were significant at the .05 level.

Table 4 lists only five subgroup means. The small number of student teachers in subgroups 4 and 6 excluded them from comparison. Subgroup 5 (the elementary multicultural education students) stood apart from the four other groups in feeling significantly less adequately prepared to teach. Students in this program may have been somewhat discouraged by the immensity of the task of meeting the needs of so many cultural groups in a school setting where class size exceeded 30 and resources had been cut back. One Vancouver secondary school reported that it enrolls students with 54 first languages other than English! The multicultural program within the faculty draws together students who have an interest in working with children from a variety of cultural backgrounds, but in the space of a year, given all the requirements of a regular teacher education program, it may not provide the extent of preparation which may be expected.

March Data Collection

The final data collection took place near the end of the teacher education year. A one-factor, fixed-effects analysis of variance ($F=3.65$, $df=6/150$, $p=.002$) indicated significant differences among subgroup mean PREP Scale scores.

Again Newman-Keuls showed which pairwise contrasts among subgroup scores were significant at the .05 level.

At the end of their teacher education program, as shown in Table 4, subgroup 5 (elementary multicultural education student teachers) felt less adequately prepared to teach than either subgroup 7 (elementary regular program student teachers) or subgroup 3 (secondary art and music student teachers). Both the difficulty of meeting the needs of multicultural pupils

and the already discussed greater initial confidence of student teachers in art and music, may partially account for these differences in subgroups means. Also, subgroup 3 (secondary art and music student teachers) felt significantly more prepared to teach than subgroup 2 (secondary English and social studies student teachers). This too may be partially attributable to the greater initial confidence of art and music student teachers.

LIMITATIONS

This is a study of feelings of preparedness to teach. It does not extend to assessing how well student teachers actually do perform the tasks for which they estimate their preparedness.

My work was limited, too, to studying personal teaching efficacy but not teaching efficacy (Ashton & Webb, 1986). Although students feel increasingly well prepared to perform many teaching behaviours, the study does not show they believe these behaviours are important ways to ensure pupil learning or that they themselves have dispositions to perform them (Katz & Raths, 1985).

Because only a very few students felt very poorly prepared on any item, one might conclude that the lower levels of the scale may be inapplicable. Perhaps student teachers did not have standards by means of which they could understand being very poorly prepared or even poorly prepared to teach. The bottom of the scale (very poorly prepared) is an arbitrary zero point, not an absolute zero point.

Finally, the declining number of students in the three data collections is a limitation, particularly in the elementary sample. Since it was reduced largely through the loss of complete seminar groups of students, it probably maintained much of its original character. The secondary sample did not decline so dramatically.

IMPLICATIONS FOR TEACHER EDUCATION

The findings of this study chart the course of student teachers' increasing feelings of preparedness to meet the challenges of teaching. Program planning that increases or at least maintains personal teaching efficacy levels has obvious. From their perspective, students assess the relevance and applicability of the components of their coursework. It is important for them to know their time is being spent learning to do things which will enhance their teaching. Teacher educators should be aware of the need for relevance and its link to personal teaching efficacy, which can have an impact on classroom-teaching performance and pupil receptiveness (Ashton & Webb, 1986).

Personal teaching efficacy and teaching efficacy generally, invite more attention in teacher education practice. More emphasis on practice and feedback would also help, and might come through coursework on questioning skills, motivation of learners from varying backgrounds, and serious deliberation about the objectives of teaching. Finally, co-operating teachers might be encouraged to give student teachers opportunity to practise some of the seldom-assigned tasks or roles, whether simply keeping achievement records, or—far more complex—implementing a management system to encourage pupil self-discipline. Both these tasks would be more likely accomplished in an extended practicum in which student teachers could know pupils better and become more independent and established in the classroom.

This exploratory study prompts more research on the relationships among feeling of preparedness to teach, teaching efficacy, and personal teaching efficacy, and on the links between feelings of preparedness to teach and actual teaching behaviours. Further, we ought to investigate the greater initial feelings of preparedness to teach of some subgroups of student teachers and the lack of significant increases in feelings of preparedness to teach of others.

CONCLUSION

Student teachers' sense of personal teaching efficacy is an important outcome of their preparation. In the classroom system of reciprocal determinism, personal teaching efficacy affects the teacher's behaviour, the pupil's behaviour, and the environment in which they both work.

NOTES

¹ Determinism is not used in this context to imply that events are in any way predetermined by causes independent of the individual (Bandura, 1978, p. 345).

² Cognitive influences in many instances include feelings of preparedness for a specific task or role.

³ The chances of successfully reaching difficult or unmotivated students can be increased through feeling well prepared to do so.

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