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Teacher Efficacy, Orientations Toward Children and Self-Esteem: The Effects of Student Teaching Practice

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ABSTRACT

Student teachers are said to have an unrealistic optimism, and a sense of idealism that often exceeds that of their supervisors. As a valued component in teacher education programmes, student teaching practice challenges student teachers to assess their capabilities and to build esteem as teachers. Across student teaching practice, student teachers' teaching efficacy is said to decline while personal teaching efficacy increases, and their orientations toward children become more controlling and less autonomous. However, such findings are usually based on global measures rather than situationally-specific tasks, exclude important dimensions identified in social learning theory, and often underestimate or overlook the importance of associate teachers' perceptions.

Student teachers' ($n = 50$) and their associate teachers' ($n = 50$) perceptions of efficacy (self-efficacy as teachers, and personal teaching efficacy; efficacy about others as teachers, and teaching efficacy), control versus autonomous orientations toward children, and self-esteem as teachers were measured before and after a final student teaching practice. Data were gathered using traditional measures of teacher efficacy (RAND Teacher Efficacy items, and Teacher Efficacy Scale [TES]), as well as specially prepared vignettes, and a form of Rosenberg's Self-Esteem Scale adapted for teachers. These vignettes incorporate dimensions of task difficulty, strength of efficacy, and generality of efficacy (Bandura, 1989), as well as efficacy for innovativeness. Also, these vignettes accommodate the scope of influence dimension (Guskey, 1988) and measure both efficacy and orientations toward children.

Results from analyses of variance with repeated measures disconfirm the claim that student teachers have an unrealistic optimism or idealism that exceeds that of associate teachers. Rather, overall efficacy on all three measures revealed that student teachers' perceptions were significantly lower than those of associate teachers. There were no significant differences between student teachers and associate teachers on teaching efficacy [TES], or on efficacy about others as teachers on vignettes about individuals or groups. Personal teaching efficacy did not differ between student teachers and associate teachers on either the TES or RAND measures. However, the situationally-specific vignettes revealed that student teachers were less confident with both groups and individual children, and perceived tasks involving groups as being significantly more difficult to deal with than did associate teachers. Given the relative inexperience

and developmental status of student teachers, these results suggest a sense of realism rather than idealism about self as teachers.

Across student teaching practice, teaching efficacy remained unchanged. Personal teaching efficacy did not vary on the RAND items, but consistent with other research, student teachers' personal teaching efficacy increased on the Teacher Efficacy Scale. Vignette responses indicated that student teaching practice had no significant effect on student teachers' and associate teachers' self-efficacy as teachers, or efficacy of others as teachers on either task difficulty, strength of efficacy, or innovativeness. However, after completing student teaching practice, both student teachers and associate teachers perceived tasks about individuals to be more difficult for others as teachers to deal with, while associate teachers were also not as optimistic about the innovativeness of others as teachers in dealing with these problems about individual children.

Compared with student teachers, associate teachers reported significantly stronger preferences for both high control and high autonomy orientations toward children. Student teachers also expressed significantly stronger preferences for both moderate autonomy and control orientations toward children, when compared with associate teachers. Across student teaching practice, student teachers' preferences became less autonomous but, contrary to the literature, they did not necessarily become correspondingly more controlling.

Student teachers' self-esteem as teachers was significantly lower than that reported by associate teachers. No significant changes occurred across student teaching practice, indicating that the impact of such experiences may be more apparent than real.

In discussing these findings, it is apparent that the conventional wisdom which proposes that student teaching practice makes a difference in the way that student teachers perceive their ability to cope, their confidence in themselves as teachers, their capability and willingness to be innovative, how they relate to children, and their self-esteem as teachers, may not be as first seems. The findings of this present study indicate that situationally-specific measures which account for several dimensions of efficacy as well as the scope of influence factor, have a utility in research about student teachers. Also, the present study affirms the importance of accounting for both student teachers' and associate teachers' perceptions when considering the effects of student teaching practice. It may well be that current teacher education practices in matching student teachers with associate teachers, and the nature of tasks undertaken on student teaching practice may need to be revisited in the light of these findings.

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CHAPTER 1

INTRODUCTION

This study takes place at a time when education in New Zealand is undergoing unrelenting change. At the vanguard of this change is an insistence that teachers demonstrate excellence in teaching to ensure that students produce positive learning outcomes. The expectation is that teachers and student teachers will hold an optimism about their capability as teachers to make a difference in the lives of their students -- that they will believe and act in ways that demonstrate that all students are "reachable, teachable and worthy of teacher attention and effort" (Ashton & Webb, 1986, p. 72).

These changes have impacted not only on teachers' circumstances but also threaten the perceptions and practices of teachers, and inevitably those of student teachers. One such change is the devolution of substantial decision-making into the auspices of school Boards of Trustees. This means that schools and teachers are being required to implement new forms of partnerships in response to various political mandates, community expectations and the demands of business and industry. Such partnerships affect not only the nature of decision-making and the professional autonomy of teachers but ultimately influence the provision of support, funding and resourcing in schools and for teachers. It might be claimed that such partnerships will enhance teaching effectiveness. Yet the issue is not be as simple as this. As Fenstermacher (1979) puts it, "if our purpose and intent are to change the practices of those who teach, it is necessary to come to grips with the objectively reasonable beliefs of teachers" (p. 174).

Social and political pressures fuel unrealistic expectations about what teachers can and should accomplish (Farber, 1991; Friedman, 1991; Friedman & Farber, 1992). The prevailing political and industrial aspirations propose that a competitive economic advantage for the nation will be realised when educational goals are based on the training of specific employment-related skills. Such views colour public perceptions about the effectiveness of teachers, as well as teachers' and student teachers' beliefs in their own ability to cope as teachers and to make a difference in the lives of their students. As a consequence, teachers are placed in difficult, often threatening and vulnerable situations. Inevitably, it leads to a decline in teachers' and student teachers' beliefs about their capability to impact as teachers on students' learning. After

reviewing the evidence from a needs analysis of teacher education, Gibbs and Munro (1993) claim that

in this present context, teachers, as the repositories of public hope and national economic aspiration, are particularly vulnerable. The unrealistically high expectations, together with the pervasive notion that teacher effectiveness can be measured in terms of student outcomes, could ensure that teachers are too frequently seen to fail. (p. 3)

Not only do public hopes and national economic aspirations fuel unrealistically high expectations about teachers, but they also serve as antecedents for a plethora of other changes which likewise impact on teachers' beliefs about their capabilities. The implementation of the new New Zealand Curriculum Framework (Ministry of Education, 1993) is a case in point. The innovations associated with the development and implementation of the new school curriculum challenge teachers to rapidly adapt their subject knowledge, teaching approaches and resources. For some, this requires quite marked shifts in teachers' philosophical and pedagogical beliefs as well as in their professional practices.

The ecology of regular classrooms is also now less predictable. There have been fundamental shifts in the ethnic and demographic characteristics of school populations which have placed increased demands on teachers to cope with speakers of languages other than English. Catering for special needs children within regular classrooms, often with only limited additional support, complicates the roles of teachers, as does dealing with the seemingly increased number of children with behavioural difficulties. It is in such complex contexts that teachers are being asked to cope, to demonstrate excellence in performance and to ensure positive student learning outcomes. Inevitably, these factors will influence the self-perceptions held by teachers and student teachers.

It is of no surprise, therefore, that the reforms in education have had a large impact on teachers (Mitchell, 1991; Wylie, 1992). It has been claimed that teachers' professional ideologies which have been traditionally based on high-trust collegiality, have been undermined by the impact of educational reform (Sullivan, 1994). Teachers' workloads are said to have risen by as much as six hours per week (Bridges, 1992; Wylie, 1992). Livingstone (1994) reports that 79% of a sample of New Zealand teachers attributed the declines in their family life, friendships, leisure activities and health to increased workload demands. Thirty-eight per cent indicated that if they had the choice they would leave teaching because of the coping demands. The review of evidence suggests that New Zealand primary and intermediate teachers seem to have experienced

increased stress and diminished job satisfaction over the last decade (Manthei & Gilmore, 1994).

Neither is it surprising that teacher educators are being challenged to increase the vocational relevance of teacher education programmes and to demonstrate explicit standards of competence in the context of the realities of classrooms and schools. Implicit in such a belief is the view that teacher competence is externally controllable, measurable and trainable. That teachers are expected to perform efficaciously under a wide range of circumstances (Bidwell, 1965; Brophy & Evertson, 1976) confounds the simplicity of this view. Teaching is characterised by uncertainty and unpredictability (Gibbs & Munro, 1993; Raudenbush, Rowan, & Cheong, 1992), and the possession of knowledge and skills in themselves is necessary but insufficient for efficacious teaching. Put simply, knowing how to act in given situations does not imply that teachers will act, or be willing to act in accordance with that knowledge.

Rose and Medway's (1981a) causal chain for conceptualising teacher effectiveness contends that teachers' beliefs influence teaching behaviour, which in turn helps explain students' behaviour and performance. Research suggests that teachers' perceptions of self-efficacy are related to their ideologies concerning the control of children (Agne, Greenwood, & Miller, 1994), that pupil control beliefs are significantly related to teacher burnout (Cadavid & Lunenburg, 1991), which, in turn is related to perceptions of self-esteem (Olson & Osborne, 1991; Malanowski & Wood, 1984; Maslach & Jackson, 1986). Teachers', and for that matter student teachers' self-perceptions therefore are important considerations in the explanation of teacher effectiveness.

The first, and arguably most influential set of teachers' and student teachers' beliefs concern perceptions about teacher efficacy. According to social learning theory (Bandura, 1977, 1982, 1986, 1989), how teachers behave can often be better predicted by beliefs about their own capabilities -- that is, self-efficacy -- than by what they are actually capable of accomplishing. These beliefs help determine what teachers do with the knowledge and skills they have (Pajores & Miller, 1994). What teachers know or believe, and what they choose to do provides an important exemplar of self-efficacy in action. The role of self-efficacy in mediating between knowledge and action is potentially useful in explaining teaching effectiveness. In support of such a claim, Ashton (1985) makes the observation that "until [the emergence of] teacher efficacy research, the search for teacher attitudes and beliefs related to teaching effectiveness had been relatively unproductive" (p. 142).

Self-efficacy has been defined in various ways in the literature. Newmann, Rutter, and Smith (1989) refer to teacher self-efficacy as "the teacher's perception that his or her teaching is worth the effort, that it leads to the success of students and is personally satisfying" (p. 223). Dembo and Gibson (1985) describe teacher self-efficacy as "the extent to which teachers believe they can affect school learning" (p. 173). Bandura (1977, 1982, 1986, 1989) refers to self-efficacy as judgements people make about their ability to produce and regulate events in their life. He states that perceived self-efficacy

is a judgement of one's capability to accomplish a given level of performance, whereas an outcome expectation is a judgement of the likely consequences such behavior will produce. (Bandura, 1986, p. 391)

Self-efficacy is an important construct in helping to explain teachers' and student teachers' choice behaviour and their willingness to invest effort or to persist on tasks. Bandura (1982, 1986) claims that self-efficacy serves a mediational role between knowledge and actions. For example, whether a teacher acts on knowledge about how to control children who exhibit challenging behaviour in class is likely to depend on that teacher's perceptions of self-efficacy in that situation. In this sense, self-efficacy also plays a central role in motivation. Teachers will be motivated to act when their perceptions of self-efficacy are not exceeded by their perceptions of the difficulty of the task. So, consistent with self-efficacy theory, teachers' beliefs in their capability to have positive effects are said to influence not only the outcome but also their willingness to attempt and persist at tasks. Self-efficacy theory posits that people tend to avoid situations they believe exceed their coping ability, but that they generally perform with some confidence those activities they judge themselves capable of managing (Bandura, 1982, 1986). Furthermore, highly efficacious individuals are likely to exert more effort and to persist longer when confronting difficulties than are their low efficacy colleagues (Brown & Inouye, 1978; Schunk, 1981).

A second set of teachers' and student teachers' beliefs relate to perceived preferences in control versus autonomy orientations toward children. Rosenholtz (1989) makes the point that pupil control is often "so pronounced that the goal of classroom order often displaces student learning as the definition of teaching effectiveness" (p. 429). Most practising teachers believe that classroom management skills are of major importance for them and that their professional preparation in this regard was inadequate (Merrett & Wheldall, 1993). Beginning teachers consider discipline to be their most potentially difficult challenge (Hart, 1987; Hoy, 1968, 1969; Veenman, 1984; Weinstein, 1988; Zeidner, 1988). In Hart's (1987) study, 39% of student teachers reported anxiety about classroom control and discipline. For student teachers, successful teaching is indicated

and evaluated by actions that gain immediate orderliness and control within the class (Tabachnick & Zeichner, 1984). The heightened levels of emotional arousal experienced by many student teachers during student teaching practice may influence both their beliefs about efficacy as teachers as well as their control orientations toward children. Not surprisingly, therefore, student teachers are prone to develop more instrumental perspectives during student teaching practice.

A third set of teachers' and student teachers' beliefs relate to perceptions of self-esteem as teachers. The classroom practice of novice teachers seems to be more closely related to perceptions of themselves as teachers than to their teacher education programmes (Blakey, Chamberlin, Everett-Turner, Halabisky, Kysela, Maaskant, Massey, Massing, McNay, Mochoruk, Sande, Scott, Stephenson, & Tucker, 1989). Perceptions of self-esteem as teachers are likely to influence how teachers choose to act with children as well as their willingness to take action. Yet surprisingly few studies have probed the relation between the teaching behaviours of student teachers and the affective characteristics of self-perceptions such as self-esteem as teachers (Coulter, 1987).

For student teachers, the realities of student teaching practice¹ often confront their beliefs of efficacy as teachers as well as their preferred orientations toward children, and this inevitably influences their self-esteem as teachers. Student teaching practice is an important time when many student teachers self-assess their capability as novice teachers. It is a time when the beliefs and perceptions that student teachers have about themselves as teachers are confronted with the realities of working in classrooms. Student teaching practice exposes the unpredictability and complexity of the teaching role to student teachers often in the presence of associate teachers² who act as influential role models. Inevitably, student teachers' perceptions of efficacy about themselves and about others as teachers, perceptions of self-esteem as teachers, and self-beliefs about preferred orientations toward children will be challenged during student teaching practice.

¹ "Student teaching practice" is referenced in a variety of ways both in the literature and in practice. Other common descriptors include "practice teaching", and "teaching experience". "Field experience" is less common, and "placement experience" is commonly used for brief (e.g., part- or full-day) experiences as contrasted to "block postings" which typically are more than one week.

² "Associate Teacher" is used synonymously with "Cooperative Teacher", that is, the experienced practising teacher of the class in which student teaching practice occurs and who, in conjunction with the College of Education, has the professional oversight responsibility for the student teacher.

It is commonly acknowledged that student teaching practice is a valued component in pre-service teacher education programmes. Lortie asserts that "student teaching is without a doubt the most highly rated component of teacher training programs" (Brand, 1985, p. 23). Often it is believed to be more important than student teachers' academic or professional course work (Haring & Nelson, 1980; Lortie, 1975; Noslow, 1975; Peck & Tucker, 1973). Kagan's (1992) synthesis of the literature on student teaching practice concluded that the majority of studies report that the relationship between the professional content of courses and the demands of classrooms is often tenuous. Yet not all writers are convinced of the fundamental importance of student teaching practice. Winitzky and Arends (1991) suggest that "field experiences may be ineffective at best, miseducative at worst" (p. 54). Some studies question the effectiveness of field-based experiences to produce analytical and reflective teaching practices in student teachers (Berliner, 1985; Feiman-Nemser, 1983). After reviewing the evidence relating to student teaching practice, Evertson, Hawley, and Zlotnik (1985) concluded that there is

little reason to believe that supervised practical experience, in itself and as it [is] encountered in most student teaching situations, [is] a very effective way to educate teachers. (p. 8)

While there is some research about student teaching practice, certainly more needs to be known about what actually happens to student teachers during and after such teaching experiences (Cameron & Wilson, 1993; Fuller & Bown, 1975; Griffin, Hughes, Defino, & Barnes, 1981; Zimpher, deVoss, & Nott, 1980). The dearth of research about the effects of student teaching practice on the efficacy beliefs of student teachers is a case in point. An exploratory study by Rothenberg, Gormley, and McDermott (1993) suggests that student teachers begin their student teaching practice quite confident in their beliefs about education, training and ability to teach and were even more confident after two blocks of seven weeks student teaching practice in their ability to teach the curriculum of elementary schools, to use specific teaching methods and strategies, and to manage classes. Such research suggests that the effect of student teaching practice on student teachers' beliefs warrants further investigation.

It is reported that on beginning teaching, student teachers are likely to have a sense of idealism often exceeding that of both their associate teacher and their student teaching practice supervisors (Walker, 1992). Others describe the beliefs of student teachers about teaching as being somewhat unrealistically optimistic (Weinstein, 1988), and that student teaching practice confronts student teachers with a 'reality shock' (Kremer-Hayon & Ben-Peretz, 1986; Veenman, 1984, 1987). Student teachers therefore sense

the need to act in ways that emphasise survival (Housego, 1990). This is not as surprising as would first seem. Unlike professions such as law, dentistry and medicine, it is claimed that most preservice teachers begin their teacher education programmes with beliefs that they already know how to act as teachers and how to teach (Lortie & Little, 1986). So, student teachers beginning or completing their teacher education programmes are said to be more optimistic than more experienced teachers, and student teachers' efficacy lowers as they gain experience (Broussard, Book, & Byars, 1988).

Student teachers experience high levels of stress during student teaching practice (Aitken & Mildon, 1991; Bowers, Eicher, & Sachs, 1983; Kalekin-Fishman & Kornfeld, 1991; MacDonald, 1992; Tardif, 1985; Wideen & Holborn, 1986). MacDonald (1993) identified these sources of stress as relating to role clarification, expectations, conformity, time, evaluation, assignments, peer discussions, and feedback. The results of Greenwood, Olejnik, and Parkay's (1990) study of four efficacy belief patterns, suggest that teachers with higher self-concepts are more resistant to stress and more able to preserve a sense of personal accomplishment. If self-efficacy mediates between what teachers know and their willingness to act in accordance with that knowledge, and if self-efficacy relates to student teachers' self-concepts (or more specifically, their self-esteem as teachers), then self-efficacy has potential to help explain the teaching and coping behaviours of novice teachers.

The four sources which Bandura (1977) states are major influences on efficacy--namely, performance accomplishments, vicarious experiences, verbal persuasion, and emotional arousal-- are typically present during student teaching practice. Student teachers, for instance, observe associate teachers dealing with threatening tasks without experiencing undue adverse consequences, are encouraged verbally to tackle similar tasks even when these involve heightened emotional arousal, and their successes and failures during student teaching practice contribute to their self-efficacy beliefs. In judging their perceptions of self-efficacy, the information that student teachers gain from these sources is appraised within the social, situational, and temporal contexts in which the challenging events occur (Bandura, 1977). For student teachers, this context includes the presence of associate teachers. Yet, most studies on the effects of student teaching practice exclude or undervalue the self-perceptions of associate teachers.

The influence of associate teachers on student teachers should not be underestimated (Alper & Retish, 1980; Disposito, 1980; Karmos & Jacko, 1977; Stolworthy, 1988; Wood & Eichner, 1989). The supervisory style of associate teachers inevitably influences student teachers' beliefs and practices. Based on earlier work about direct

and indirect behaviour (Flanders, 1960), and communicative freedom (Gibb, 1969) four supervisory styles have been identified (Blumberg, 1974). In style A, the supervisor tells and criticises but also asks and listens, while in style B the supervisor does a great deal of telling and criticising but very little asking or listening. Supervisors demonstrating style C typically put a lot of emphasis on asking questions, listening, and reflecting back the teacher's ideas and feelings. In style D, the supervisor is generally passive and ineffective. In Blumberg's study, teachers who reported their supervisor's behaviour as predominantly style B also stated that they perceived the communicative climate as emphasising defensive orientations, control, strategy (rather than spontaneous action), certainty and superiority (rather than equality). Higher levels of empathy, communicative freedom and productivity were reported for style C. Supervisory practice is influenced by the professional developmental status of associate teachers. In a paper exploring developmental theories underpinning the professional development of teachers, Oja (1990) claims that teachers operating at higher levels of professional development demonstrate greater flexibility, are able to see multiple points of view, and are more effective in supervising student teachers than their colleagues who are at lower levels of professional development.

One implication is that matching student teachers with associate teachers who hold particular supervisory styles may influence the interplay between student teaching practice and their self-efficacy, pupil control beliefs, and self-esteem as teachers. Though not always the case, student teachers are often placed with associate teachers for reasons related more to availability and geographical accessibility rather than for the recognised teaching competence of associate teachers (Goodlad, 1990) or because they are known to necessarily model effective teaching strategies (Hollingsworth, 1988). However, the case regarding the ideal pairings of student teachers with associate teachers on student teaching practice is not resolved. Hollingsworth (1989), for instance, challenges the intuitive notion that student teachers should be matched with associate teachers with whom they agree philosophically. The debate is not resolved. On the one hand, evidence regarding cognitive change suggests people tend to be more inclined to adopt views which involve only minor shifts from their own (Arbuthnot, 1975; Matefy & Acksen, 1976; Walker, 1982). On the other hand, some claim that highly cognitively discrepant influences can have equal, if not more influence in producing cognitive change (McGuire, 1985). Still others argue that changes relate not so much to the degree of cognitive conflict but rather to the perceived persuasiveness, especially social, of these influences (Haan, 1985; Zimmerman & Blom, 1983). Given the relative statuses of associate teachers and student teachers, and their role differences it may well be that this latter case best explains the cognitive change that may be

experienced by student teachers on student teaching practice. Clearly the issue is important and is worth further investigation.

Little is known about how selective student teachers are in adopting the practices and beliefs of associate teachers during student teaching practice. Student teachers are particularly open to the opinions and values of associate teachers (Roberts & Blankenship, 1970; Tabachnick & Zeichner, 1984; Yee, 1969). Research findings on the effects of student teaching practice suggest that most student teachers passively adopt the practices they find themselves placed in (Crow, 1986; Gibson, 1976; Goodman, 1985, 1988; Lacey, 1977; Tabachnick, Popkewitz, & Zeichner, 1979-1980; Tabachnick & Zeichner, 1984). Etheridge, James, and Bryant's (1981) study reported that after the completion of student teaching practice, student teachers' attitudes toward discipline changed. They became more interventionist, and the significant differences that were apparent at the outset of student teaching practice between student teachers and their associate teachers, disappeared.

A frequent finding is that student teaching practice affects the teaching behaviour of student teachers in that they become more custodial rather than humanistic (Hoy, 1967, 1968, 1969; Hoy & Rees, 1977; Jones, 1982; Packard, 1988), and controlling rather than autonomous in their orientations toward children (McNeely & Maertz, 1990). Hoy and Woolfolk (1990) describe the effects of student teaching practice as influencing

the orientation of prospective teachers by making them more custodial in pupil-control orientation, more controlling in their social problem-solving perspectives, less confident in the power of schools to overcome students' background and ability deficits, but more confident in their personal efficacy that they can help students learn. (p. 295)

Some studies provide exceptions. For instance, custodial effects are more likely to be resisted by student teachers if preservice teacher education programmes are enquiry-based (Tabachnick & Zeichner, 1984), or if the perspectives of cooperating teachers are more humanistic than custodial in orientation (Zeichner & Grant, 1981).

Hoy and Woolfolk (1990) found that after a semester of student teaching practice, student teachers' sense of general teaching efficacy declined while their sense of personal efficacy increased. While this study suggests that the sense of personal efficacy and custodial orientation changed after completing student teaching practice, there was no apparent relationship between the two beliefs. Nevertheless, it appears that after some years of teaching experience, personal efficacy and pupil control beliefs

become related (Woolfolk, Rosoff, & Hoy, 1990). These writers caution, however, that this effect may be a consequence of the religious school setting used in their study. Certainly, more substantive evidence in this regard would help our understanding of the relationship between teachers' and student teachers' perceptions of efficacy as teachers and their perceived preferences in orientations toward children.

An earlier study (Jones, 1982) assessing Pupil Control Ideology [PCI] after varying lengths of student teaching practice, concluded that the grade level of student teaching practice may have more of an influence on student teachers' change in control orientation than the length of student teaching practice. Jones found that secondary student teachers became significantly more custodial regardless of whether they had eight or sixteen weeks student practice teaching. Elementary teachers did not show such a change. This outcome might well be demographically-specific and may reflect the more autocratic approaches favoured by secondary teachers than by elementary teachers.

To date, research on the self-perceptions of student teachers, and the impact of student teaching practice on these beliefs remains somewhat inconclusive. Generalising the results from many of these studies to the New Zealand context is not be as simple as would first seem. The studies cited often relate to teacher education programmes which are distinctively different to those delivered in New Zealand. These differences include not only the entry status of student teachers, but also to the theoretical orientation of programmes, their duration, intensity and style of delivery. Furthermore, differences relating to the length of student teaching practice, its placement within the programme and the relationship of student teaching practice to coursework, differentiate teacher education programmes. Finally, the nature of New Zealand schools, the values and beliefs held by New Zealand teachers, the curriculum emphases and implications on teaching style are important considerations.

While increasing research attention is generally being directed towards the self-perceptions of student teachers and teachers, the importance ascribed to student teaching practice in preservice teacher education programmes has not been matched by rigorous research enquiry. The need for further research is therefore essential. Inconsistent and equivocal findings about the self-perceptions of teachers and student teachers, and about the effects of student teaching practice on these, have been reported. The results appear to be often confounded by limitations of instrumentation and by differing conceptual definitions. Furthermore, studies have rarely considered the self-perceptions held by both student teachers and their associate teachers. In spite of this,

the beliefs and practices of associate teachers have been claimed both in the literature and professional practice to influence the self-perceptions of student teachers.

Thus, the present research first compares final year primary student teachers' and their associate teachers' perceptions of efficacy, perceived preferences in orientations toward children, and perceptions of self-esteem as teachers. Secondly, the effects of student teaching practice on student teachers' and associate teachers' perceptions of efficacy, preferences in orientations toward children, and self-esteem as teachers is investigated.

To achieve this, data about third year primary student teachers' and associate teachers' perceptions are gathered both before and after the final and major block of student teaching practice. Teaching efficacy and personal teaching efficacy are ascertained using traditional measures of teacher efficacy (Armor, Conry-Oseguera, Cox, King, McDonnell, Pascal, Pauly, Zellman, Summer, & Thompson, 1972; Berman, McLaughlin, Bass, Pauly, & Zellman, 1977; Gibson & Dembo, 1984). Judgements of efficacy also are measured on a set of situationally-specific vignettes that involve either individual children or groups of children. In these instances, efficacy is determined on the dimensions of the perceived difficulty of particular tasks, strength of efficacy beliefs, generality of efficacy, and perceptions of innovativeness. Judgements of efficacy are made by student teachers and associate teachers about themselves as teachers (self-efficacy as teachers), and about teachers in general (efficacy about others as teachers). In addition, using these same vignettes and drawing on ideas presented in the Problems in School Questionnaire (Deci, Schwartz, Sheinman, & Ryan, 1981), data are gathered on student teachers' and associate teachers' perceptions about their preferred orientations toward children. Finally, perceptions of self-esteem as teachers are measured using a modified form of the Rosenberg Self-Esteem Scale (1965, 1979).

This study then, investigates student teachers' perceptions of efficacy about self and others as teachers, their self-esteem as teachers, and their preferred orientations toward children. These data are analysed in relation to associate teachers' perceptions of efficacy about self and others as teachers, self-esteem as teachers, and their preferred orientations toward children. Given the rhetoric about the importance of student teaching practice, it is postulated that student teaching practice impacts on student teachers' self-perceptions.

The present study differs from earlier studies in four main ways. First, research about student teaching practice frequently acknowledges, though rarely accommodates the importance of the self-perceptions held by associate teachers. It is common for studies about student teaching practice to focus exclusively on student teachers' self-beliefs.

When the perceptions of associate teachers are considered, they are usually concerned with judgements about the performance of student teachers rather than about associate teachers' self-perceptions. By accounting for the self-beliefs of associate teachers as well as those of student teachers, the present study provides an important analysis of the impact of student teaching practice on self-perceptions.

Secondly, Pajores and Miller (1994) claim that Bandura's "guidelines are seldom followed, and so the mismeasurement of self-efficacy is a recurring theme in educational research, often producing poorly defined constructs, confounded relationships, ambiguous findings, and uninterpretable results" (p. 194). Bandura (1986) contends that efficacy is best assessed in task-specific situations rather than globally, and that these measurements should account for the factors of perceptions of task difficulty and strength of efficacy, as well as generality of efficacy. Guskey (Guskey, 1987, 1988; Guskey & Passaro, 1993) recommends that contexts should consider individual children and groups of children; that is, the scope of influence variable. Research in teacher education that accounts for both Guskey's and Bandura's claims is surprisingly sparse. This present study takes up these writers' recommendations by assessing perceptions of task difficulty, strength of efficacy, and generality of efficacy based on task-specific vignettes about individual children and groups of children.

Thirdly, most studies concerning teachers' beliefs about the control of children have used the bipolar custodial versus humanistic continuum of control beliefs usually measured with the Pupil Control Ideology [PCI] (Willower, Eidell, & Hoy, 1967, 1973). The present study differs from these studies in that teachers' and student teachers' preferred orientations toward children are established from more task-specific situations which are presented in vignettes about individual children and groups of children. Furthermore, this measurement of preferred orientations toward children based on a control versus autonomy continuum is made on the same vignette tasks that are used to measure perceptions of efficacy. Thus, consistent with Bandura's (1986) guidelines for the measurement of efficacy, teachers' and student teachers' perceptions of efficacy and their preferred orientations toward children are considered in similar social, situational and temporal contexts in which the challenging events occur.

Finally, this present study accepts the premise that compared with perceptions of self-efficacy, self-esteem judgements are more global and less task-specific (Pajores & Miller, 1994). However, this study differs from previous studies in that self-esteem is related to the perceptions that teachers and student teachers have about themselves as teachers, rather than about their self-esteem in general. This distinction is important in

that teachers' and student teachers' perceptions of self-esteem as teachers and self-esteem in general need not necessarily be strongly correlated. Because studies to date fail to make such an important distinction, the present study should serve to shed light on teachers' and student teachers' perceptions of self-esteem as teachers, and the impact of student teaching practice on these beliefs.

The importance of self-perceptions in the development of teachers' and student teachers' effectiveness warrants further research attention. Ashton, Webb, and Doda (1983) suggest that

the central social-psychological problem facing teachers today is how they can maintain a sense of satisfaction and accomplishment in a profession that offers so few supports for, and myriad threats to their sense of professional self-respect. (p. 66)

While the claim that "retention of the existing teaching force is itself influenced by a range of economic and demographic factors" (Slyfield, Bishop, & Pole, 1993, p. 8) makes intuitive sense, nevertheless it is insufficient as an explanation. Given that first year teachers' level of efficacy has been found to be significantly related to job satisfaction and commitment (Kemmis & Wareen, 1991) and with teachers' satisfaction about their career choices (Lent, Brown, & Larkin, 1987; Robbins, 1985; Taylor & Popma, 1990; Trentham, Silvern, & Brogdon, 1985), it seems that self-perceptions have important contributions to make in explaining levels of attrition from and retention in the teaching profession. In times of unrelenting educational change, teachers' beliefs about their capability to make a difference through their teaching, and about their esteem as teachers become increasingly vulnerable. Likewise, the vocational relevance of teacher education programmes to produce capable teachers becomes subject to debate. The dearth of research in the New Zealand context that can inform such debate is of immediate concern. The present study, therefore, is considered as important for its contribution in teasing out the effects of student teaching practice on self-perceptions.

CHAPTER 2

REVIEW OF LITERATURE

The current debate about the effects of student teaching practice on student teachers' perceptions is best understood in the context of the available research literature. This chapter reviews the literature concerning the construct and assessment of self-efficacy, and about efficacy as it relates to teachers and student teachers. The literature on student teachers' and teachers' perceptions of their self-esteem as teachers and their orientations toward the control of children is also reviewed. Studies that report on the effects of student teaching practice are examined particularly with regard to student teachers' perceptions of self-efficacy (including personal teaching efficacy) and efficacy about others as teachers (including teaching efficacy), self-esteem as teachers, and orientations toward children. Finally, the hypotheses for the present study are outlined.

Self-Efficacy

The Utility of Self-Efficacy to Explain Behaviour

Self-efficacy -- people's beliefs in their ability to produce and regulate events in life -- helps explain why some people choose to behave one way while others choose to behave in another way, why some are willing to invest much effort into a task while others expend little, and why some demonstrate considerable persistence even when the odds seem against them while others give up on tasks (Bandura, 1982). Substantial research is accumulating to show that self-efficacy has considerable utility in explaining behaviour across a range of settings and conditions. While most of this research has not been concerned with teachers or teaching, the evidence suggests that self-efficacy may help to explain the impact of self-perceptions on teaching effectiveness and how teacher education programmes might be best conceptualised to accommodate these insights.

Much of the earlier evidence to support the role of self-efficacy in explaining why people continue to engage in various behaviour, or indeed are able to overcome difficulties with behaviour, has been drawn from studies of dysfunctional behaviours such as paradigmatic snake phobias (Bandura & Adams, 1977), acrophobic behaviour (Williams & Watson, 1985), agoraphobia (Bandura, Adams, Hardy, & Howells, 1980)

and other phobic conditions (Biran & Wilson, 1981; Bourique & Ladouceur, 1980). Self-efficacy has been shown to be associated with the control of affective and cognitive states such as depressive mood (McCabe & Scheiderman, 1985), control of ruminative thought (Kavanagh & Wilson, 1989), and the self-regulation of addictive behaviours (Condiotte & Lichtenstein, 1981; DiClemente, 1981). Not surprisingly, significant differences in self-efficacy are reported between psychiatric in-patients and college psychology students (Hays & Buckle, 1992). More importantly, many of these dysfunctions and conditions produce intense levels of self-inefficacy such that individuals sense anxiety, futility and guilt about their loss of personal control. Such heightened physiological arousal which is associated with this anxiety, futility and guilt further impairs perceptions of self-efficacy which, in turn, may perpetuate the problem. In like fashion, it may be postulated that student teachers' and teachers' repeated failures in their attempts to control the difficult behaviour of students may produce a sense of loss of personal control as teachers, heightened emotional arousal, and lead to reduced optimism concerning their self-efficacy as teachers.

Self-efficacy is used to explain the choice behaviour of individuals across diverse circumstances ranging from choices about political affiliation and the propensity for social activism (Muller, 1972, 1979), through to choices made about how to act in social contexts. In this latter case, people's willingness to participate in or withdraw from particular social interactions, and their persistence to bring about social effects are related to social self-efficacy. To illustrate, individuals with high social self-efficacy differ from those with low social self-efficacy in their social skills, social standards, and approach or withdrawal behaviour in social settings (Alden & Wallace, 1991). Likewise, perceived coping self-efficacy and cognitive control self-efficacy are important in determining whether people will exercise self-defence for personal empowerment over physical threats (Ozer & Bandura, 1990), or to demonstrate assertiveness (Lee, 1983, 1984). A mother's ability to integrate social signals such as crying from her infant relates to her self-efficacy, which in turn influences the choices she makes about her maternal behaviour (Donovan, Leavett, & Walsh, 1990). Such evidence suggests that self-efficacy helps explain the behaviour choices that individuals make in a wide range of contexts. Because teaching also typically involves social contexts where decisions need to be made about approach or withdrawal behaviour, exercising assertive or defensive behaviour, and responding to children's social signals, it makes sense to postulate that self-efficacy may also help to explain the choice behaviour of teachers and student teachers with children.

Teaching involves complex decision-making and actions that often need to be demonstrated in situations where there is also heightened emotional arousal. The

regulation of cognition, arousal and action is associated with self-efficacy. The relationship between cognition in general and self-efficacy in particular is exemplified in the analytic thinking involved in complex decision-making (Bandura & Wood, 1989; Wood & Bandura, 1989), and in memory performance (Berry, West, & Dennehey, 1989; Hertzog, Hultsch, & Dixon, 1989; Rebok & Balcerak, 1989). In this regard, Zarit (1982) suggests that memory training with the elderly may improve memory self-efficacy and thereby enhance memory performance. Physiological arousal, as measured by catecholamine secretion, has been demonstrated to vary according to perceived self-efficacy (Bandura, Taylor, Williams, Mefford, & Barchas, 1985). How people cope with pain (Williams & Kinney, 1991) or deal with anxiety such as visiting the dentist (Kent, 1987; Kent & Gibbons, 1987) relates to perceptions of self-efficacy within those situations. More recently, self-efficacy was found to mediate the relationship between the perceived control and disability arising from rheumatoid arthritis (Schiaffino & Revenson, 1992) and chronic pain (Jensen & Karoly, 1991). It is apparent that evidence associating self-efficacy with the regulation of cognition, arousal and action, provides increasing support for the proposition that self-efficacy helps explain the mediation between knowledge and action.

Self-efficacy also has been demonstrated as a predictor of a wide range of performances. For example, self-efficacy for coping has been found to be a predictor of adjustment both immediately after an abortion and three weeks later (Cozzarelli, 1993). Self-efficacy is demonstrated as a predictor of adolescent smoking behaviour (Lawrance & Rubinson, 1986), and college students' participation in health-related physical fitness activities (Bezjak & Lee, 1990; Sallis, Pinski, Grossman, Patterson, & Nader, 1988). The self-regulated control of eating and weight loss also relates to self-efficacy beliefs (Bernier & Avard, 1986; Glynn & Ruderman, 1986). Findings such as these highlight not only the utility of self-efficacy to act as a predictive indicator in personal health management but also as an important consideration in shaping effective intervention programmes. Given these findings, self-efficacy holds promise as a predictor of teaching performance as well.

Because sports require individuals to participate in challenging tasks, to exert effort and to persist even in the presence of obstacles, barriers and potential defeat, it makes intuitive sense to postulate that self-efficacy is a significant predictor of sports performance. Research supports this claim. Self-efficacy has been found to be a predictor of tennis performance (Barling & Abel, 1983), marathon performance (Gayton, Matthews, & Burchstead, 1986), participation in aerobic activity such as dance (McAuley, Wraith, & Duncan, 1991), and success in gymnastic skill learning (McAuley, 1985). The presence of verbal persuasion in the sporting arena is

commonplace, as is physiological arousal, performance rehearsals and accomplishments, all of which serve as sources to influence self-efficacy (Bandura, 1989). However, the potential utility of self-efficacy for increasing motivation and performance in sports is yet to be fully realised.

Gender differences in self-efficacy are reported. On a variety of tasks, women appear less likely than men to report themselves as efficacious (Lenney, 1977). Career decision-making and making academic subject choices illustrate this point (Betz & Hackett, 1981, 1987; Lent, Brown, & Larkin, 1987; Matsui, Ikeda, & Ohnishi, 1989; Moe & Zeiss, 1982; Robbins, 1985; Taylor & Popma, 1990). Self-efficacy appears to be a predictor of career and academic indecision (Taylor & Popma, 1990). Thus, it is claimed that women may be disadvantaged in their career development because of their lower perceived efficacy in career decision-making (Betz & Hackett, 1981, 1987). Recent findings suggest that single-sex high schools and colleges which include a male influential teacher tend to produce higher self-efficacy scores for female students in selecting non-traditional careers for women (Scheye & Gilroy, 1994). Gender differences also are apparent in measures of self-efficacy about affective control. In this instance, the belief that one can cope with one's own affective responses is a significant predictor of willingness to participate for women but not for men (Arch, 1992). Riggs (1991) found that male elementary preservice and inservice teachers scored significantly higher on self-efficacy for science teaching than their female counterparts. Given that the majority of primary student teachers are female, these findings would suggest that gender differences in efficaciousness are important considerations in the interpretation of research findings about teachers.

Schools are claimed to be among the most stressful ecologies as workplaces (Samples, 1976) and teachers' and student teachers' capability to cope is an inevitable concern. Within various workplaces, self-efficacy is demonstrated to be influenced by emotional coping with the events that occur within one's career (Stumpf, Brief, & Hartman, 1987). For example, self-efficacy has been shown to be a predictor of job search success (Kanfer & Hulin, 1985), and job attendance both during and immediately after training (Frayne & Latham, 1987; Latham & Frayne, 1989). In a study of Air Force trainees, self-efficacy at the conclusion of training was strongly correlated with job performance (Ford, Quinones, Sego, & Sorra, 1992). Similarly, and consistent with Bandura's (1982) proposition that efficaciousness is associated with task perseverance and goal achievement, sales performance is reported as being related to the self-efficacy beliefs held by salespeople (Barling & Beattie, 1983). These studies illustrate that self-efficacy provides useful insights into a range of employees' performances in the workplace.

The self-efficacy beliefs of children and their performance on academic work has also been investigated. Pupils with low efficacy for gaining cognitive skills are likely to avoid such tasks whereas high efficacy students are likely to demonstrate a greater willingness to participate, along with stronger perseverance and higher motivation (Bandura & Schunk, 1981; Brown & Inouye, 1978; Schunk, 1981, 1982, 1985, 1989a, 1989b). Several studies sustain this hypothesis by illustrating the relationship of self-efficacy with achievement striving (Bandura & Schunk, 1981; Schunk, 1981), and with children's motivation and learning (Schunk, 1985, 1989a, 1989b). Thus, self-efficacy is hypothesised to have important effects in achievement settings for children.

A number of studies have shown that by strengthening self-efficacy, children's test anxiety can be regulated (Smith, 1989). By increasing the self-efficacy of pupils their anxiety can also be reduced and performance increased on curriculum learning in mathematics (Cooper & Robinson, 1991; Lent, Lopez, & Bieschke, 1991), elementary science (Enochs & Riggs, 1990), and computers. (Murphy, Coover, & Owen, 1989; Kinzie & Delcourt, 1991). Self-efficacy, as a cognition concerned with personal control, therefore has an important role to play in mediating knowledge and performance of learners in a variety of achievement settings.

The effects of self-efficacy on motivation are not confined to younger learners. Hallinan and Danaher (1994), for example, found that student teachers' self-efficacy and motivation increased when their teacher education courses provided opportunities for student teachers to contract for grades. Achievement motivation of university students has also been shown to be positively related to self-efficacy. Students who started their programme with the predisposition to accomplish challenging work were more likely to show increases in self-efficacy during their training (Mathieu, Martineau, & Tannenbaum, 1993). These findings suggest that the effects of self-efficacy on motivation are not only apparent for children but also are evident for a range of adult learners including university students and student teachers.

These studies provide ample evidence to support the claim that self-efficacy has a widespread utility in helping to explain the choice behaviour of individuals in a variety of contexts. Of importance in this present study is the implication that self-efficacy may have a similar utility when applied to explaining teachers' and student teachers' motivations across a wide range of teaching circumstances with children. Thus, the relationship between self-efficacy and motivation is worth further investigation.

Self-Efficacy and Motivation

Various explanations of motivation are proposed in the literature. Such research encompasses a range of individual intrapsychic influences on motivation such as attributions (Good & Tom, 1985; Graham & Barker, 1990; Weiner, 1986), self-efficacy (Bandura, 1977, 1982; Schunk, 1991), goal orientations (Ames & Ames, 1984; Dweck & Elliot, 1983; Nicholls, 1984), perceived ability (Mac Iver, Stipek, & Daniels, 1991), perceived control and competence (Chapman, Skinner, & Baltes, 1990; Weisz & Cameron, 1985), intrinsic motivation (Corno & Rohrkemper, 1985; Deci & Ryan, 1985), self-concept (Wigfield & Karpathian, 1991), interest (Schiefele, 1991), and learning strategies (Pintrich & De Groot, 1990). Rotter's locus of control (1954, 1966, 1975), and in particular Bandura's (1977, 1982) perceptions of self-efficacy, while not focusing explicitly on teachers, perhaps provide seminal work for inquiry into the motivation of teachers and student teachers.

Rotter's Locus of Control

Rotter (1954, 1966, 1975) describes locus of control as the extent to which reinforcement depends either on a person's own behaviour (i.e., internal locus of control) or upon factors beyond the person such as luck, chance, fate, and influential others (i.e., external locus of control). He contends that behaviour is not simply "stamped-in" by reinforcement but depends on whether the person perceives a causal relationship between their own behaviour and the reward. When people judge reinforcement as not being entirely contingent upon their actions, then it is likely attributed to luck, chance, fate, as under the control of influential others, or is the consequence of other unpredictable external circumstances. In short, locus of control refers to the degree to which people perceive the sources of reinforcement in their lives as within their control. This means that teachers and student teachers with internal locus of control tend to believe they are in control of their circumstances, whereas externally-oriented teachers and student teachers tend to view outside factors such as chance, fate, and influential others as being more potent.

Locus of control helps explain some aspects of teachers' behaviour and teaching effectiveness. Given a positive change in children's problem behaviour, teachers and student teachers with external locus of control will attribute the cause to such factors as chance or the influence of others, whereas teachers and student teachers with internal locus of control will attribute the cause to factors such as their ability as teachers. Teachers who report more internally-oriented locus of control tend to express a greater sense of control and are significantly more satisfied with their work (Bein, Anderson, & Maes, 1990; Knoop, 1981; Reddish, 1984; Smith, 1985; Stone, 1983).

Bandura's Self-Efficacy and Outcome Expectations

Wallson, Wallston, Smith, and Dobbins (1987) consider locus of control to be a relatively stable set of beliefs about an individual's ability to influence outcomes across a range of circumstances. Bandura (1977, 1982) views locus of control as pertaining essentially to outcome expectations. He argues that behaviour is acquired and regulated through the individual's sense of self-efficacy. Self-efficacy refers to those beliefs about a person's ability to perform specific behaviours in particular situations (Schunk & Carbinari, 1984). While behaviourism posits that behaviour is controlled by its consequences, Bandura (1977, 1982, 1989) claims that self-efficacy is the controlling mechanism of behaviour. Locus of control and self-efficacy may interact. For instance, teachers who usually experience events as being under their control may experience decreased or weakened perceptions of self-efficacy when confronted with situations in which they appear to lack the skills to act effectively.

Bandura distinguishes between *perceived self-efficacy* and *outcome expectations*.³ Perceived self-efficacy is "concerned with judgements of how well one can execute courses of action required to deal with prospective situations" (Bandura, 1982, p. 122). Self-efficacy, therefore, concerns people's perceptions of their capability of achieving certain levels of performance in particular situations. An outcome expectancy is defined as "a person's estimate that a given behavior will lead to certain outcomes" (Bandura, 1977, p. 193). That is, outcome expectancy refers to a person's beliefs about the likely consequences of certain behaviours in particular situations.

The distinction is useful. For instance, teachers and student teachers may believe that if specific behaviours or courses of action are carried out they will lead to anticipated outcomes (i.e., outcome expectancy) and yet believe also that they are not capable of performing these specific behaviours (i.e., self-efficacy judgement). Teachers and student teachers may hold high or low self-efficacy and outcome expectancies about their teaching effects on children's learning which in turn, may influence their teaching performance and pupil learning.

³ Earlier manuscripts (e.g., Bandura, 1977) used terminology such as "efficacy expectancy" or "efficacy expectations", and "outcome expectancy" or "outcome expectations". More recent writings (e.g., Bandura, 1982, 1986) generally avoid such reference to expectations, using instead terminology such as "perceived self-efficacy", "self-percepts of efficacy", and "self-efficacy judgements", "judgements of self-efficacy" or "self-efficacy appraisals".

Bandura (1986) in response to Kirsch (1986) hints at the distinction by claiming that because self-percepts of efficacy are formed through acts of self-appraisal based on multidimensional information, perceived self-efficacy is more closely allied to the field of human judgement than to the subject of expectancy, which refers to an anticipation that something is likely to happen (p. 362).

Dimensions of Self-Efficacy

Bandura (1977, 1982) suggests that magnitude, strength and generality are three dimensions that are useful in describing self-efficacy. The magnitude of efficacy for different individuals may vary according to the difficulty of specific tasks. As an individual's perception of task difficulty increases so is the magnitude of self-efficacy likely to lessen. Magnitude of efficacy also has been referred to as ability (Berry, West, & Dennehey, 1989), task difficulty (Betz and Hackett, 1981), or level of efficacy (Bandura, 1982).

Strength of efficacy is demonstrated through a person's persistence or willingness to expend effort in situations where disconfirming evidence is present. Strong efficacy is apparent when individuals persevere in their coping efforts despite the presence of evidence that fails to support these attempts to cope. Self-efficacy strength also has been termed as confidence (Berry, West, & Dennehey, 1989; Betz & Hackett, 1981).

Generality of efficacy is evidenced by the extent to which the efficacy held in one situation extends or generalises to similar, and to progressively dissimilar situations. For example, as a result of coping effectively with a situation involving disruptive classroom behaviour (such as verbal interruption), a student teacher's self-efficacy may be enhanced. This strengthened perception of self-efficacy may generalise to similar situations where the student teacher previously held lower perceptions of self-efficacy such as those involving groups of children, or different types of disruptive behaviour.

These three dimensions of magnitude, strength and generality are important considerations in the measurement of efficacy. Thus, Bandura (1982) states that

in testing propositions about the origins and functions of perceived self-efficacy, a microanalytic methodology is employed. Individuals are presented with graduated self-efficacy scales representing tasks varying in difficulty, complexity, stressfulness, or some other dimension, depending on the particular domain of functioning being explored. They designate the tasks that they judge they can do and their degree of certainty. An adequate efficacy analysis requires detailed assessment of the level, strength, and generality of perceived self-efficacy commensurate with which performance is measured. This methodology permits microanalysis of the degree of congruence between self-percepts of efficacy and action at the level of individual tasks. (p. 123)

An example of the application of these guidelines is provided in a study on self-efficacy and snake phobia (Bandura, Adams, Hardy, & Howell, 1980). In this study, the level of self-efficacy is the number of performance tasks which participants state they expect to perform with a value above 10 on a ten unit 100-point incremental scale. Strength of self-efficacy is the sum of magnitude scores across tasks divided by the total number of performance tasks. Generality of self-efficacy is determined by participants rating their level and strength of self-efficacy in coping with an unfamiliar snake similar to the snake used in the study. These three dimensions of magnitude, strength and generality also have application in the study of teacher efficacy. However, most of the present studies on teacher efficacy fail to account for these guidelines.

Teacher Efficacy

Dimensions of Teacher Efficacy

While the complexity and unpredictability of teaching may seem to hamper the type of systematic analysis advocated by Bandura, nevertheless the principles of strength, level and generality are essential components in research on teacher and student teacher efficacy. Gibson and Dembo's (1984) recommendations on how these dimensions apply to teacher efficacy are helpful in this regard. They suggest that for teachers, magnitude is apparent in task difficulty, strength is indicated by the relative susceptibility to modification of self-efficacy beliefs, and generality relates to the extent to which teachers perceive self-efficacy in a variety of different teaching situations rather than in a narrow range of settings.

Guskey (Guskey, 1987; Guskey and Passaro, 1986) raises further dimensions for teacher efficacy. These writers' model of teachers' responsibility for positive and negative learning outcomes in students proposes that the nature of students' performance outcomes, students' ability, and scope of influence are strong influences on teachers' efficacy. Three main points emerge from Guskey's debate.

First, there appears to be little relation between the efficacy or responsibility that teachers assume for positive learning outcomes versus that which they assume for negative learning outcomes. Teachers tend to be more willing to place the responsibility for positive student learning outcomes on their own teaching ability, while negative student learning outcomes are associated with attributes of the learner. In explaining students' successes or failures, teachers frequently attribute low

achievement to characteristics of the children such as patterns of low effort, low motivation and poor work habits (Cooper & Burger, 1980; Cooper & Good, 1983; Medway, 1979; Tollefson, Melvin, & Thippavajjala, 1990; Tollefson, Rodriguez, & Franz, 1987).

However, the evidence is not clear. For instance, Hall, Hines, Bacon, and Koulianos (1992) found that teachers with high personal teaching efficacy emphasised the role of the teacher and the instructional programme in explaining students' successes while de-emphasising home influences. These teachers perceived themselves as responsible for students' learning outcomes regardless of whether these learning outcomes were denoted as success or failure. This is in contrast to the attributional responses found in other research (e.g., Brandt, Hayden, & Brophy, 1975; Guskey and Passaro, 1986; Wiley & Eskilson, 1978) which indicate that teachers attribute students' successes to themselves as teachers and attribute students' failures to factors external to themselves.

Why this discrepancy in research outcomes is so, remains unexplained. One explanation may be that attribution patterns of elementary and high school teachers differ. Hall, Villeme, and Burley (1989) found that compared with high school teachers, elementary and middle school teachers placed more emphasis on attributing poor academic failure to students' ability, students' effort, students' concentration, students' work habits, the perceived difficulty of tasks, and the influence of the home. Such teaching grade level differences may impact on research outcomes and therefore will influence how research on teachers' attributions should be interpreted. This needs further investigation but it may help explain some of the discrepancies which are emerging in the literature on teachers' attributions.

Secondly, Guskey and Passaro (1986) consider that differences in the way teachers interact with high ability students as contrasted with low ability students are associated with efficacy or personal responsibility differences. For instance, Cooper, Burger, and Seymour (1979) found that teachers perceived they had less control over low ability students and as a result felt less able to influence how well these students learned.

Thirdly, the scope of influence or the extent of teachers' beliefs about their influence over the learning of a single pupil versus that of a group or class of pupils is claimed to influence teacher efficacy. In essence, Guskey and Passaro (1986) and Guskey (1987) propose that the self-efficacy of teachers varies when situations involve an individual as contrasted with groups.

In this sense, self-efficacy is not essentially a global disposition but rather is situationally-specific. Bandura (1986) argues that "some situations require greater skill and more arduous performances, or carry greater risk of negative consequences, than others" (p. 411). Bandura (1977) makes the point that individuals may hold high self-efficacy beliefs in some situations or on some tasks, and low efficacy on others. He suggests that some experiences instill a more generalised sense of efficacy than other experiences. Research might profit, therefore, not only by focusing on the generality but also upon the domain-specificity of self-efficacy.

Two examples serve to illustrate this point. First, Wollman and Stouder's (1991) study of efficacy beliefs and political activity found that the more specific the measure of efficacy, the greater the predictability of political behaviour. A second example is provided by Raudenbush, Rowan, and Cheong's (1992) study of teachers in sixteen high schools. Working on the notion that high school teachers face a number of classes each day that differ in size, academic content to be taught, and grade levels, these researchers found that self-efficacy varied across contexts. The self-efficacy of these high school teachers was influenced by grade level of the class, and they tended to feel most efficacious when teaching high ability pupils. Similarly, while the evidence is that classroom teachers generally tend to have lower self-efficacy than do preservice teachers, there is evidence that in some situations such as with planning and evaluation the opposite is true (Benz, Bradley, Flowers, & Alderman, 1992). When both these research studies are considered, it seems clear that the domain-specificity of self-efficacy is an important consideration when applied to complex and unpredictable contexts typically experienced by teachers and student teachers.

Teacher Efficacy: A Global or Two-Dimensional Construct?

Research findings on teacher efficacy are confounded by this treatment of teacher efficacy as either a global construct (e.g., Barfield & Burlingame, 1974; Guskey, 1988; Hoover-Dempsey, Bassler, & Brissie, 1987; Trentham, Silvern, & Brogdon, 1985), or as a two-dimensional construct (Ashton & Webb, 1986; Gibson & Dembo, 1984). The global construct representation of efficacy is common, for instance, in political science research. The two-dimensional construct has its lineage in the psychological paradigm and is claimed to be more consistent with Bandura's (1977, 1982, 1986) theory of self-efficacy. Understanding the efficacy construct is confused further by the fact that some writers treat efficacy as a personality trait (e.g., Barfield & Burlingame, 1974), while others view it as a response to a particular situation (e.g., Ashton & Webb, 1986; Gibson & Dembo, 1984). These differences are important considerations for research on the efficacy of teachers and student teachers.

Ashton and Webb's (1986) ethnographic study of teacher efficacy drew on the two dimensions of efficacy identified through the earlier Rand Corporation studies (Armor et al., 1972; Berman et al., 1977). Two 5-point ("strongly agree" through to "strongly disagree") Likert items based on Rotter's (1966) locus of control theory were used to determine teacher efficacy scores. These two items are:

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

Ashton and Webb consider that Item 1 reflects *teaching efficacy*, whereas Item 2 relates to a teacher's own *personal teaching efficacy*. Teaching efficacy refers to a teacher's expectations that teaching can influence students' learning, whereas personal teaching efficacy refers to a teacher's assessment of their own teaching competence. These two dimensions are claimed to be independent and situation-specific. Greenwood, Olejnik, and Parkay (1990) suggest that there are at least four different combinations of the two Rand items, each of which produces four types of efficacy belief patterns:

1. Teachers in general cannot motivate students, and I am no exception to this rule.
2. Teachers in general can motivate students but I cannot personally.
3. Teachers generally can motivate students and I am no exception to this rule.
4. Teachers in general cannot motivate students but I can if I try harder. (Lacour & Wilkerson, p. 7, 1991)

Other researchers have used the Rand items in their studies. Glickman and Tamashiro (1982) used three items based on the two Rand items, and Guskey (1987) also used the Rand items along with other measures to gauge teacher responsibility for students' achievement and self-concept.

Gibson and Dembo's (1984) Teacher Efficacy Scale [TES] consists of 30-items on a 6-point Likert scale ranging from "strongly disagree" through to "strongly agree". Factor analysis of responses from a sample of elementary school teachers yielded 16 items with acceptable reliability coefficients that loaded onto two substantial factors which

they termed personal teaching efficacy and teaching efficacy. Gibson and Dembo claim the two identified factors are compatible with Ashton and Webb's dimensions and correspond to Bandura's two-factor theoretical model of efficacy.

Woolfolk, Rosoff, and Hoy (1990) are not so sure that the two dimensions of efficacy presented by Gibson and Dembo (1984) and Ashton and Webb (1986) are congruent with Bandura's concepts of efficacy and outcome expectations. They contend that Bandura's outcome expectation is a judgement of the likely consequences of an action and self-efficacy is a judgement of a person's capability to carry out an action. Consequently, they claim that Rand Item 1 concerns the efficacy of teachers in general, not about oneself as a teacher, and therefore it is not an outcome expectation. Woolfolk, Rosoff, and Hoy (1990) conclude therefore that

the two dimensions of efficacy first identified by the Rand items might better be characterised as *general teaching efficacy* (the power of teaching to counteract any negative influences in the student's background) and *personal teaching efficacy* (the impact of a particular teacher). (p. 138)

Limitations in the Measurement of Efficacy

The Teacher Efficacy Scale has not been without criticism. Recently, the two factor solution proposed by Gibson and Dembo (1984) has been shown to correspond not to a personal teaching efficacy versus teaching efficacy distinction, but rather to a simpler internal versus external distinction somewhat akin to locus of control measures of causal attribution (Guskey & Passaro, 1993). Part of this may be explained by the use of "I", thus inferring an internal locus of control, as the referent in all personal teaching efficacy items on the Teacher Efficacy Scale.

An examination of the Teacher Efficacy Scale (Gibson & Dembo, 1984) also reveals that most, if not all nine Factor 1 (personal teaching efficacy) items are expressed positively in relation to the teacher, whereas at least four of the seven Factor 2 (teaching efficacy) items are expressed in ways that reflect negatively upon the teacher. How this affects the responding of participants is not known. As with other rating scales about opinions, beliefs and perceptions, responses need to be interpreted with caution. For example, there is a potential interpretative fallacy when accepting that agreement with an item logically implies disagreement with the alternative form of that item. Put simply, a person who strongly agrees with a positively stated item, may not necessarily strongly disagree with the negative expression of that item, and vice versa.

A further potential limitation in some research on efficacy is that completing the task designed to measure self-efficacy may in itself influence self-efficacy beliefs. Undertaking a task designed to gauge self-efficacy may, in itself, affect performance. An interesting methodological outcome that emerged from the Betz and Hackett's, (1987) study on educational and career development was that participants who received a self-efficacy probe prior to the behavioural test of performance performed more competently than participants who did not receive a pre-performance probe. Such prior assessment may provide subjects with information on possible options for dealing with situations, and to cue respondents to act more efficaciously. While research is somewhat limited in this regard, it is a worthwhile methodological consideration. Similarly, Bandura (1982) takes up Rachman's (1978) comments about the likely effects on tasks resulting from public or private self-efficacy judgements:

The question arises regarding whether making self-efficacy judgements in itself can affect performance by creating public commitment and pressures for consistency (Rachman, 1978). In applying the microanalytic procedure, special precautions are taken to minimize any possible motivational effects of the assessment itself. Judgements of self-efficacy are made privately, rather than stated publicly. Judgements of level and strength of efficacy are made for a variety of activities in different situations in advance of behavior tests, rather than immediately prior to each performance task. Research on the reactive effects of efficacy assessment shows that performance and fear arousal are the same regardless of whether people do or do not make prior self-efficacy judgements (Bandura, Adams, Hardy, & Howells, 1980; Bown & Inouye, 1978). Nor are people's performances affected by whether or not they make their self-efficacy judgements publicly or privately (Gauthier & Ladouceur, 1981; Weinberg, Yukelson, & Jackson, 1980). Contrary to the consistency demand notion, degree of congruence between self-efficacy judgement and action is unaffected or reduced when self-efficacy judgements are reported publicly, with knowledge that they will be inspected, rather than if they were made privately under conditions in which no one will ever see them (Telch, Bandura, Vinciguerra, Agrass, & Stout, 1982). When public inspection of their judgements is made salient, people are inclined to become conservative in their self-appraisals, which creates efficacy-action discordances. Veridical self-appraisals is thus best achieved under test conditions that reduce social evaluative factors. (p. 124)

Finally, differences in the use of terminology confuse what we know about efficacy in general, and about teacher efficacy in particular. To illustrate, a study of Thai primary teachers' efficacy (Raudenbush, Bhumirat, & Kamali, 1992) uses efficacy in a way that departs from the usual psychological usage. In this study, efficacy is related to the perceived absence of obstacles to effective instruction. Such obstacles might include the lack of materials or time to prepare or teach effectively. The unconventional use of the term *efficacy* in this context is inappropriate. At best, awareness of obstacles may be only a precursor to making judgements about one's capacity to overcome these obstacles. Teachers may identify numerous obstacles to effective teaching and yet still be highly efficacious. The use of the term *efficacy* needs to be teased out in research so that clear descriptions of efficacy and its relationships with behaviour can be established.

Bandura (1989) makes the point that developing instruments that usefully measure concepts such as self-efficacy will facilitate scientific progress in the area. As an example of such a psychometrically-sound set of self-efficacy scales he cites Berry, West, and Dennehey's (1989) measures of memory self-efficacy. He comments:

They include several valuable features. Separate self-efficacy scales are devised for different types of memory. The intercorrelations corroborate that the set of scales represents a common domain but taps different dimensions of memory. They measure gradations of self-efficacy strength rather than just categorical judgements of whether one can execute a given level of memory performance. The scales are highly reliable and they account for a good share of the variance in memory performance. The scale format can be easily extended to other types of memory. (p. 731)

Bandura (1989) also advocates the use of multi-dimensional domain-linked measures for two reasons. First, he makes the point that the patterning of perceived efficacy is not easy to determine when conglomerate omnibus tests are used. Second, multi-dimensional domain-linked measures reduce the demand on participants to define what is being asked of them when items are too general.

In these regards, the use of vignettes which characterise children's behaviour in particular contexts and across a range of contexts would provide more situationally-specific indicators of efficacy that are not available with either the Rand items or the Teacher Efficacy Scale. Furthermore, by incorporating the dimensions of task

difficulty, strength of efficacy, and generality of efficacy, and the two factors of self-efficacy, and efficacy about others as teachers, Bandura's guidelines can be satisfied. By presenting pairs of vignettes which comprise of scenarios about individual children and groups of children, Guskey's scope of influence dimension can be accommodated. It is claimed that these features should be present in studies concerning the perceptions of efficacy held by teachers and student teachers.

Thus, Bandura's self-efficacy theory needs to be investigated with teachers and student teachers and further instruments developed. Research with participants apart from teachers suggests that self-efficacy does have considerable utility in explaining effective and persistent behaviour. The case should hold equal veracity in teacher education. If indeed self-efficacy mediates between knowledge and effective actions then there are important implications for teaching. Until substantive research with teachers and student teachers is undertaken, the potential for utilising self-efficacy in effecting positive teaching effectiveness may not be fully realised.

Sources of Student Teachers' Efficacy During Student Teaching Practice

Bandura (1977) suggests that efficacy is influenced by performance accomplishments, vicarious experiences, verbal persuasion, and emotional arousal. Each of these sources is present during student teaching practice.

Performance accomplishments. When student teachers' actions result in positive outcomes, such successes contribute to strengthening self-efficacy. In general terms, repeated successes raise expectations concerning mastery while repeated failures contribute to weakening self-efficacy. However, occasional failures may also serve to strengthen persistence and thereby self-efficacy if a person has previously overcome difficulties through exerting extra effort. Performance accomplishments, as one source of self-efficacy, are particularly important for student teachers when coping with children's challenging behaviour. Student teachers' self-efficacy is likely to strengthen when their actions deal effectively with children's behaviour which is challenging.

Vicarious experiences. When student teachers observe others such as associate teachers deal with threatening tasks without adverse consequences, their self-efficacy may be enhanced. For instance, the self-efficacy of student teachers may be strengthened by observing their associate teachers cope effectively with children's challenging behaviour. However, because of its reliance on inferences from social comparison, Bandura (1977) contends that vicarious experiences produce effects on self-efficacy that are not as dependable or stable as are those induced from performance

accomplishment. In itself, the vicarious experiences provided by associate teachers may be insufficient to ensure enduring change in the self-perceptions and teaching behaviours of student teachers.

Verbal persuasion. Verbal suggestion may lead student teachers to believe that they are capable of overcoming seemingly difficult problems. The verbal persuasiveness of associate teachers may increase student teachers' beliefs in their capability for dealing with difficult or challenging teaching tasks. However, social persuasion in itself may also be insufficient to induce enduring self-efficacy. Student teachers who are persuaded that they are capable of overcoming difficulties will probably exert more effort if their performances are supported and if their associate teachers are perceived as credible. In other words, the effectiveness of verbal persuasion as a source of self-efficacy depends largely on its interaction with other sources of self-efficacy, as well as being influenced by particular context, person, and performance variables.

Emotional arousal. In making judgements about their anxiety and capability of coping, people assess their physiological arousal. When faced with challenging tasks in the circumstances of student teaching practice, student teachers may well have heightened physiological arousal as they wrestle with how and whether to act. Their relative inexperience, the stress of student teaching practice itself (MacDonald, 1993) and student teachers' perceptions of the uncertainty or unpredictability of teaching situations are likely to influence their level of self-efficacy and willingness to act.

Teachers' and Student Teachers' Beliefs About Efficacy

The literature about the self-efficacy perceptions of student teachers and teachers is producing interesting insights that help explain teachers', and to a lesser extent student teachers' behaviour. For example, research is relating teachers' self-efficacy with job satisfaction, commitment and retention, teaching competence and innovativeness. Studies are differentiating teacher efficacy according to such factors as gender, grade level, the ability of children, and children's performance, learning and achievement. Recent evidence suggests that teacher efficacy is susceptible to change particularly through cognitive modelling techniques, and as a result of teacher education programmes that emphasise reflective practice. Teacher efficacy also is being demonstrated to be related to a wide range of classroom management practices.

Teacher Efficacy, Job Satisfaction and Commitment

Self-efficacy has been demonstrated to be positively correlated with job satisfaction, commitment, and work quality and quantity, as well as negatively correlated with

absenteeism and tardiness in various occupations (e.g., McDonald & Siegall, 1993). Similar evidence that relates self-efficacy with job satisfaction is accumulating about teachers. Kemis and Wareen (1991), for instance, found that first year teachers' efficacy related significantly to job satisfaction and commitment. Just as positive associations have been identified between self-efficacy and career choice (Lent, Brown, & Larkin, 1987; Robbins, 1985; Taylor & Popma, 1990), evidence also suggests that teacher efficacy is positively related to teacher satisfaction about their career choices (Trentham, Silvern, & Brogdon, 1985).

In one study investigating the relationship between teachers' sense of efficacy and their commitment to teaching, teaching efficacy and personal efficacy were suggested as the two strongest predictors of teaching commitment, though teacher-student ratio, school climate, and gender also contributed significantly (Coladarci, 1992). Higher levels of efficacy were apparent for teachers who taught in classes with fewer pupils, and who worked under principals they regarded positively as instructional leaders in terms of their advocacy for the school, their decision-making, and their relations with children and staff. Teachers' perceptions of the school atmosphere and of fulfillment from their work have been found to be related to supervision (Chittom & Sistrunk, 1990). Likewise, low teacher efficacy has been associated with low levels of participation in decision-making and leadership (Martin, 1990).

With regard to student teachers, Pigge and Marso's (1993) longitudinal study indicates that those student teachers who persisted with their teacher education programmes expressed fewer concerns about the task of teaching and usually expressed more positive attitudes towards teaching as a career, than did the nonpersisters. Such conclusions are not surprising. They concur with Bandura's (1986) claim that persistence and efficaciousness are not necessarily mutually exclusive, and that high efficaciousness is usually associated with high persistence even when the odds may seem to be against the individual.

Teacher Efficacy and Teaching Competence

One would expect teachers holding realistic high efficacy expectations also to demonstrate competence in teaching. Trentham, Silvern, and Brogdon (1985) found that superintendents' ratings of teacher competence correlated with teachers' sense of efficacy. Teachers judged to have superior and average competency could be differentiated from low competence teachers on the basis of several variables including self-efficacy. Such a finding is consistent with Bandura's argument that efficacy relates positively to performance and accomplishment.

Teacher Efficacy, Gender, Grade Level and Pupil Ability

Gender and grade level differences in teacher efficacy are evident for elementary and secondary student teachers. Female student teachers report significantly greater personal teaching efficacy than do male student teachers (Evans & Tribble, 1986), and elementary student teachers reported significantly greater personal teaching efficacy and teaching efficacy than did secondary student teachers (Gibson & Dembo, 1984; Greenwood, Olejnik, & Parkay, 1990). Similar effects are apparent for the personal teaching efficacy of inservice teachers (Carvers, 1988).

There is some evidence that teachers who work with low ability children tend to develop lower self-efficacy as a consequence of the slow learning progress of their pupils (Ashton, 1984; Ashton & Webb, 1986). In spite of teachers' best teaching efforts, the slow progress of pupils can lead to negative perceptions about pupils' ability to learn which, in turn, deflates teachers' sense of self-efficacy. Those teachers who are able to resist the negative impact of slow progress in their pupils, and are able to persist even in the face of such difficulties often are rated higher on both teaching effectiveness and self-efficacy as teachers (Ashton & Webb, 1986; Brophy, Bevis, Brown, Echeverria, Gregg, Haynes, Merrick, & Smith, 1986). Teachers who are successful in helping low achieving pupils to learn, demonstrate a combination of high self-efficacy and high but realistic expectations for children's achievement (Ashton & Webb, 1986; Alderman, 1990; Good & Brophy, 1987).

These data indicate that teachers' sense of efficacy are influenced by factors such as the gender of the teacher, the grade level they are teaching, and the ability of their pupils.

Teacher Efficacy and Children's Learning

Several studies suggest that teacher efficacy is related to children's achievement (Armor et al., 1976; Berman et al., 1977; Brookover, Beady, Flood, Schweitzer, & Wisenbaker, 1979), and to student motivation (Midgley, Feldlaufer, & Eccles, 1989). Good and Tom (1985) make the point that research has not clearly demonstrated the relationship between teacher efficacy and student achievement. They suggest that the relationships identified in Ashton and Webb's (1986) research apply only to specific subscales of the Metropolitan Achievement Test and that this, in itself, raises questions about the relationship between teacher efficacy and student achievement.

In most studies the relationship between teacher efficacy and student achievement or student motivation is determined only at one point in time. Midgley, Feldlaufer, and Eccles' (1989) study is an exception. Using multivariate analysis of variance with repeated measures they found that the rate of change within the junior high school year

in students' expectancies, perceived performance, and perceived task difficulty in mathematics differed at the first and second years depending on teachers' efficacy before and after the transition.

A further interesting relationship between perceptions of efficacy and children's learning has been noted by Hoover-Dempsey, Bassler, and Brissie (1987). These writers report that when teachers perceive themselves and their students as capable, they are likely to encourage parent involvement in children's learning. If schools aim to increase parent involvement in the education of children, it seems that this finding implies that the building of teachers' sense of efficacy is a central consideration. In support of these findings, there is some evidence that more efficacious teachers are less likely to perceive teacher-parent involvement as a source of stress (Parkay, Olejnik, & Proller, 1986) than are their less efficacious colleagues. These findings relating perceived self-efficacy and stress are consistent with Bandura's (1986, 1989) claims that physiological arousal such as that evidenced in stressful situations, impacts on efficacy.

Teacher Efficacy and Innovation

High efficacy teachers are more likely than low efficacy teachers to demonstrate innovativeness by taking risks with new ideas. Several studies relate efficacy with teachers' willingness to take on innovation (Berman, McLaughlin, Bass, Pauly, & Zellman, 1977; Guskey, 1988; Rose & Medway, 1981b; Smylie, 1988; Wax & Dutton, 1991). The Rand Study (Berman et al., 1977) found that teacher efficacy was correlated positively with innovation in the curriculum. Stein and Wang (1988) also found a positive relationship between the implementation of new teaching approaches and teachers' self-efficacy. This tendency towards risk-taking and innovativeness by teachers holding high rather than low perceptions of self-efficacy is encouraging. But it is not surprising given Bandura's (1977, 1982, 1986) claims that the willingness to take risks and to be innovative is typical of the behaviour demonstrated by highly efficacious individuals.

Student Teachers' Efficacy and Susceptibility to Change

Studies with participants apart from student teachers suggest that levels of self-efficacy are usually relatively stable yet are also somewhat malleable over time (Gist, Stevens, & Bavetta, 1991; Gist & Mitchell, 1992; Latham & Frayne, 1989; Tannenbaum & Yukl, 1992). One technique, that of cognitive modelling, has been successful in raising the self-efficacy of student teachers who previously held low success expectations for learning basic strategies for teaching (Gorrell & Capron, 1989, 1990). Such results are encouraging and suggest that there is potential in using cognitive modelling as a technique to enhance teacher efficacy.

In a further study, student teachers' perceptions of self-efficacy increased as a result of a four-week field-based experience which emphasised reflective practice (Volkman, Scheffler, & Dana, 1992). These gains were significantly greater than those indicated by a control group. It is interesting that both the cognitive modelling techniques and reflective teaching approaches rely on active mental participation by student teachers, and both strategies represent deliberate interventions rather than uninterrupted experiential learning that is common in traditional student teaching practice.

Teacher Efficacy, Classroom Management and Teacher Manageability

The classroom management strategies that teachers adopt appear to be linked to teacher efficacy. High efficacy teachers tend to use strategies that reduce negative affect and promote expectations of achievement in their pupils. Typically they describe their class setting as characterised by warm, interpersonal relationships and there is an emphasis on academic work. On the other hand, low efficacy teachers tend to implement strategies that increase negative affect and promote expectations of failure for low achieving children. These low self-efficacy teachers tend to group children according to competence and they define the classroom setting more in terms of conflict rather than warm interpersonal relationships (Ashton & Webb, 1986; Tracz & Gibson, 1986). The evidence suggests also that teachers who use high levels of cooperative learning approaches were likely to hold higher perceptions of self-efficacy, were more confident in working with children, and demonstrated a willingness to innovate, than those teachers who seldom used cooperative learning strategies (Wax & Dutton, 1991).

Teachers' perceptions of efficacy is similarly reflected in their attitudes about control and behaviour in the classroom (Ashton & Webb, 1986; Barfield & Burlingame, 1974). Brophy and McCaslin (1992) found that teachers who were rated as highly effective in dealing with problem students were more willing to become personally involved in working with difficult children, and expressed higher self-efficacy with regard to bringing improvement in these students' problem behaviour. Using the Rotter Internal-External Locus of Control Scale, Martin and Baldwin (1992) reported that preservice teachers scored significantly more non-interventionist than did the external experienced teachers. In this study, experienced teachers scored significantly more internal than preservice teachers. There also appears to be a relationship between self-efficacy and teacher reaction to problem situations (Korevaar, 1990). For example, Meijer and Foster (1988) report that teachers with a high sense of self-efficacy are less likely to refer problems to others.

Relationships are reported also between student teachers' self-efficacy and management behaviours (Saklofske, Michayluk, & Randhawa, 1988). In this study, 435 student teachers' responses on the Teacher Efficacy Scale (Gibson & Dembo, 1984) revealed small but significant positive correlations with ratings of lesson presenting, classroom management, and questioning. This relationship between student teachers' beliefs about their efficacy and how they manage children's behaviour is important in that it reflects the mediational role that efficacy serves between knowledge and action.

Teachers differ in their perceptions about classroom problem behaviour. Experienced teachers tend to make more inferences, assumptions, hypotheses and predictions about classroom happenings in contrast to inexperienced teachers who tend to perceive these events in more superficial and descriptive ways (Korevaar & Bergen, 1992; Sabers, Cushing, & Berliner, 1991; Swanson, O'Connor, & Cooney, 1990). Using videotaped simulations of classroom problem situations, Konevaar and Bergen (1992) found that the reactions of experienced secondary teachers were characterised by more complexity than those of the less experienced teachers. However, in contrast to other studies on expert and novice teachers, these writers found no differences between the groups in their range of reactions. Both groups of teachers reacted in confrontive, friendly-directive, or understanding-permissive ways.

Teacher manageability, or "the degree to which teachers believe that can personally manage a specific pupil behaviour" (Safran, 1986) has also been claimed in other studies to be the self-efficacy construct most closely related to classroom management (Safran, Safran, & Barcikowski, 1990). Safran, Safran, and Barcikowski (1988) developed the Teacher Manageability Scale (TSM) of 39-items adapted mainly from the Devereux Elementary School Behavior, Scale 11 (Swift, 1982). Using the Teacher Manageability Scale they found that children's behaviour which was internally-directed, such as socially-withdrawal and academic-cognitive difficulties, was rated by teachers as more difficult to manage than externally-directed behaviours such as aggressiveness (Safran, 1986; Safran & Safran, 1987). Manageability ratings were relatively similar between special and regular teachers. However, both regular and special teachers judged special teachers as better managers, and therefore more efficacious in coping, than regular teachers.

These data concerning self-efficacy for dealing with classroom problem behaviour provide useful insights into the explanatory utility of self-efficacy for student teachers and teachers. Such findings support Bandura's (1986, 1989) contention that one key aspect of self-efficacy relates to perceived difficulty of tasks. Tasks perceived by teachers to be most difficult require higher levels of efficaciousness. Not surprisingly,

student teachers differ as do teachers in the degree to which they perceive themselves to be efficacious when confronted with the array of typical classroom problems. The extent to which they persist or give up on dealing with a particular problem is one indicator of self-efficacy. As seemingly difficult tasks are persisted with and overcome by student teachers or teachers, one may well expect such performance accomplishments to increase their sense of self-efficacy on these and similar problem situations.

A major implication from these studies is that measures of self-efficacy need to account for a wide range of situations that characterise the circumstances of teaching. To date, few if any studies that involve either teachers or student teachers have seriously accommodated this implication.

Orientations Toward the Control of Pupils

Teachers' beliefs about and actions in controlling children's behaviour influence children's classroom behaviour and their social and non-social activities (Ayers, Cohen, & Ray, 1993; Skinner & Belmont, 1993). Bandura's (1977) argument that high efficacy people rather than those with low efficacy are more likely to persist and to expend more energy in accomplishing seemingly difficult tasks, has implications for how people construe contexts as being either supportive of autonomy or control.

Teachers' orientations toward dealing with children are a case in point. Teachers' beliefs about their competence in dealing with problems influence how motivated teachers will be in resolving those problems. Furthermore, their choice of autonomous versus controlling orientations toward resolving these difficulties will either enhance or undermine motivation. Contexts that are described as supporting autonomy serve to maintain and enhance intrinsic motivation while controlling environments usually undermine intrinsic motivation (Deci & Ryan, 1980, 1987; Deci, Schwartz, Sheinman, & Ryan, 1981). Social contexts that support teachers in being competent contribute to promoting intentional, motivated and autonomous behaviour rather than controlling behaviour (Deci, Vallerand, Pelletier, & Ryan, 1991). This relationship between efficaciousness, motivation, and autonomous versus controlling orientations is of particular interest in explaining teachers' and student teachers' behaviours with children.

Teachers' orientations toward children are commonly described on a dimension of humanistic through to custodial (Willower, Eidell, & Hoy, 1967, 1973). Humanistic versus custodial orientations toward the control of children by teachers typically are

measured on the Pupil Control Ideology [PCI] (Willower, Eidell, & Hoy, 1967, 1973). The PCI scale has been used in over 200 studies, has internal consistency estimates of between .70 and .93, and is claimed to predict many instructional and managerial behaviours as well as children's perceptions of their teachers (Packard, 1988). The humanistic pupil control orientation emphasises the individuality of children and is characterised by self-discipline and autonomous decision-making rather than by strict, and non-negotiable control. Consequently, the humanistic pupil control orientation values instruction through experiences that are considered to be positive, and is based on cooperation and interaction.

Research evidence distinguishes between humanistic and custodial orientations in teachers, and children's perceptions of their school life. For example, Lunenburg (1990), in a comparison of public and Catholic schools found that humanistic pupil-control orientations in teachers were associated with students' perceptions of classroom life as being interesting, challenging, and eventful. Furthermore, Licata and Wildes (1980) found that the classrooms of more humanistic pupil control teachers tended to be less routinised, less repetitive, freer, and generally more interesting in their educational challenge than those classrooms of more custodial pupil control teachers. Such findings substantiate other studies involving secondary students (Estep, Willower, & Licata, 1980) and elementary students (Multhauf, Willower, & Lacata, 1978).

Custodial pupil control is characterised by impersonality, negativism, pessimism, punishment and mistrust. Schools that are highly custodial in their pupil control orientation tend to present rigid, highly controlled, autocratic environments where order is prescribed, expected, preserved, and valued (Hoy & Miskel, 1987). Custodial teachers tend also to be more external in their locus of control by explaining their successes and failures in pupil control to factors such as luck and environmental uncertainties rather than their own capability (Henderson, 1982). This is consistent with the finding that low efficacy teachers tend to be more custodial in pupil control ideology (Barfield & Burlingame, 1974). Custodial teachers tend to be more rigid, authoritarian and dogmatic in their belief systems, and less progressive in their educational attitudes (Lundin, 1980; Nachtsheim & Hoy, 1976; Voegel, 1979).

The custodial and humanistic distinction is apparent also in other aspects of teaching. Custodial teachers also tend to have lower morale than their more humanistic oriented colleagues, and they express less job satisfaction both with the tasks of teaching and meeting social needs, and work less often and less effectively in professional group activity (Lunenburg, 1984). Also, the evidence suggests that teachers become more custodial with experience (Hoy & Rees, 1977; Packard, 1988). These findings present

interesting and important questions for preservice teacher education about the optimum duration, frequency and nature of student teaching practice.

The beliefs that teachers hold concerning how best to control children also has been related to children's sense of self-esteem. For instance, as custodial orientation towards the control of pupils increases so does students' sense of alienation increase and their self-esteem lower (Deibert & Hoy, 1977; Hoy, 1972). Using a technique of asking participants to make comparisons between similes, Marchant and Schroeder (1992) determined that relationships exist between student teachers' beliefs about the nature of teaching and other aspects of teaching such as support for specific teaching approaches, positive self-concept, and teacher efficacy. In particular, the notion of teacher as advocate appears related to the positive self-concept and self-efficacy of student teachers. The association between teacher orientation towards the control of children, pupil self-esteem and teacher efficacy, suggests that teacher competence is more than simply the sum of observable behaviours. It appears that each is inextricably intertwined in ways which present an important challenge to research into the area.

Differences in approaches toward controlling children have been reported for novice and expert teachers (Swanson, O'Connor, & Cooney, 1990). Novice teachers tend to respond in less directive and less obtrusive ways whereas more experienced teachers typically are more interventionist in their responses, insist on appropriate behaviour, and use controlling procedures such as "time-out" for inappropriate behaviour.

Teachers vary in their approaches to solving social problems with children. These differences may be associated with teachers' sense of efficacy. Hoy and Woolfolk (1990) report that student teachers' social problem-solving strategies became more controlling after a semester of student teaching practice. The evidence suggests that teachers who use social problem-solving strategies that emphasise pupil autonomy and responsibility tend to have more intrinsically motivated pupils (Deci, Schwartz, Sheinman, & Ryan, 1981; Prawat & Anderson, 1988).

The Adults' Orientations Toward Control versus Autonomy With Children: Problems in School Questionnaire (Deci et al., 1981) is designed to gauge autonomous versus controlling orientations of adults and especially teachers. This questionnaire presents eight vignettes each with four solutions that are either high control, moderate control, moderate autonomy, or high autonomy in orientation. The use of vignettes provides situationally-specific contexts for teachers and student teachers to determine their perceived preferences for autonomy versus controlling orientations toward children.

Underlying the judgements teachers make about scenarios such as those presented by these writers are the perceptions about ownership of particular problems. Gordon (1974) suggests that perceptions of problem ownership influence not only teachers' causal attributions but also their control orientations toward students. Brophy and Rohrkemper (1981) found that teachers perceived situations involving teacher-owned problems more negatively than those situations involving student-owned problems. In teacher-owned problem situations, teachers commonly viewed children as responsible for intentionally causing the problem, were more pessimistic about being able to bring about behavioural change, and demonstrated less commitment to helping students change. Conversely, in student-owned problem situations, teachers frequently perceived students as victims with an inability to take control over the problem, were generally favourably disposed to effecting positive behavioural change, and demonstrated commitment to achieving such change (Kauffman & Wong, 1991).

Brophy (1985) sees such differential responding by teachers according to the perceived ownership of problems as being largely explained by causal attributions. Teacher-owned problems are perceived by teachers as being associated with intentional and controllable behaviour of pupils. Teachers tend to respond with controlling rather than problem-resolution strategies in these situations, and are more likely to invoke blame, guilt, criticism or punishment. Student-owned problems are usually perceived as being beyond the control of pupils and are likely to evoke teacher behaviour that typically helps, supports or advises the student. Thus, causal attributions regarding teachers' perceptions of problem behaviour are associated with the control orientations teachers are likely to demonstrate in coping with these problem situations.

Teachers' orientations toward children also relate to how teachers view and are committed to the bureaucratic orientation of the school. Bureaucratic orientation refers to a person's commitment to the attitudes, values, and behaviours that are characteristic of bureaucracies, and emphasises behaviours associated with impersonality, conformity to rules, loyalty, traditionalism, and self-subordination (Blau & Scott, 1962; Gordon, 1969, 1970). Schools can be considered as examples of such organisations in that teachers as participants hold attitudes and values, and demonstrate behaviours which vary along these dimensions of bureaucracy.

Some evidence suggests that teachers' personal efficacy is associated with their bureaucratic orientation (Woolfolk & Hoy, 1990). Woolfolk and Hoy (1990) administered the Work Environment Preference Schedule [WEPS] (Gordon, 1970) to gauge bureaucratic orientation. The WEPS includes 24-items on 5-point Likert scale with high cumulative scores equating with a more bureaucratic orientation. Alpha

coefficients of reliability are in the .90's and the concurrent validity of the instrument has received strong support in a variety of organisational contexts (Gordon, 1967, 1970). Using the WEPS, Woolfolk and Hoy (1990) found that personal efficacy was positively associated with bureaucratic orientation when teachers show more humanistic control orientations or when they are less optimistic about education mitigating against the effects of a poor home environment. Conversely, they found that teaching efficacy related negatively to bureaucratic orientation. High efficacy student teachers tended to be more bureaucratic in perspective yet humanistic in their pupil control beliefs. These results suggest to Woolfolk and Hoy that student teachers appear to have positive attitudes about being controlled themselves (perhaps as a reflection of perceiving themselves as novices) but negative attitudes towards the control of their pupils (suggesting a tendency towards a humanistic, autonomous orientation rather than a custodial, controlling orientation).

In a similar vein, how student teachers view the organisational health of their student teaching practice schools also influences their orientations toward the control of children. The more supportive that student teachers judged principals and teachers to be, the more the student teachers orientated towards encouraging autonomy in pupils (Hoy & Woolfolk, 1990). These researchers employed the Organizational Health Inventory (Hoy & Feldman, 1987), a 9-point Likert scale which measures the extent to which student teachers perceived their placement schools as places where teachers and administrators were supportive, professional, reflective and proud of their school.

One implication from the Hoy and Woolfolk (1990) study is that decisions regarding the specific placement of student teachers in schools for student teaching practice may be of more importance in relation to the shaping of student teachers' beliefs about teaching than is commonly believed. Yet, to date much research has focussed essentially on the self-perceptions of either student teachers or teachers. There is a need, therefore, for research to attend to the self-perceptions of both student teachers and their associate teachers, for both contribute to the student teaching practice.

Finally, research which relates perceived preferences in orientations toward the control of children and other self-perceptions such as self-efficacy generally involves the use of several different measures applied to different contexts. Given that self-perceptions about efficacy and perceived preferences in orientations toward children may be more situationally-specific than global, the use of vignettes to present contexts for measuring these beliefs may provide for more parsimonious comparisons. In this regard, vignettes that are designed to measure both sets of self-perceptions would serve to reduce the ambiguity that may arise from comparing judgements made in different contexts.

Self-Esteem as Teachers

Gergen's (1971) claim that a "person's evaluation or esteem of himself [*sic*] plays a key role in determining his behaviour" (p. 340) continues to be substantiated by research (see Brown & McGill, 1989; Wells & Marwell, 1976; Wylie, 1979). The evidence suggests that high self-esteem seems to enable people to counter the negative effects of difficult life circumstances (Cozzarelli, 1993; Hobfoll & London, 1986; Kaplan, Robbins, & Martin, 1983; Pearlin & Schooler, 1978). Given such evidence, self-esteem might help explain the behaviour of teachers particularly when they are confronted with negative situations that threaten not only their perceptions of self but also their coping actions. However, to date the case regarding teachers and student teachers remains relatively unsubstantiated in the research literature.

Coulter (1987) suggests that in spite of the evidence that self-concept relates to academic attainment and to professional performance, little recent research attention has focussed on either student teachers' self-concept or student teachers' self-esteem. Much research two decades ago concentrated on affective characteristics such as values, attitudes, self-concept and self-esteem, anxiety, and the professional commitment of student teachers. More recently, research on student teaching has focussed on student teachers' teaching behaviors and teaching effectiveness (Stout, 1989). Despite the apparent relationships between student teachers' affect and performance, few studies have probed the relation between student teachers' affective characteristics and teaching behaviours (Coulter, 1987). Little, if any research has attempted to differentiate the constructs of self-efficacy, self-concept, and self-esteem (Gresham, Evans, & Elliott, 1988) especially as they pertain to teachers and student teachers. The work of Thomason and Handley (1990) which demonstrated a positive relationship between teacher efficacy and teacher self-concept, begins to address some of these concerns.

Self-esteem needs to be differentiated from other concepts of self. Self-efficacy differs from self-esteem, locus of control, and expectancy theory concepts (Gist, Stevens, & Bavetta, 1991) and self-concept (Gresham, Evans, & Elliott, 1988). Gist, Stevens, and Bavetta (1991) consider self-efficacy as a judgement about a person's capability in dealing with a specific task. Locus of control, however, is a belief that the relationship between actions and outcomes can be explained causally as either internally or externally sourced, rather than about personal capability (or self-efficacy) with a specific task. Self-esteem generally is viewed as a trait reflecting the affective evaluation of an individual's characteristics and may involve feelings of self-worth or

self-liking. Gresham, Evans, and Elliott (1988) distinguish between self-efficacy, self-esteem, and self-concept this way:

Self-concept contains information that contributes to individuals' self-esteem or evaluation of self-worth. Judgments of self-esteem and self-capability (i.e., self-efficacy) are not equivalent. Self-esteem depends in part on how the culture values one's behavior and its relation to personal standards. Self-efficacy percepts are concerned with judgments of personal capabilities. These two constructs may moderate each other, as when students regard themselves as highly efficacious in an activity that is not culturally valued (e.g., skilled tantrumer) or judge themselves inefficacious at an activity with no self-esteem loss. Accordingly, people typically cultivate self-efficacy in activities that give them a sense of self-worth and, thereby, enhance self-concept. (p. 135)

An association between self-esteem and internal versus external control beliefs has been demonstrated. In a study by Orpen (1994), for example, the effects of self-esteem and personal control were explored in relation to job insecurity and psychological well-being. In this study of 129 employees in a manufacturing workplace, participants with low self-esteem and external control beliefs were significantly more adversely affected by job insecurity than were those with high self-esteem and internal control beliefs.

Research suggests that beginning teachers often are more concerned about their sense of self and the immediate tasks they are responsible to carry out than about their children (Goodman, 1985; Janssens, 1987; Olson & Osborne, 1991) and that classroom practice is more closely related to their perceptions of themselves as teachers than to teacher education programmes (Blakey et al., 1989). Given this emphasis on self-perceptions, the potential for self-esteem to help explain the behaviour of beginning teachers warrants further investigation.

There is some evidence of a relationship between self-esteem and teacher burnout. Anderson and Iwanicki (1984) found that the low self-esteem in teachers correlated significantly with the emotional exhaustion and de-personalisation subscales of the Maslach Burnout Inventory [MBI] (Maslach & Jackson, 1986). Not surprisingly, those teachers whose needs for self-esteem were not being satisfied are more likely to experience burnout (Malanowski & Wood, 1984). How teachers feel about the gratification they receive from their work has been shown to be strongly negatively correlated to burnout (Friedman & Barber, 1992). Faber (1991) makes the point that many teachers who feel that their work is making a difference in the lives of their

students are more able to tolerate the stresses of teaching and avoid burnout. There seems to be a relationship between burnout and feelings of personal competence as a teacher, personal capability to manage children, and job satisfaction.

In a study involving psychology students, Brown and Mankowski (1993) found that "a person's global orientation toward the self" (p. 421), that is self-esteem, moderates the relationship between mood and self-evaluation. While low and high self-esteem participants responded with positive acceptance to positive events, the same was not so when dealing with negative events. High self-esteem participants rejected, limited, or attempted to compensate for negative events while low self-esteem participants typically responded with lower self-evaluations (Baumeister, Tice, & Hutton, 1989; Brown, Collins, & Schmidt, 1988; Gibbons & McCoy, 1991; Kernis, Brockner, & Frankel, 1989; Tice, 1991).

Furthermore, in dealing with negative events, high self-esteem individuals are more likely to employ problem-focussed coping strategies than avoidance strategies (Carver, Scheier, & Weintraub, 1989; Cronkite & Moos, 1984). Brown and Mankowski (1993) suggest that such self-depreciative responses increase the likelihood of low self-esteem participants suffering from psychological distress. While not established in Brown and Mankowski's (1993) research, such feedback may in turn, further undermine low self-esteem participants' perceptions of self-efficacy. Bandura (1991) makes the point, though, that mood despondency relates to lower self-efficacy, weakens motivation, impairs performance, and breeds deeper despondency. Conversely, the ability of high self-esteem participants to restrict or even compensate for the effects of negative moods as illustrated in the Brown and Mankowski research may help them to maintain their self-esteem as well as enhance self-efficacy beliefs. Kavanagh and Bower (1985) would probably agree. In their study they found that self-efficacy is enhanced when positive mood is induced, whereas induced despondency diminishes self-efficacy.

When generalised to teachers, it could be postulated that low self-esteem teachers are more likely than their high self-esteem colleagues to be prone to psychological distress arising, at least in part, from their self-depreciative responses to negative events. In turn, this mood despondency is likely to be associated with lower perceptions of self-efficacy. Whether this claim can be sustained remains unsubstantiated in the research.

The predominant focus of self-esteem research has been on the implications of possessing high versus low self-esteem. This emphasis on levels may assume that self-esteem remains more or less stable across time and contexts. However, Kernis, Cornell, Sun, Berry, and Harlow (1993) stress the importance of also considering the

stability versus instability of self-esteem. They define stability of self-esteem as "the magnitude of fluctuations in momentary, contextually based self-esteem" (p. 1190). Kernis et al. (1993) found that instability for high self-esteem individuals was associated with acceptance and positive emotions following positive comments but to feelings of rejection and defensiveness after experiencing negative feedback. Conversely, instability in low self-esteem individuals was associated with less defensiveness and more acceptance of negative feedback. Given such evidence about fluctuations within global self-esteem it seems reasonable to assert that occupationally-specific self-esteem may equally, if not more so, be vulnerable to change. Research that involves occupationally-specific self-esteem rather than global self-esteem is surprisingly sparse. Yet it would seem valuable. In this regard, the occupationally-specific self-esteem of teachers and student teachers deserves more serious enquiry.

The context of student teaching practice and its influence on student teachers' perceptions of self-esteem provides some insights in this regard. For example, Olson and Osborne (1991) found that student teachers rated high on student teaching practice held positive self-attitudes and that student teachers rated low on teaching competence had low self-esteem and more frequently experienced emotional stress during student teaching practice. They make the point that their analyses were correlational and the direction of the relationship between self-esteem and performance was not revealed. In reality, high performance could have contributed to positive self-esteem, or positive self-esteem could have caused high achievement in that people who are confident and expect to be successful tend to behave in ways that are likely to bring success. However, it is likely that the relationship is reciprocal. In a further study, lower self-efficacy scores related to higher levels of depression and lower self-esteem (Wells-Parker, Miller, & Topping, 1990).

The most common measure of global self-esteem is the Self-Esteem Scale [SES] (Rosenberg, 1965, 1979) which is reported to have been used in at least twenty-five per cent of research studies on self-esteem between 1967 and 1990 (Blascovich & Tomaka, 1991). The SES consists of 10 global items that measure positive or negative feelings about oneself usually on a four-point "agree-disagree" Likert scale. Some critics claim the Rosenberg SES is susceptible to socially desirable responding. However, Wylie (1974) suggests that there can be no definite conclusions about the relationship between the Rosenberg and measures of socially desirable responding. Certainly, anonymous rather than public responding by participants is likely to overcome much of this effect.

As has been noted earlier, the concepts of self-efficacy, self-esteem, and self-concept are potentially confusing and interpretations of research findings need to be based on

clarification of terminology. To illustrate, some research has probed the interplay between the self-efficacy and self-concept of teachers. Guskey (1988) for example, investigated the relation between teacher efficacy, self-concept, and attitudes towards the implementation of instructional innovation. He ascertained self-efficacy by means of the Rand measure and the Responsibility for Student Achievement Scale [RSA] (Guskey, 1981). However, his explanation of self-concept appears to be related more to attitudes of teachers towards themselves as teachers rather than self-concept per se. Likewise Marsh, Walker, and Debus, (1991) identified further confusion in the use of terminology in a study by Skaalvik and Rankin, (1990). Skaalvik and Rankin asked students to judge their ability to successfully answer each of 20 mathematics items and each of 30 verbal items. As such, Marsh, Walker, and Debus rightly claim that the task reflected self-efficacy rather than academic self-concept and the results inevitably mismatched with other numerous studies on academic self-concept.

The fact that little research attention has been directed at either teachers' or student teachers' perceptions of self-esteem as teachers, as distinct from global self-esteem or self-concept is surprising. Furthermore, the prevailing rhetoric would suggest that student teaching practice has strong effects on student teachers' perceptions of self-esteem as teachers. Yet, this claim remains unsubstantiated in research findings.

Summary

This chapter reviewed the findings from the research about perceptions of efficacy, orientations toward the control of children, and self-esteem. These findings about self-perceptions were discussed in terms of their potential utility to help explain the behaviour of teachers and student teachers. Given that student teaching practice is claimed to have effects on student teachers' perceptions of self, these findings were also discussed with particular reference to field-based experiences.

Central to this present thesis is Bandura's (1977, 1982, 1986, 1989) claim that performance accomplishments, vicarious experiences, verbal persuasion, and emotional arousal are four major influences on self-efficacy. These sources of influence on self-efficacy are argued to have particular relevance to student teaching practice. Student teaching practice provides opportunities for student teachers to deal with challenging events and, in doing so, to gain feedback on the relative effectiveness of their performances. In short, student teaching practice provides experiences for student teachers to gain performance accomplishments. In addition, their associate teachers serve as models in dealing sometimes successfully and sometimes unsuccessfully with

challenging events. Associate teachers also act as influential persuaders who verbally encourage student teachers in their efforts to cope with difficult situations. Student teaching practice is a time of considerable emotional arousal for student teachers as their beliefs are confronted with the unpredictability and uncertainty that characterises teaching. Yet, in attempting to alleviate the physiological arousal induced through student teaching practice, student teachers may well find their self-efficacy beliefs are further challenged by their often relative inexperience in dealing with the demands of teaching. The question arises then as to how student teachers' beliefs about their capability to cope are influenced by student teaching practice especially when due regard is given to the presence of an influential other, namely the associate teacher.

Self-efficacy is argued to be a central set of beliefs about people's capability to cope. Extensive research indicates that self-efficacy has considerable utility in explaining why people are motivated to act in certain ways and choose to persist even when the odds seem to be against them. In this present research, it is claimed that this utility of self-efficacy to act as a mediator between knowledge and action may also help explain how the self-perceptions of student teachers and their associate teachers relate to understandings about how they may decide to behave. Evidence in support of this claim is drawn from studies involving a wide range of participants both apart from, as well as including, student teachers and teachers.

First, there is supporting evidence arising from research in a plethora of non-teaching contexts across a diverse array of participants. For example, self-efficacy provides an explanation as to why individuals continue to engage in various kinds of dysfunctional behaviours such as those associated with phobias, or indeed, are able to overcome these. Self-efficacy is used to explain the choices that people make in engaging in withdrawal or approach behaviours in various social situations, to respond to maternal social cues from infants, to be involved in political affiliations, and to be willing to exercise self-defense when facing physical threat. It has been linked to the facilitation of cognitive functioning such as improving analytic thinking and memory performance, and in the regulation of chronic pain or perceived pain. The predictive utility of self-efficacy has also been demonstrated in a variety of fields such as health (for example, in the regulation of eating or weight control), and as a predictor of a wide range of sports performance. Gender differences in efficacy beliefs have been reported in domains such as career choice and in a variety of employment-related contexts. Studies with children also suggest that self-efficacy can help explain and be used to reduce test anxiety, and to increase motivation and learning across a wide range of curriculum. The wide range of participants and diverse contexts in which self-efficacy studies have been carried out confirms the significant mediational role played by self-efficacy in

explaining the association between what individuals know and how they choose to act and persist in performing.

Secondly, supporting evidence also arises from some studies involving student teachers and teachers. Self-efficacy is argued to be central in explaining the relationship between the beliefs held by student teachers and teachers, and their performances. Evidence suggests that teacher efficacy relates positively to job satisfaction, commitment to teaching, and teaching competence. The motivation and achievement of children is linked to the efficacy of teachers. Teacher efficacy appears to be influenced by the grade level being taught, the gender of teachers, and the ability of students. Consistent with Bandura's (1977, 1982, 1986) claims, it seems plausible to contend that teachers who demonstrate high levels of innovativeness will tend also to have high self-efficacy. Classroom management strategies, including reactions to problem situations, are related to the perceptions of self-efficacy held by teachers. Finally, there is evidence to suggest that when compared to experienced teachers, beginning teachers are found to be more optimistic and their sense of efficacy lowers as they gain experience. Thus, there is some evidence that suggests that self-efficacy can be used to explain a range of behaviours associated with student teachers and teachers.

Student teachers' and teachers' beliefs about their competence in dealing with problems influence how motivated and persistent they will be in approaching and resolving those problems. For example, student teachers' and associate teachers' perceptions about self-efficacy may influence their choice of autonomous versus controlling orientations toward children. The evidence suggests that teachers with lower efficacy tend to be more custodial rather than humanistic in their orientations toward children, and are more dogmatic in their belief systems, less progressive in their attitudes toward educational issues, and typically operate highly controlled, rigid and autocratic environments where order is prescribed, expected, preserved and valued. There is a relationship between the organisational health of a school and student teachers' orientations toward the control of children. The more supportive student teachers find principals and teachers to be, the more these student teachers will be oriented towards encouraging autonomy in children. The evidence suggests that custodial teachers tend to be less satisfied with teaching as a career, have lower morale, and are more reluctant to participate in activities for professional development. Furthermore, children in such environments tend to report higher levels of alienation and lower levels of self-esteem. The suggestion is that teachers become more custodial with experience as do student teachers after a semester of student teaching practice. Given that self-efficacy is proposed to explain people's willingness to be motivated to act and to persist in acting, and that evidence suggests that student teachers' and teachers' perceptions influence

how they orientate towards children, the association between beliefs about one's capability to cope and those relating to controlling children are of particular interest to those involved in teacher education.

Student teachers' perceptions of self-esteem as teachers are also considered to be a central concern of teacher educators. There is some evidence apart from student teachers and teachers that external control beliefs when linked with low self-esteem beliefs are associated with higher levels of job insecurity than for employees with high levels of self-esteem and internal control beliefs. For teachers, low self-esteem has been related to lack of job satisfaction, and high teacher burnout. Self-esteem has been claimed to moderate the relationship between mood and self-evaluation such that how individuals deal with problem situations relates to their perceptions of self-esteem. High self-esteem individuals tend to reject, limit, or compensate for negative events while low self-esteem individuals typically respond with lower self-evaluations. The case may well hold true for student teachers and teachers as well. Some evidence suggests that high self-esteem in student teachers is associated with high levels of teaching competence during student teaching practice, while low self-esteem is associated with low levels of teaching competence. The relationship appears to be intimately self-fulfilling. Mood dependency relates to lower self-efficacy, lower levels of motivation, and impaired performance though the causal relationships between these states have yet to be clearly established. Most studies to date, however, have used a global measure of self-esteem. The limited evidence about self-esteem in the occupationally-specific domain of teaching, therefore, is a concern. In this regard, the present study narrows the focus of self-esteem to the occupationally-specific self-esteem as teachers for teachers and for student teachers. Central to this decision is the assumption that while self-esteem in general may be related to self-esteem as teachers, the direction and strength of that relationship need not always be positive.

What we know about the effects of student teaching practice on student teachers' perceptions about their self-efficacy and the efficacy of teachers in general still remains somewhat inconclusive. This is especially more so when the beliefs of associate teachers, who are claimed to act as important influences in the professional life of student teachers, are also considered. Furthermore, there is some evidence that student teachers' beliefs about their orientations toward the control of children change across the period of student teaching practice. Finally, if the claims that student teaching practice builds confidence in student teachers in themselves as teachers are true, it may be hypothesised that their self-esteem as teachers will maintain or increase across student teaching practice. However, given that associate teachers act not only as models, but also serve professional roles in advising, advocating, appraising and

encouraging student teachers, there is surprisingly little evidence to be found in the literature that includes the variable of the associate teachers' perceptions of efficacy, orientations toward the control of children, or in their self-esteem as teachers, relative to those beliefs held by student teachers. This is a concern addressed by the present research.

This present research, then, determines student teachers' and their associate teachers' perceptions of efficacy before and after the final and major block of student teaching practice. The group factors (student teacher and associate teacher) are considered on repeated measures of efficacy (self as teacher, and others as teachers), self-esteem as teachers, and orientations toward children (autonomous versus controlling). If the rhetoric concerning the value of student teaching practice holds true, it should be demonstrated that perceptions of efficaciousness and self-esteem as a teacher become stronger for student teachers, while their orientations toward children become more controlling. Put simply, this present research seeks to determine whether student teaching practice influences student teachers' efficacy, control, and self-esteem beliefs, especially when the measures take account of the self-perceptions held by associate teachers. Two general questions are therefore asked:

- (a) How do final year primary student teachers compare with their associate teachers on perceptions of efficacy, orientations toward children, and self-esteem as teachers?

- (b) What effect does student teaching practice have on primary student teachers' and associate teachers' perceptions of efficacy, orientations toward children, and self-esteem as teachers?

The research to date in the field is not as emphatic as the rhetoric would claim. Given the importance placed on student teaching practice in preservice teacher education programmes, this present research aims to provide more definitive insights on these questions. These questions give rise to the following research hypotheses:

Research Hypotheses

Hypothesis 1

Perceptions of efficacy as teachers (self and others) differ between student teachers and associate teachers.

1.1 Perceptions of self-efficacy as teachers (including personal teaching efficacy) are significantly higher for student teachers than for associate teachers.

1.2 Perceptions of efficacy about others as teachers (including teaching efficacy) are significantly higher for student teachers than for associate teachers.

It has been claimed that student teachers are likely to hold unrealistic optimism about teaching (Weinstein, 1988), and a sense of idealism that often exceeds that of their associate teachers (Walker, 1992). Compared with experienced teachers, student teachers are argued to be more optimistic (Broussard, Book, & Byars, 1988). However, these findings are far from conclusive. While most studies suggest that classroom teachers generally tend to have lower self-efficacy than do preservice teachers, there is evidence that in some situations such as with planning and evaluation the opposite is true (Benz, Bradley, Flowers, & Alderman, 1992).

Hypothesis 2

Significant differences between student teachers and associate teachers across student teaching practice are attributed to increases in student teachers' self efficacy as teachers, and decreases in their efficacy about others as teachers.

2.1 Significant differences between student teachers and associate teachers across student teaching practice are attributed to increases in student teachers' perceptions of self-efficacy as teachers.

2.2 Significant differences between student teachers and associate teachers across student teaching practice are attributed to decreases in student teachers' perceptions of efficacy about others as teachers.

An exploratory study by Rothenberg, Gormley, and McDermott (1993) suggests that student teachers begin their student teaching practice quite confident in their beliefs

about education, training and ability to teach, and were even more confident after two blocks of seven weeks student teaching practice in their ability to teach the curriculum of elementary schools, to use specific teaching methods and strategies, and to manage classes. Hoy and Woolfolk (1990) found that after a semester of student teaching practice, student teachers' sense of general teaching efficacy declined while their sense of personal efficacy increased. The evidence is somewhat equivocal, however. When student teachers beginning or completing their teacher education programmes are compared with experienced teachers, student teachers are argued to be more optimistic and that their efficacy lowers as they gain experience (Broussard et al., 1988).

Hypothesis 3

Perceived preferences in orientations toward children differ between student teachers and associate teachers.

3.1 Student teachers' perceived preferences in orientations toward children are significantly more autonomous than those of associate teachers.

3.2 Student teachers' perceived preferences in orientations toward children are significantly less controlling than those of associate teachers.

In line with the views that student teachers often hold a sense of unrealistic optimism (Weinstein, 1988), and that novice teachers tend to respond in less directive and less obtrusive ways, it follows that their orientations toward children are likely to be more autonomous than controlling. The evidence also suggests that with experience, teachers become more custodial (Hoy & Rees, 1977; Packard, 1988). Thus, it is reasonable to postulate that the perceived preferences in orientations toward children for associate teachers will be more controlling than autonomous. On the other hand, the perceived preferences in orientations toward children are likely to be more autonomous than controlling for student teachers.

Hypothesis 4

Significant differences between student teachers and associate teachers across student teaching practice are attributed to student teachers becoming less autonomous and more controlling in their orientations toward children.

4.1 Significant differences between student teachers and associate teachers across student teaching practice are attributed to student teachers becoming less autonomous in their orientations toward children.

4.2 Significant differences between student teachers and associate teachers across student teaching practice are attributed to student teachers becoming more controlling in their orientations toward children.

Etheridge, James, and Bryant's (1981) study reported that after the completion of student teaching practice, student teachers became more interventionist, and the significant differences that were apparent at the outset of student teaching practice between student teachers and their associate teachers disappeared. A frequent finding is that student teaching practice affects the teaching behaviour of student teachers in that they become more custodial rather than humanistic (Hoy, 1967, 1968, 1969; Hoy & Rees, 1977; Jones, 1982; Packard, 1988), more interventionist (Tabachnick & Zeichner, 1984), and controlling rather than autonomous in their orientations toward children (McNeely & Maertz, 1990). Hoy and Woolfolk (1990) found the effects of student teaching practice as making prospective teachers more custodial in pupil control orientation and more controlling in their social problem-solving perspectives. However, there are some exceptions in the research. Custodial effects are more likely to be resisted by student teachers if preservice teacher education programmes are enquiry-based (Tabachnick & Zeichner, 1984), or if the perspectives of cooperating teachers are more humanistic than custodial in orientation (Zeichner & Grant, 1981).

Hypothesis 5

Student teachers' self esteem as teachers is significantly higher than associate teachers' self-esteem as teachers.

Apart from conventional wisdom, there is little direct evidence to sustain the current hypothesis. Given that self-efficacy is often reported to be significantly higher for student teachers than teachers, and that there appears to be some positive relationships between self-efficacy and self-esteem (Olson & Osborne, 1991; Wells-Parker, Miller, & Topping, 1990) it is postulated that self-esteem as teachers will also be significantly higher for student teachers than associate teachers.

Hypothesis 6

Significant differences between student teachers and associate teachers across student teaching practice are attributed to increases in student teachers' perceptions of self-esteem as teachers.

Student teaching practice is highly valued by student teachers in their preparation as teachers (Haring & Nelson, 1980; Lortie, 1975; Noslow, 1975; Peck & Tucker, 1973). Custom and practice assume that one essential benefit of student teaching practice is its effects on student teachers' beliefs about their personal esteem as teachers. Student teaching practice, the rhetoric would claim, provides opportunities for student teachers to affirm their perceptions of self-esteem as teachers. On the other hand, it is proposed that associate teachers' perceptions of self-esteem as teachers are relatively more stable and are unlikely to show marked changes across student teaching practice.

CHAPTER 3

METHODOLOGY

This present investigation involves the appraisal of student teachers' and associate teachers' perceptions of their personal teaching efficacy and teaching efficacy about others, their control versus autonomy orientations toward children, and their self-esteem as teachers, both prior and subsequent to the student teaching practice carried out by final year primary student teachers. This chapter describes the participants, explains the selection of the block of student teaching practice across which data were gathered, outlines the procedures undertaken, and describes the tasks used in the study.

Participants

In this study, primary student teacher participants were drawn from a New Zealand College of Education that provides nationally recognised Diploma of Teaching qualifications and Bachelor of Education courses to around 900 early childhood, primary and secondary student teachers. Of these, some 700 are enrolled in the three year preservice primary teacher education programme, 213 of whom are in their final year. The College of Education is a well-established provider of face-to-face and distance teacher education programmes and is essentially State funded.

The programme of study that student teachers undertake in this College of Education shares many similarities with other nationally recognised providers of teacher education. Two essential differences are apparent when compared with most other teacher education providers in New Zealand. First, this programme places a particular emphasis on developing student teachers' personal subject knowledge and competence in at least two subject areas of the primary school curriculum. In this regard, around forty-five per cent of the on-campus course time is devoted to student teachers' personal subject studies compared with curriculum studies (25%), professional education (18%), and general studies (12%). Secondly, courses that contribute to the degree component of the programme are taught by teacher educators appointed to the College of Education rather than by academic staff of the university.

Student Teachers

All final year preservice primary teacher education students ($N = 213$) in this College of Education's three year programme were invited to participate in this study. Of these, 166 (77.9%) provided usable responses on the initial questionnaire that was completed before the final block of student teaching practice was commenced. After student teachers had completed their student teaching practice, a follow-up questionnaire (see Appendix A) attracted 145 usable responses representing 68.1% of the intake of all final year primary student teachers in the College of Education's programme. Of these 145 primary student teacher participants, 129 provided usable responses on both the initial and follow-up questionnaires. Overall, 60.6% of all final year primary student teachers in the College of Education's programme responded on the questionnaires administered both before and after their final block of student teaching practice. Questionnaire returns were only considered usable if respondents provided sufficient overall responses to warrant inclusion. Several participants abandoned the task without comment or indicated that they did not wish to continue as the task was either too demanding or time-consuming. After confirmation by an independent opinion, several questionnaire returns were eliminated as rouge responses.

When associate teacher pairings were considered for these 129 primary student teachers, 50 student teachers were identified as having associate teachers who likewise provided usable responses on both the initial and follow-up occasions. These 50 primary student teacher and associate teacher [ST-AT] dyads account for 23.5% of all the third year primary student teachers in the College of Education programme.

Table 1 summarises the data for the intake of all third year primary student teachers in the programme ($N = 213$) and the cohort of those third year primary student teachers who were selected as participants in the study once matched pairs of student teacher-associate teacher [ST-AT] responses on both initial and follow-up questionnaires were established ($n = 50$).

As a group, the cohort of primary student teacher participants were mostly female (80%), and European (86%). Ages ranged from 20 through to over 40 years, though most were aged between 20 and 24 years (72%, $SD = 1.55$). When matched against the intake of student teachers, the cohort of student teachers was similar in age and gender, but the proportion of Maori representation was substantially smaller. Participants were drawn from all eight subject specialisms offered within the teacher education programme. Representation in the cohort of student teachers was essentially similar to the overall student teacher intake for the subject specialisms of art, music, science and

social studies. However, the subject specialisms of music and physical education were proportionally over-represented in the final sample, while Maori/bilingual studies and mathematics were under-represented.

Table 1

Description of the Final Year Primary Student Teacher Intake and Participants by Gender, Age, Ethnicity and Subject Specialism

		Final year primary student teachers			
		Intake (N=213)		Participants (n=50)	
		n	%	n	%
Gender	Male	49	23	10	20
	Female	164	77	40	80
Age	-19 years	14	6.6	0	0
	20-24 years	142	66.7	36	72
	25-29 years	10	4.7	3	6
	30-34 years	17	7.9	3	6
	35-39 years	16	7.5	3	6
	40- years	14	6.6	5	10
Ethnicity	European/Pakeha	161	76	43	86
	Maori/Pakeha or Maori	52	24	7	14
Subject Specialism	Art	25	11.7	7	14
	English	28	13.1	6	12
	Mathematics	23	10.8	9	18
	Maori/Bilingual	44	20.7	6	12
	Music	24	11.3	11	22
	Physical Education	32	15.0	4	8
	Science	26	12.2	5	10
	Social Studies	11	5.2	2	4

Furthermore, the participant group of primary student teachers and the intake of all third year primary student teachers do not differ significantly on their self-ratings of performance on planning and organising programmes, $F(1, 213) = 0.3, p = .58$ (NS), on teaching a child, groups and class, $F(1, 213) = 0.4, p = .53$ (NS), or on managing children's behaviour, $F(1, 213) = 0.04, p = .84$ (NS). Thus, the participant group of primary student teachers and the intake of all third year primary student teachers appear

1

Efforts were taken by the researcher to ensure adequate participation by Maori student teachers. After consultation with two Maori lecturers responsible for their tuition, procedures were adopted during the data collection phase whereby participation of Maori student teachers might be enhanced without violating reliability considerations. Accordingly, the questionnaires were administered by these Maori lecturers in group settings for those Maori student teachers willing to participate. These lecturers were able to communicate bilingually with Maori student teachers to explain the nature of participation and instructions for task completion, as well as to clarify any concerns.

Future research may well profit from exploring alternative means, measures, and indices that may attract higher response rates from Maori, as well as illuminating the association between teachers' self-beliefs and Maori sense of self.

to share similar self-perceptions about planning and teaching programmes, and about managing children's behaviour.

In summary, comparison of the data for the two groups suggests that the group of primary student teacher participants fairly represents the intake of all final year primary student teachers in terms of gender and age. There is some disparity evident on ethnicity and subject specialism. The non-significant differences between the two groups on self-perceptions about planning and organising programmes, on teaching a child, groups and class, and on managing children's behaviour, suggest that on these dimensions the sample of student teachers is characteristic of the whole intake of student teachers from which the participants were drawn.

Associate Teachers

The pool of associate teachers is accessed by the Teaching Practice administrators from the College of Education based on the recommendations of school principals. The Teaching Practice administrators determine the placement of primary student teachers with particular associate teachers. These decisions are governed by a variety of factors and usually include the student teachers' preferences, the perceived developmental needs of student teachers, the availability of associate teachers, specific characteristics of associate teachers (including curriculum strengths, teaching style, personality characteristics), grade level, type and location of school, and availability of transportation.

Of the 213 associate teachers invited to participate, 118 (51.6%) provided usable responses on the initial questionnaire that was issued before they supervised the student teaching practice of final year primary student teachers. When the student teaching practice was completed, a follow-up questionnaire (see Appendix A) attracted 63 usable responses representing 29.6% of all associate teachers involved in supervising primary student teachers. Of these 63 participants, 59 (27.7%) associate teachers provided usable responses on both the initial and follow-up questionnaires. Decisions regarding usable questionnaire responses were similar to those applied on student teachers' questionnaires.

A further nine associate teachers were excluded when their student teacher pairings failed to complete both the initial and follow-up questionnaires. The resulting 50 associate teachers account for 23.5% of all associate teachers involved in the supervision of primary student teachers on this student teaching practice.

A comparison of the participant group of associate teachers with the total pool of associate teachers employed by the College of Education was not practicable. However, Table 2 reports data on the 118 associate teachers who responded on the initial questionnaire, and on the final sample of 50 associate teachers who participated in the study. These data provide for comparisons in terms of gender, age, ethnicity, role designation, and qualification.

Inspection of these data suggests that the final sample of associate teacher participants ($n = 50$) fairly represents the larger sample of associate teachers who responded on the initial questionnaire ($n = 115$) in terms of gender, age, ethnicity, role designation and qualifications. Further to this, the participant group of associate teachers and the group of associate teachers who initially responded on the questionnaire did not differ significantly in terms of years of teaching experience, $F(1, 163) = 0.15, p = .69$ (NS), or by the number of student teachers that they estimated they had supervised, $F(1, 153) = 0.4, p = .11$ (NS). Thus, the experience of the two groups appears to be similar in terms of overall years of teaching and in the supervision of primary student teachers.

Of those who comprised the participant group of associate teachers, most were female (70%) and European (94%). Ages ranged from 20 years through to over 50 years ($M = 40-44$ years). The teaching experience of these participant associate teachers varied between 2 and 35 years ($M = 14$ years, $SD = 8.2$). While most were practising classroom teachers (58%), other role designations of senior teacher (18%), assistant principal (16%) and principal (4%) were reported. All associate teachers held teaching qualifications with fifty per cent having an Advanced Diploma of Teaching, or a first or higher degree. Associate teacher participants reported a wide range of experience relating to the number of student teachers they estimated they had supervised ($M = 16.7, SD = 27.21$) and a few were novices or relative novices in this role.

Typically the participating associate teachers came from urban (74.5%) rather than rural schools (25.5%). These schools varied in size with 27 per cent having between two and eight teachers, 31 per cent either eight to fourteen teachers or fourteen to twenty teachers, and 11 per cent with twenty to twenty-six teachers. Class sizes ranged from twelve to thirty-seven children ($M = 26.7, SD = 6.26$). Sixteen per cent of the children were aged between five and seven years, 35 per cent between seven and nine years, 39 per cent between nine and eleven years, and 10 per cent were between eleven and thirteen years of age.

To summarise, participating associate teachers compared favourably with the larger sample of associate teachers who responded on the initial questionnaire in terms of

gender, age, ethnicity, role designations and qualifications. These participants' experience varied widely both in teaching and in supervising student teachers, but they did not differ significantly on these factors from the larger group of associate teachers who responded on the initial questionnaire. Furthermore, these participating associate teachers were drawn from a wide range of school sizes and locations, and from class sizes which seem typical of primary and intermediate schools in New Zealand.

Table 2

Description of Associate Teachers who Responded on the Initial Questionnaire, and Participant Group by Gender, Age, Ethnicity, Role Designation and Qualification.

		Associate teachers			
		Initial respondents (n=118)		Participants (n=50)	
		n	%	n	%
Gender	Male	34	28.8	15	30
	Female	84	71.2	35	70
Age	20-24 years	6	5.0	2	4
	25-29 years	13	11.0	6	12
	30-34 years	20	17.0	8	16
	35-39 years	19	16.1	6	12
	40-44 years	30	25.4	17	34
	45-49 years	21	17.8	7	14
	50- years	9	7.7	4	8
Ethnicity	European/Pakeha	107	90.7	47	94
	Maori/Pakeha or Maori	10	6.8	3	6
	Other	1	2.5	0	0
Role Designation	Teacher	68	57.6	29	58
	Senior Teacher	22	18.6	9	18
	Assistant Principal	16	13.6	8	16
	Principal	12	10.2	4	8
Qualification	Trained Teachers Cert	36	30.5	12	24
	Diploma of Teaching	21	17.8	9	18
	Advanced Diploma	7	6.0	3	6
	First Degree	44	37.3	20	40
	Higher Degree	3	2.5	2	4
	Other	6	5.1	4	8
	Undeclared	1	.8	0	0

Selection of the Block of Student Teaching Practice

The selection of the particular block of student teaching practice used in this study was influenced by several considerations.

First, research frequently involves student teaching practice blocks of no less than eight weeks and usually up to semester length (e.g., Bunting, 1988; Goodman, 1989; Hoy & Woolfolk, 1990; Jones, 1982; Kagan & Albertson, 1987; Kagan & Tippins, 1991). Conclusions arising from these studies need to be interpreted within that context. Semester length student teaching practice would be the exception rather than the rule in New Zealand preservice teacher education programmes. Thus, the selection of the six week student teaching practice in this present study contrasts with overseas studies. Yet, like the semester length patterns typical in overseas programmes, the six week period represents the most extensive block of student teaching practice undertaken in this preservice programme, and more often than not represents the usual rather than the exception in New Zealand preservice primary teacher education programmes.

Secondly, this student teaching practice represents the final and most substantive, continuous block of supervised teaching undertaken by primary student teachers during their three-year preservice programme in the College of Education. By this stage in their preservice teacher education programme, most primary student teachers are attuned to the impending prospect of beginning teaching. Furthermore, before commencing this field work these student teachers have undertaken a total of sixteen weeks of student teaching practice across a variety of grade levels and schools, and will have completed over eighty per cent of the Diploma of Teaching programme. Consequently, performance on this student teaching practice is considered important for determining the final pre-graduation assessment of these student teachers.

Thirdly, the six weeks of student teaching practice is the most extensive exposure to supervised teaching for primary student teachers in their preservice teacher education programme. Primary student teachers are assigned to particular practising teachers who act as associate teachers for the College of Education by providing student teachers with professional support and guidance, as well as appraisal. The role of these associate teachers is complemented by College of Education lecturers who observe and note-take on several occasions while the student teacher is in the teaching role, and conduct post-observation conferences with the student teacher and associate teacher. College of Education lecturers and associate teachers provide independent informal and formal written reports on student teachers' performances. Primary student teachers are required to take full teaching responsibility for at least two of the six weeks although

most elect to undertake more. Inevitably, this experience in teaching confronts student teachers with much of the reality of classroom teaching which, when coupled with feedback from associate teachers and College of Education lecturers, serves to affirm beliefs in their capabilities as teachers.

Procedure

The design of this present research required data to be gathered from primary student teachers and their associate teachers both prior and subsequent to the final major block of student teaching practice. Data were collected on student teachers' and associate teachers' perceptions of efficacy (self-efficacy as teachers or personal teaching efficacy, and efficacy about other teachers or teaching efficacy), control versus autonomy orientations toward children, and self-esteem as teachers.

In this study, the selection and placement of student teachers with associate teachers followed the usual protocols for the Teaching Practice administrators. The researcher had no involvement in either the negotiation or assignment of student teachers to schools or associate teachers, or in the selection of associate teachers. Thus, pairings of student teachers and associate teachers were made independently of the researcher.

Consent

Written consent was gained from school principals to invite associate teachers to contribute in the study. Associate teachers received a postal invitation to participate in the research and were informed that involvement was voluntary, that coding would be used to match student teacher and associate teacher [ST-AT] dyads according to how they had been assigned by the Teaching Practice administrators, that anonymity of responses was assured, and that participation would not affect their status or involvement as associate teachers. These conditions were restated on the cover sheet of each set of initial and follow-up questionnaires issued to participants.

Student teachers received a verbal invitation to participate and also were informed that involvement was voluntary, that coding would be used to match student teacher and associate teacher [ST-AT] dyads according to how the Teaching Practice administrators had assigned them, that anonymity of responses was assured, and that participation would not affect decisions regarding their placement with associates, course grades or graduation status. These conditions were also repeated on the cover sheet of each set of initial and follow-up questionnaires issued to participating student teachers.

Coding and Confidentiality

Each questionnaire was coded. Returns were recorded by an independent third party who provided the researcher with coded student teacher-associate teacher [ST-AT] dyads. This use of an independent third party assured the anonymity of participants.

Randomisation of Items

Peake and Cervone (1989) demonstrate that initial reference points in a sequence of items such as those on a questionnaire can have an anchoring effect on self-efficacy judgements. They found that presenting a descending format by ordering items from most to least difficult in terms of task demands, tended to produce slightly higher self-efficacy judgements than did either an ascending order or a random order. Because the ascending order of item presentation appears not to bias self-efficacy judgement, they recommend it should be the preferred order of presentation. This presumes that agreed difficulty of task demands can be established prior to the administration of the questionnaire. In the event that this cannot be clearly established, as is the case in this present research, it makes good sense to randomise item presentation.

Randomisation has another benefit. Sanna (1992) argues that the usual practice of manipulating easy versus hard task difficulty for items in social facilitation research may affect performance by influencing participants' efficacy expectations. An easy task may produce high efficacy judgements while a difficult task may promote low efficacy judgements (Bond, 1982; Carver & Scheier, 1981; Sanna & Pusecker, 1994). Randomisation of items across a sample of participants, while not eliminating such influences, nevertheless is important because it helps, though does not guarantee, to ensure the independence of observations (Glass & Hopkins, 1984; Shaver, 1993).

In the present research, items were assembled in questionnaires in ways that aimed to reduce presentation sequencing effects by adopting the following procedures.

- a. Items relating to all efficacy measures were randomised. These include measures of RAND Efficacy, the Teacher Efficacy Scale, and the Self-Esteem as Teachers Scale. (see Appendix A).
- b. The presentation order of vignettes was randomised across questionnaires. These vignettes include measures of efficacy and orientations toward children.
- c. Individual-based and group-based versions of the same vignettes were presented as pairs within questionnaires but the presentation order of vignette pairs was varied across questionnaires. Thus, in some questionnaires the group version

preceded the matched individual version, while in other questionnaires the individual version preceded the matched group version. However, the sequence of either group followed by individual, or individual followed by group remained constant within each questionnaire.

- d. Items associated with the efficacy vignettes were presented in the same order within questionnaires but varied across questionnaires. This includes the items used to measure dimensions of Self-Efficacy as Teachers, and Efficacy About Others as Teachers.
- e. The four solutions illustrating orientations toward the control of children on each vignette were randomised between vignettes within questionnaires, and across questionnaires.

As a consequence, it was possible to present all student teacher and associate teacher participants with the same tasks but in different sequences.

Administering the Questionnaires

Student teachers individually completed the initial questionnaire at a briefing session prior to their student teaching practice, and the follow-up questionnaire in their seminar classes for professional studies. The task requirements were explained as focussing on personal judgements about teacher thinking and practice as teachers rather than on 'rightness' or 'wrongness'. Each questionnaire took about 45 minutes to complete. Completed questionnaires were received unnamed and coded by an assistant.

Associate teachers received their initial and follow-up questionnaires individually by mail with a personalised letter on each occasion explaining the purpose, assurances and procedures. Coded questionnaire responses were returned by postage-paid mail and received by the independent assistant.

Feedback to Participants

Participants were invited to an information session following the completion of the follow-up questionnaire. This occasion provided opportunities for debriefing and clarifying the purposes and nature of the research. Participants informally shared their experiences in undertaking the tasks and related these to their insights, beliefs and practices as teachers, associate teachers and student teachers.

The Tasks

The initial and follow-up questionnaires provided to the primary student teachers and their associate teachers included essentially the same tasks with only minor differences (see Appendix A). Some of these tasks are adapted from existing scales. Others result from the development of specific vignettes about individuals and groups of children. Three sets of tasks were prepared:

- A. *Measures of Efficacy*
 - i. RAND Efficacy items (Berman et al., 1977)
 - ii. Teacher Efficacy Scale (Gibson & Dembo, 1984)
 - iii. Vignettes: Self-Efficacy as Teachers
Efficacy About Others as Teachers

- B. *Measure of Teacher Orientations Toward Children*
 - i. Orientations Toward Children (adapted from Deci et al., 1981).

- C. *Measure of Self-esteem as Teachers*
 - i. Self-Esteem as Teachers (adapted from Rosenberg, 1965, 1979)

A. *Measures of Efficacy*

RAND Efficacy Items.

The two RAND efficacy items (Armor et al., 1972; Berman et al., 1977) were each presented on a seven-point Likert rating scale ranging from "strongly agree" to "strongly disagree". The seven-point scale was selected, rather than the original five-point scale, for two reasons. First, the extended scale provides participants with a wider scope to register the extent of their agreement, and secondly, the seven point scale is consistent with most other Likert items in the present questionnaire.

As high ratings on the first RAND item (RAND 1) indicate high teaching efficacy and high ratings on the second RAND item (RAND 2) denote low personal teaching efficacy, the RAND 2 ratings were reversed scored to standardise the metric of scoring. The two RAND items are:

- RAND 1 When it comes right down to it, a teacher can't do much because most of a child's motivation and performance depends on his or her home environment.

RAND 2 If I try really hard, I can get through to even the most difficult or unmotivated children.

Teacher Efficacy Scale.

Gibson and Dembo's (1984) study of the Teacher Efficacy Scale [TES] produced 16 items with acceptable reliability coefficients from an original 30 items. Two factors, referred to as *personal teaching efficacy* and *teaching efficacy* were yielded from the factor analysis of elementary teachers' responses. In the present study, these 16 items were presented on a seven-point Likert rating scale ranging from "strongly agree" to "strongly disagree".

Using an adapted form of the Teacher Efficacy Scale, Kushner (1993) and Bezzina and Butcher (1990) replicated the two factor structure with preservice teachers. Drawing from a sample of 2043 Australian teachers and student teachers, Bezzina and Butcher (1990) suggest that preservice teachers have a less refined sense of teacher efficacy than do practising teachers. Convergent and divergent validity for the Teacher Efficacy Scale has been supported by multitrait-multimethod analyses with teachers using the three traits of teacher efficacy, verbal ability, and flexibility (Gibson & Dembo, 1984). These researchers also found through observing how teachers provided feedback and focussed students on academic learning, that differences between high efficacy teachers and low efficacy teachers were apparent in the use of time spent with groups and the whole class, instruction, the use of criticism, and persistence in failure situations.

Minor changes were made to some items without altering the original meaning so as to capture the New Zealand idiom. These changes related essentially to substituting words such as *student* with *child*, and *math* with *maths*. Appendix B-1 lists the 16 adapted items of the Teacher Efficacy Scale according to personal teaching efficacy (Factor 1) and teaching efficacy (Factor 2).

Vignettes: Self-Efficacy as Teachers, and Efficacy about Others as Teachers.

The use of vignettes as a means of gauging measures of teaching efficacy is not new. As an example, the Personal Teaching Efficacy Scale (Ashton, Olejnik, Crocker, & McAuliffe, 1982) asks participants to judge their effectiveness in dealing with the problems presented in each of fifteen vignettes. For the purposes of the present study, however, much of the content of these vignettes was considered not as appropriate in the New Zealand context and their utility for gauging teaching efficacy within the present research design was somewhat limited. The idea of portraying scenarios about children and teachers through vignettes was drawn from the instrument designed by

Deci et al. (1981) which was used to assess adult's orientations toward control versus autonomy with children. Six new short vignettes about individual children and six corresponding vignettes about groups of children were developed (see Appendix B-2).

Participants were asked to respond to each of these twelve vignettes from the point of view of themselves as teachers in that situation (that is, self-efficacy as teachers), and from the perspective of teachers in general to the same scenario (that is, efficacy about others as teachers). Thus, self-efficacy as teachers, and efficacy about others as teachers were measured on vignettes involving individual children and on companion vignettes about groups of children.

Three questions probed participants' perceptions of teaching efficacy (about self and others) in dealing with the situations expressed in the vignettes. These focused on perceptions of task difficulty (magnitude of efficacy), strength (confidence) of efficacy, and efficacy in generating multiple solutions (innovativeness).

Task difficulty. Judgements about task difficulty or the magnitude of task (Bandura, 1977) were made in response to the questions:

"How difficult would this problem be for you as a teacher?" (Self-efficacy as teachers), and

"How difficult would this problem be for teachers in general?" (Efficacy about others as teachers).

Task difficulty was scored on a 7-point Likert scale ranging from "1 = extremely easy" through to "7 = extremely difficult". The choice of a seven-point Likert scale rather than the five-point rating scale used by Deci et al. (1981) was somewhat arbitrary although the researcher considered the more extensive scale desirable in that it provided participants with a wider range to register their degree of certainty.

Strength of efficacy. Perceptions of strength or confidence of efficacy were recorded in response to the questions:

"How sure are you that you as a teacher are capable of dealing with this?" (Self-efficacy as teachers), and

"How sure are you that teachers in general are capable of dealing with this?" (Efficacy about others as teachers).

Preliminary testing of items suggested that a rating scale with percentage indicators was generally preferred by student teachers and teachers rather than a rating scale with qualitative descriptors. Thus, strength of efficacy was recorded on a 10-point Likert scale ranging from "10% = not sure" through to "100% = really sure".

Innovativeness. Judgements about efficacy for generating multiple solutions (innovativeness) were noted as responses to the questions:

"About how many effective plans could you as a teacher think up to deal with this concern?" (Self-efficacy as teachers), and

"About how many effective plans could teachers in general think up to deal with this concern?" (Efficacy about others as teachers).

Unlike other dimensions of efficacy, judgements about innovativeness were recorded as open-ended numerical responses and not forced onto a Likert rating scale.

Generality of efficacy. Generality of efficacy (task difficulty, strength of efficacy, and innovativeness) was determined by calculating mean responses across all vignettes. Because the three questions produced responses on different scales, it was necessary to convert scores to a common metric during the analysis phase.

B. *Measure of Teacher Orientations Toward Children*

Orientations Toward Children.

The vignettes to assess self-efficacy as teachers, and efficacy about others as teachers also were developed to assess adults' orientations toward the control of children (see Appendix B-3). To do this, the protocols underlying the Adults' Orientations Toward Control versus Autonomy with Children: Problems in School Questionnaire⁴ (Deci et al., 1981) were applied in developing the range of items associated with each of the vignettes. Each of the six short vignettes about individual children and the six corresponding vignettes about groups of children was supported by four typical solutions to the problem illustrated in each vignette. Each solution is proposed to represent a different orientation towards the control of individual children or groups of children. As was the case for the Problems in School Questionnaire, participants in this present study rated the appropriateness of each solution on a seven-point Likert rating scale, ranging from "1 = very inappropriate" through to "7 = very appropriate".

The four solutions are referred to by Deci et al. (1981) as typifying high autonomy, moderate autonomy, moderate control and high control orientations toward children.

High autonomy orientation [HA]. In the high autonomy orientation towards children the adult typically encourages the child to consider the various elements of the problem to arrive at a solution. An illustration of the high autonomy orientation would be... "The teacher should invite the child to reflect on what is happening and encourage him/her to think of different ways of dealing with problems".

Moderate autonomy orientation [MA]. Orientations toward children that are classified as demonstrating moderate autonomy typically involve the adult encouraging

⁴ The internal consistency for the original Problems in School Questionnaire is reported for the subscales of between .63 and .76 and test-retest reliability for the total scale is .70.

the child to use social comparison (to see what other children are doing) in an attempt to solve the problem. Such a solution might be... "The teacher should help the child see what it means to other children to have play disrupted in these ways".

Moderate control orientation [MC]. Moderate control orientations toward children are characterised by situations where the adult decides on the solution and gets the child to implement solutions by invoking guilt or stressing that it is for the child's own good. One solution illustrating such a moderately controlling orientation would be... "The teacher needs to stress that the child should be ashamed of acting this way, and how important it is to restrain one's temper when working with others".

High control orientation [HC]. Orientations toward children which are highly controlling typically involve the adult deciding on the solution and using sanctions (including reinforcement) to ensure the solution is implemented. An illustration of a high control orientation towards children is as follows... "The teacher should make clear what is acceptable behaviour, introduce sanctions such as isolating the child from other's attention when s/he behaves inappropriately, and reward appropriate behaviour with positive attention".

These four types of solutions presented with each of the twelve vignettes are categorised according to type of control versus autonomy orientation in Appendix B-3.

C. *Measure of Self-Esteem as Teachers*

Self-Esteem as Teachers.

The 10-item Rosenberg Self-Esteem Scale [SES] (1965, 1979) is a widely used and well-validated measure of global self-esteem. Reliability for the Rosenberg Self-Esteem Scale has been shown to be very high with a coefficient of reliability of between .92 and a two week test-retest reliability of .85 (Dobson, Goudy, Keith, & Powers, 1979; Fleming & Courtney, 1984; Silber & Tippett, 1965; Wylie, 1974). Convergent validity has been demonstrated for the SES in a variety of ways. For instance, the SES is associated with many constructs related to self-esteem such as confidence ($r = .65$) and popularity ($r = .39$) (Lorr & Wunderlich, 1986), and with overall academic self-concept ($r = .38$) (Reynolds, 1988).

Negative relationships between the SES and several concepts associated with low self-regard have been established. These include relationships with anxiety ($r = -.64$), with depression ($r = -.54$), with anomie ($r = -.43$), and positively with general self-regard ($r = .78$), with social confidence ($r = .51$), with school abilities ($r = .35$), and with physical appearance ($r = .42$) (Fleming & Courtney, 1984). Scores on the SES relate to anxiety

and psychosomatic symptoms, interpersonal insecurity, and leadership (Wylie, 1974). SES scores also correlate with the revised Janis and Field scale ($r = .66$) (Fleming & Courtney, 1984), with scores on the Coopersmith SEI ($r = .55$), with peer ratings of self-esteem ($r = .32$) (Demo, 1985), and with 'beeper' self reports of self-esteem ($r = .24$) (Savin-Williams & Janquish, 1981).

Discriminant validity has been demonstrated for the SES. For example, no significant correlations are apparent between the SES and grade averages ($r = .10$), locus of control ($r = -.04$), or Scholastic Aptitude Test verbal scores ($r = -.06$) (Reynolds, 1988). Furthermore, no significant correlations appear between SES and gender ($r = .10$), age ($r = .13$), work experience ($r = .07$), marital status ($r = .17$), birth order ($r = .02$), grade point average ($r = .01$) or vocabulary ($r = -.04$) (Fleming & Courtney, 1984).

In this present study, the original Self-Esteem Scale was adapted to make each item more occupationally-specific to teachers. Appendix B-4 illustrates the items included in the occupationally-specific Self-Esteem as Teachers Scale that is derived from Rosenberg's Self-Esteem Scale (1965, 1979). Initial piloting of the Self-Esteem as Teachers Scale with a different sample of student teachers ($n = 47$) and associate teachers ($n = 34$) suggested that all ten items attracted a range of responses and were reported as being comprehensible to the participants.

While a four point Likert scale was used on the original Rosenberg Self-Esteem Scale, variations such as five point and seven point Likert scales have been used quite extensively in research (Blascovich & Tomaka, 1991). To be consistent with most other items in the present study, participants rated the extent of their agreement with each claim on a seven-point Likert scale which ranged from "1 = strongly agree" through to "7 = strongly disagree". Negatively stated items were reversed scored and a total self-esteem as teachers score was computed by summing across the ten items.

Development of the Vignettes

The Problems in Schools Questionnaire: Instrument to Assess Adults' Control versus Autonomy Orientations Toward Children (Deci et al., 1981), was used as a basis to develop a new set of vignettes. In the Problems in Schools Questionnaire, eight short vignettes illustrating typical problems in schools were accompanied by four possible solutions each on a 7-point rating scale for appropriateness. These four possible solutions represented highly controlling, moderately controlling, moderately autonomous and highly autonomous responses and are suggested as occurring along a

control-autonomy dimension. The four subscales are combined to provide an overall orientation. Deci et al. (1981) present data from 68 teachers showing that the responses on this questionnaire had a good range, were internally consistent and temporally stable. The measure appeared externally valid in that high autonomy scoring teachers (grades 4-6) also were rated as being highly autonomous by their children. In addition, children of more autonomy oriented teachers were more intrinsically motivated and had higher self-esteem than children of more control-oriented teachers.

Decisions regarding the new vignettes developed for this present study were guided by four factors. First, the new vignettes represent a range of problems that beginning teachers most frequently express as typical concerns. In reviewing Veenman's (1984) list of beginning teachers' concerns that were drawn from an analysis of 83 studies, Weinstein (1988) found that the majority of items fell into three categories, namely, instruction, management and organisation, and interpersonal relations. Vignettes for this present study were written, therefore, with these categories in mind.

Secondly, the problem needed to be contextually plausible in both the vignette for an individual child and the companion vignette that involved a group of children. Guskey and Passaro (1986) claim that the scope of influence or the extent of a teachers' beliefs about their influence over the learning of an individual child versus that of a group (or class) of children, influences the efficacy of teachers. They propose that the self-efficacy of teachers varies when situations involve an individual as contrasted with those that involve groups. When the performance was negative, teachers usually expressed less responsibility for single students than for a group of students. So, developing parallel versions of vignettes involving situations with individual and groups of children provide a chance to determine the scope of influence effect.

Finally, the vignettes are written in a gender neutral way, and are expressed in the New Zealand context and idiom.

A pool of over 70 vignettes initially was scripted with both individual and group versions of the same scenario. Like the Problems in School Questionnaire (Deci et al., 1981) each vignette presented four solutions representing control versus autonomy orientations toward children. In addition, each vignette included questions that probed perceptions of task difficulty, strength of efficacy, and innovativeness for measures of self-efficacy as teachers, and efficacy about others as teachers. Face validity inspection and interpretative comment from student teachers ($n = 47$), teachers ($n = 34$) and teacher educators ($n = 5$) subsequently reduced the original 70 vignettes to 12 vignettes representing six pairs of individual and group scenarios (see Appendix B-3). Using

Weinstein's (1988) general categorisation of instruction, organisation and management, and interpersonal relationships, two of these six pairs of vignettes can be identified as "instruction" as they deal with failure in instruction (vignette B) and reaction to instruction (vignette E). Two further pairs relate closely to "management and organisation" as they focus on dealing with student refusal (vignette C) and gaining and maintaining on-task behaviour (vignette F). Two pairs of vignettes relate to "interpersonal relationships" as they involve dealing with solitary activity (vignette A) and developing social skills (vignette D). These twelve vignettes represent the six pairs of individual and group scenarios used in this present study.

Summary

This study involves the appraisal of primary student teachers' and associate teachers' perceptions of self-efficacy as teachers (including personal teaching efficacy) and efficacy about others as teachers (including teaching efficacy), their orientations toward children on a control versus autonomy continuum, and their self-esteem as teachers. Data were gained on questionnaires both before and after student teaching practice. From an original 213 primary student teacher and associate teacher [ST-AT] dyads, fifty [ST-AT] pairs completed both questionnaires and were included as participants.

Student teacher participants were considered to be a fair representation of the intake of all final year primary student teachers in terms of age and gender, though they varied on the factors of ethnicity and subject specialism. Likewise, associate teacher participants compared favourably (in terms of age, gender, ethnicity, role designations, and qualifications) with the larger sample of associate teachers who responded on the initial questionnaire.

Finally, the procedure, issues of consent, coding and confidentiality, and the selection and development of tasks were described. The tasks used in this study aim to satisfy Bandura's (1986) guidelines for the measurement of efficacy, and Guskey's (1987, 1988; Guskey & Passaro, 1993) contention that the scope of influence be accommodated. The use of vignettes provided situationally-relevant scenarios for judgements to be made about efficacy and preferred orientations toward children. The adaption of Rosenberg's Self-Esteem Scale allowed a more occupationally-relevant measure of self-esteem as teachers to be ascertained. These instruments are designed to provide data to compare student teachers' and associate teachers' perceptions of efficacy, orientations toward children, and self-esteem as teachers across student teaching practice.

CHAPTER 4

RESULTS

This study focuses on student teachers' and associate teachers' perceptions across the major and final student teaching practice. Data were collected on perceptions of self-efficacy as teachers (including personal teaching efficacy), as well as on efficacy about others as teachers (including teaching efficacy), control versus autonomy orientations toward children, and self-esteem as teachers. A series of analyses of variance (ANOVA) with repeated measures were undertaken on these data. The results are summarised in relation to the hypotheses outlined for the study.

Efficacy

Three instruments were used to measure efficacy. These were the RAND efficacy items (Berman et al., 1977), the Teacher Efficacy Scale (Gibson & Dembo, 1984), and the teacher vignettes (self-efficacy as teachers, efficacy about others as teachers) which were developed for this present study.

RAND Efficacy Items

The two RAND items produced data on teaching efficacy (RAND 1) and personal teaching efficacy (RAND 2). High scores on RAND 1 indicate high teaching efficacy, and high scores on RAND 2 denote low personal teaching efficacy. In order to standardise the metric of scoring, RAND 2 data were reversed scored. As a result, high scores on adjusted RAND 1 relate to high teaching efficacy and high scores on RAND 2 are associated with high personal teaching efficacy.

The data from associate teachers and student teachers were analysed by means of a 2 x 2 x 2 analysis of variance (ANOVA) with repeated measures. There was one between-subjects factor of group (associate teacher, student teacher), and two within-subjects factors of time (pre, post) and RAND scores (RAND 1, RAND 2).

There were no significant main effects for either RAND scores, or time. The only significant main effect was for group, $F(1, 98) = 6.86, p = .01$ (see Table 3). There

were significant differences between the groups on the RAND items, $F(1, 98) = 6.77, p = .01$. The RAND scores also differed significantly between pre and post measures, $F(1, 98) = 3.75, p = .05$. When RAND was treated as one score, the groups did not differ across student teaching practice. Finally, across student teaching practice both student teachers and associate teachers did not differ significantly on the RAND items.

Inspection of the means shows that overall, student teachers responded with lower scores than associate teachers (see Table 3). This effect becomes more meaningful when the significant interaction between RAND scores and group is examined, $F(1, 98) = 6.77, p = .01$. These means show that student teachers responded significantly lower than associate teachers on both RAND 1 and RAND 2. As illustrated in Figure 1, this result shows that student teachers report lower teaching efficacy (RAND 1) and lower personal teaching efficacy (RAND 2) than that reported by associate teachers.

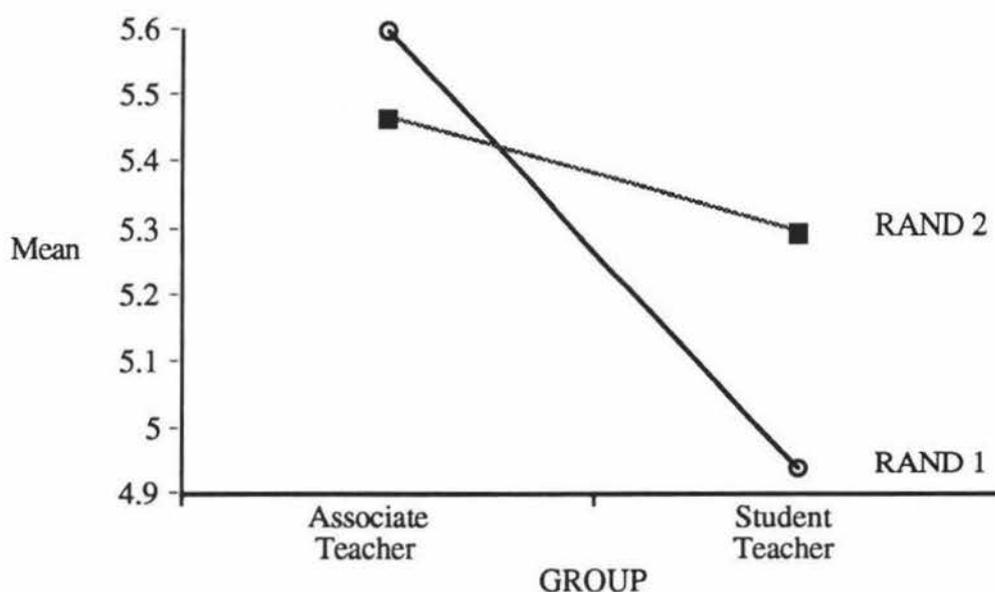


Figure 1. Interaction between group (associate teacher, student teacher) and mean scores for RAND (RAND 1, RAND 2).

Post hoc Scheffé F -test comparisons in this interaction reveal significant differences for RAND 1 between student teachers and associate teachers, $F(1, 98) = 25.92, p < .01$, but non significance for the between-group comparison on RAND 2. Thus, the significant interaction between group and RAND was attributed to group differences on teaching efficacy (RAND 1), and not to personal teaching efficacy (RAND 2). Further Scheffé F -test comparisons between the two RAND efficacy items for student teachers,

and likewise for associate teachers indicated that the group difference was significant for student teachers, $F(1, 98) = 7.174, p < .01$, but not for associate teachers. The difference between the means for RAND 1 and RAND 2, therefore, was significant for student teachers, but not for associate teachers. Inspection of the means for student teachers illustrate that RAND 2 (personal teaching efficacy) was rated significantly higher than for RAND 1 (teaching efficacy). These post hoc comparisons reveal that the significant interaction between group and RAND is due to differences for student teachers rather than associate teachers, and on RAND 1 (teaching efficacy) rather than on RAND 2 (personal teaching efficacy).

The interaction between time and RAND scores produced a significant effect, $F(1, 98) = 3.75, p = .05$. Inspection of the means shows that across student teaching practice, teaching efficacy declined, (pre: $M = 5.35, SD = 1.15$; post: $M = 5.19, SD = 1.20$), while personal teaching efficacy increased, (pre: $M = 5.34, SD = 1.19$; post: $M = 5.43, SD = 0.95$). Figure 2 illustrates these trends.

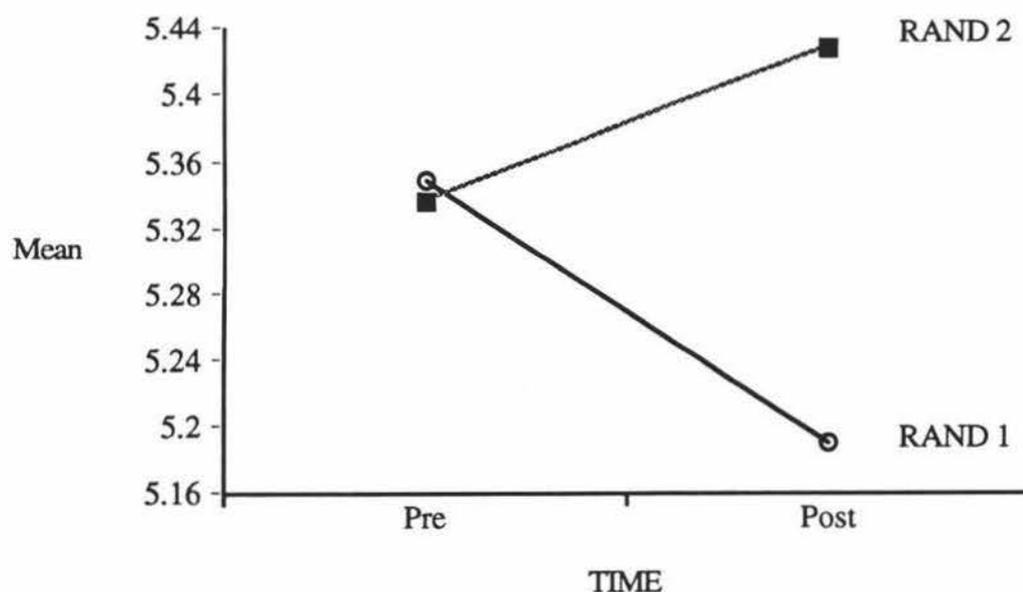


Figure 2. Interaction between time (pre, post) and mean scores for RAND (RAND 1, RAND 2).

Scheffé F -tests on the Time \times RAND interaction produced non-significant differences between pre and post means for RAND 1, and between pre and post means for RAND 2. Further comparisons between the pre means for RAND 1 and RAND 2 also were

non-significant, although the comparison of post means on the same variable produced results approaching .05 level of significance, $F(1, 98) = 3.75, p = .06$ (NS).

Finally, the interaction between group, RAND and time produced a non significant difference. Thus, the differences across student teaching practice in teaching efficacy and personal teaching efficacy were not significant for either student teachers or associate teachers.

Table 3

Summary of Analysis of Variance (ANOVA) with Means (M) and Standard Deviations (SD) of RAND Scores for Associate Teachers and Student Teachers

Source	F	p	Overall		Pre		Post	
			M	SD	M	SD	M	SD
GROUP	6.86	.01**						
associate teacher			5.53	1.01				
student teacher			5.12	1.17				
TIME	.13	.71			5.34	1.14	5.31	1.09
RAND	1.49	.22						
RAND 1			5.27	1.18				
RAND 2			5.39	1.05				
TIME x GROUP	.32	.57						
associate teacher					5.58	1.11	5.49	0.90
student teacher					5.11	1.13	5.13	1.22
RAND x GROUP	6.77	.01**						
RAND 1, associate teacher			5.60	0.97				
RAND 1, student teacher			4.94	1.27				
RAND 2, associate teacher			5.47	1.05				
RAND 2, student teacher			5.30	1.04				
TIME x RAND	3.75	.05*						
RAND 1					5.35	1.15	5.19	1.20
RAND 2					5.34	1.14	5.43	0.95
TIME x RAND x GROUP	2.17	.14						
RAND 1, associate teacher					5.66	1.02	5.54	0.93
RAND 1, student teacher					5.04	1.19	4.84	1.35
RAND 2, associate teacher					5.50	1.20	5.44	0.88
RAND 2, student teacher					5.18	1.06	5.42	1.01

Note $df = (1, 98)$

To summarise, student teachers reported significantly lower levels of teaching efficacy (RAND 1) and personal teaching efficacy (RAND 2) when compared with the responses from associate teachers. The significant differences that emerged between the group and the RAND variables were attributed to student teachers, and to teaching efficacy rather than personal teaching efficacy. While overall teaching efficacy declined and personal teaching efficacy increased, the changes across student teaching practice were not significant for either student teachers and associate teachers.

Teacher Efficacy Scale [TES]

The Teacher Efficacy Scale [TES] provides data on two factors which Gibson and Dembo (1984) refer to as personal teaching efficacy (TES 1) and teaching efficacy (TES 2). High TES 1 scores indicate low personal teaching efficacy and high scores on TES 2 are associated with high teaching efficacy. In order to standardise the metric of scoring, TES 1 was reversed scored. Consequently, high scores on TES 1 relate to high personal teaching efficacy, and high scores on TES 2 indicate high teaching efficacy.

Associate teachers' and student teachers' Teacher Efficacy Scale scores were analysed by using a three-way analysis of variance (ANOVA) with repeated measures. There was one between-subjects group factor (associate teacher, student teacher) and two within-subjects factors of time (pre, post) and Teacher Efficacy score (TES 1, TES 2).

There was a significant main effect for group, $F(1, 98) = 7.41, p < .01$, but not for time. When personal teaching efficacy and teaching efficacy were treated as one factor, the main effect for Teacher Efficacy [TES] was significant, $F(1, 98) = 184.9, p < .01$. The interactions between group and time, Teacher Efficacy and group, and Teacher Efficacy and time were all non-significant. However, the groups differed significantly on Teacher Efficacy [TES] across student teaching practice, $F(1, 98) = 4.56, p < .03$.

The means for the group effect reveals that student teachers, ($M = 4.64, SD = 0.88$), were significantly lower than those for associate teachers, ($M = 4.88, SD = 0.82$). This indicates that global efficacy was rated significantly lower by student teachers than by associate teachers (see Table 4). The Teacher Efficacy main effect reveals that when all participants were treated as one group and the pre and post scores are combined as one data-set, the higher means for TES 1 ($M = 5.30, SD = 0.57$) show that personal teaching efficacy was rated higher than teaching efficacy [TES 2] ($M = 4.22, SD = 0.76$).

The non-significant interaction between group and time indicates that neither group changed significantly over time when personal teaching efficacy and teaching efficacy were treated as one TES factor. Likewise, the differences between student teachers and associate teachers on overall ratings of TES 1 and TES 2 were not significant. When the group factor was removed and the time and TES interaction considered, changes in Teacher Efficacy (TES 1, TES 2) across student teaching practice were not significant.

However, the significant interaction effect between group, Teacher Efficacy [TES] score and time, $F(1, 98) = 4.56, p < .05$, is important in the present study. This shows that differences between student teachers and associate teachers on Teacher Efficacy [TES] were significant across student teaching practice (see Figure 3).

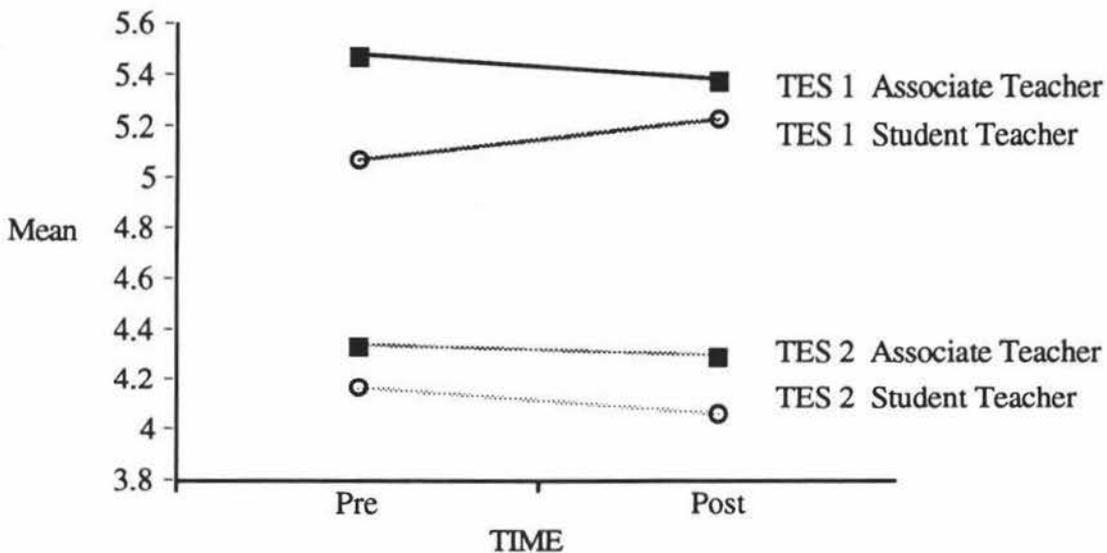


Figure 3. Interaction between group (associate teacher, student teacher), mean scores on the Teacher Efficacy Scale (TES 1: personal teaching efficacy, TES 2: teaching efficacy), and time (pre, post).

Post hoc Scheffé F -test comparisons between pre and post TES 1 scores, and between pre and post TES 2 scores, were calculated. Only one significant difference appeared and this was between pre and post TES 1 scores for student teachers, $F(1, 98) = 4.57, p < .05$. Further post hoc comparisons confirmed that TES 1 pre scores did not vary significantly with TES 1 post scores, and TES 2 pre scores did not vary significantly with TES 2 post scores. Likewise, post hoc comparisons between pre and post global

Teacher Efficacy (TES 1 combined with TES 2) also were not significant for student teachers, or for associate teachers.

These results indicate that the significance of the Group x Teacher Efficacy [TES] x Time interaction is due to differences in student teachers' judgements about personal teaching efficacy (TES 1) across student teaching practice (see Figure 3).

Table 4

Summary of Analysis of Variance (ANOVA) with Means (M) and Standard Deviations (SD) of Teacher Efficacy Scale [TES] Scores for Associate Teachers and Student Teachers

Source	F	p	Overall		Pre		Post	
			M	SD	M	SD	M	SD
GROUP	7.41	.007**						
associate teacher			4.88	0.82				
student teacher			4.64	0.88				
TIME	.21	.64			4.77	0.84	4.75	0.88
TES	184.9	.0001**						
TES 1			5.30	0.57				
TES 2			4.22	0.76				
TIME x GROUP	1.12	.29						
associate teacher					4.91	0.85	4.85	0.79
student teacher					4.62	0.80	4.65	0.95
TES x GROUP	.19	.66						
TES 1, associate teacher			5.44	0.53				
TES 1, student teacher			5.15	0.57				
TES 2, associate teacher			4.33	0.67				
TES 2, student teacher			4.12	0.83				
TIME x TES	2.16	.14						
TES 1					5.28	0.60	5.31	0.53
TES 2					4.26	0.73	4.19	0.79
TIME x TES x GROUP	4.56	.03*						
TES 1, associate teacher					5.48	0.55	5.39	0.51
TES 1, student teacher					5.07	0.59	5.23	0.54
TES 2, associate teacher					4.35	0.71	4.31	0.63
TES 2, student teacher					4.17	0.74	4.06	0.91

Note $df = (1, 98)$

In summary, global Teacher Efficacy [TES] was rated significantly lower by student teachers than by associate teachers. Personal teaching efficacy was rated higher than teaching efficacy. Across student teaching practice, personal teaching efficacy (TES 1) increased significantly for student teachers but not for associate teachers. Differences on teaching efficacy (TES 2) for student teachers and for associate teachers across student teaching practice were not significant.

Teacher Efficacy Vignettes

Six pairs of Teacher Efficacy vignettes were presented to student teachers and their associate teachers before and after student teaching practice. Each pair consisted of one vignette about an individual child and a parallel vignette about a group of children, thus providing similar scenarios that varied only on the scope of influence. Perceptions about task difficulty, strength of efficacy, and efficacy for innovativeness were measured on these twelve vignettes for both self-efficacy as teachers, and efficacy about others as teachers. Data on perceptions about task difficulty were reversed scored so that high scores indicate high efficacy for task difficulty (that is, they are perceived as easier), high scores on strength (or confidence) indicate high perceived strength of efficacy, and high innovativeness denotes high efficacy in producing multiple solutions to problems presented in the vignettes. As the metrics were not common between the perception scales, all data were converted to standardised z scores.

Three types of generality of efficacy were measured according to task difficulty, strength of efficacy, and innovativeness. The first was determined for efficacy (generality of global efficacy) across the twelve vignettes by treating self-efficacy as teachers, and efficacy about others as teachers, as one factor. Secondly, responses across the twelve vignettes for self-efficacy provided a measure of generality of self-efficacy as teachers. Thirdly, responses across the twelve vignettes for efficacy about others produced a measure of generality of efficacy about others as teachers.

Scope of influence in this present context refers to vignettes based on individual children as contrasted with vignettes about groups of children. In the first instance, measures of generality of global efficacy across the six vignettes about individual children were analysed. Measures of generality of global efficacy across the six vignettes about groups of children were then analysed. This procedure of analysis was repeated for measures of generality of self-efficacy as teachers, and generality of efficacy about others as teachers across the two sets of six vignettes.

Generality of Efficacy

Generality of efficacy scores are standardised z scores derived from means calculated across the twelve vignettes on the three measures of perceptions about task difficulty, strength of efficacy, and innovativeness.

a. *Generality: global efficacy.*

A 2 x 2 x 3 analysis of variance (ANOVA) with repeated measures was carried out using self-efficacy as teachers, and efficacy about others as teachers as a combined data-set (that is, global efficacy). This analysis involved one between-subjects factor of group (associate teacher, student teacher), and two within-subjects factors of generality of efficacy (task difficulty, strength, innovativeness), and time (pre, post). Data for task difficulty were reversed scored to provide a common metric between all measures, and all three generality scores were then converted into standardised z scores.

There were no significant main effects for group, time, or generality of efficacy. The interactions between group and time, and between generality of efficacy and time were not significant. There was, however, a significant three-way interaction between group and generality of efficacy, $F(2, 164) = 3.88, p < .05$. Finally, the interaction between group, generality of efficacy, and time was not significant (see Table 5).

These non-significant main effects indicate that the differences between associate teachers and student teachers on the combined scores of task difficulty, strength of efficacy, and innovativeness were not reliable; that differences on combined scores for all participants were not significant across student teaching practice; and that combined scores on the three dimensions of generality of efficacy did not vary significantly. Furthermore, significant differences between student teachers and associate teachers could not be discerned on the generality of efficacy scores before and after student teaching practice. Neither could significant differences be identified on the three dimensions of generality of efficacy (task difficulty, strength of efficacy, innovativeness) for the combined group of participants across student teaching practice.

The initial analysis did reveal, however, that when pre and post scores were treated as one data-set, student teachers and associate teachers differed significantly on the three efficacy measures, $F(2, 164) = 3.88, p < .05$ (see Table 5). Inspection of the means in the Generality of Efficacy x Group interaction suggests that strength of efficacy was higher for associate teachers ($Mz = 0.17, SD = 0.89$) than for student teachers, ($Mz = -0.30, SD = 1.04$). Student teachers reported higher levels of innovativeness ($Mz =$

-0.02, $SD = 0.91$) than did associate teachers ($Mz = -0.10$, $SD = 0.83$). Perception of task difficulty was less marked with student teachers ($Mz = -0.04$, $SD = 0.96$) judging the tasks as less difficult than those reported by associate teachers ($Mz = -0.05$, $SD = 0.98$) (see Figure 4).

However, in spite of these apparent differences in perceptions about task difficulty, strength of efficacy, and innovativeness, this F -value for the Generality of Efficacy \times Group interaction did not meet the stringent requirements of post hoc Scheffé F -test comparisons of means for student teachers and associate teachers.

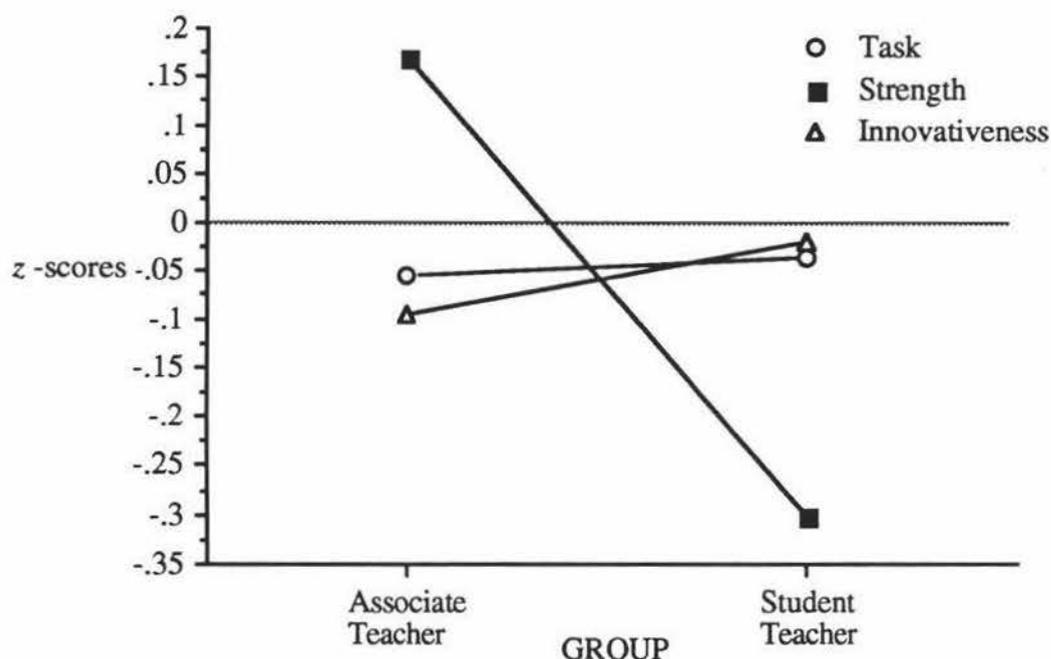


Figure 4. Interaction between group (associate teacher, student teacher) and generality of global efficacy (task difficulty, strength of efficacy, innovativeness) mean z scores on teacher efficacy vignettes.

Finally, the interaction between group, generality of efficacy, and time indicated that across student teaching practice, differences between student teachers' and associate teachers' perceptions of the dimensions of efficacy were not significant. Thus, student teaching practice did not appear to influence student teachers' and associate teachers' perceptions about task difficulty, strength of efficacy, or innovativeness.

Table 5

Summary of Analysis of Variance (ANOVA) with Means (M) and Standard Deviations (SD) for Generality of Global Efficacy (z-Scores) on Teacher Efficacy Vignettes for Associate Teachers and Student Teachers

Source	F	p	Overall		Pre		Post	
			M	SD	M	SD	M	SD
GROUP	.78	.37						
associate teacher			.01	0.91				
student teacher			-.12	0.98				
TIME	.59	.44			-.03	0.95	-.08	0.94
GENERALITY	.02	.98						
task difficulty			-.05	0.97				
strength of efficacy			-.06	0.99				
innovativeness			-.06	0.87				
TIME x GROUP	1.93	.16						
associate teacher					.07	0.94	-.06	0.88
student teacher					-.14	0.96	-.10	1.00
GENERALITY x GROUP	3.88	.02*						
task, associate teacher			-.05	0.98				
task, student teacher			-.04	0.96				
strength, associate teacher			.17	0.89				
strength, student teacher			-.30	1.04				
innovative, associate teacher			-.10	0.83				
innovative, student teacher			-.02	0.91				
TIME x GENERALITY	.07	.93						
task difficulty					-.01	1.00	-.08	0.94
strength of efficacy					-.04	1.05	-.08	0.94
innovativeness					-.04	0.80	-.07	0.94
TIME x GENERALITY x GROUP	.21	.80						
task, associate teacher					-.0001	1.05	-.11	0.92
task, student teacher					-.02	0.97	-.05	0.97
strength, associate teacher					.24	0.88	.10	0.92
strength, student teacher					-.33	1.14	-.27	0.95
innovative, associate teacher					-.03	0.88	-.16	0.79
innovative, student teacher					-.06	0.72	.02	1.08

Note $df = (1, 164)$ for GROUP, TIME, and GROUP x TIME

$df = (2, 164)$ for GENERALITY, and interactions with GENERALITY

In summary, when self-efficacy as teachers, and efficacy about others as teachers were treated as global efficacy there were no significant main effects for group, generality of efficacy, or time. Student teachers and associate teachers differed on their overall

efficacy for task difficulty, strength of efficacy and innovativeness, but this significance did not withstand the more stringent requirements of the Scheffé F -test post hoc comparisons. Thus, while student teachers judged strength of global efficacy lower than associate teachers, the difference was not reliable. Finally, the three-way interaction between group, generality of efficacy, and time was not significant. This suggests that across student teaching practice, any differences for student teachers and associate teachers on judgements of task difficulty, strength of efficacy, and innovativeness did not vary sufficiently to discount the chance factor.

b. *Generality: self-efficacy as teachers.*

Generality scores for self-efficacy as teachers (task difficulty, strength of efficacy, and innovativeness) were calculated as mean scores across the twelve vignettes. These mean scores were converted into standardised z scores to provide for a common metric. A $2 \times 2 \times 3$ analysis of variance (ANOVA) with repeated measures was used to analyse data about generality of self-efficacy as teachers. This included one between-subjects group factor (associate teacher, student teacher), and two within-subjects factors of generality of self-efficacy as teachers (task difficulty, strength of self-efficacy, innovativeness), and time (pre, post).

The main effects for both time and generality were not significant. There were reliable differences within the group main effect, $F(1, 164) = 17.26, p < .01$ (see Table 6). The two-way interactions between time and group, and time and generality of self-efficacy were also not significant. The interaction between group and generality of self-efficacy was significant, $F(2, 164) = 10.35, p < .01$. Finally, the three-way interaction between group, generality of self-efficacy, and time was not significant.

The group main effect differences between student teachers and associate teachers indicated that the standardised mean z scores were higher for associate teachers, ($Mz = 0.13, SD = 0.89$), than for student teachers, ($Mz = -0.25, SD = 0.98$), suggesting that overall self-efficacy as teachers was judged more positively by associate teachers (see Table 6).

The non-significant interaction between time and group shows that when self-efficacy as teachers was treated as one measure, the differences were not reliable between student teachers and associate teachers across student teaching practice. When all participants were considered as one data-set, the differences across student teaching practice on self-perceptions of task difficulty, strength of efficacy, or innovativeness did not vary sufficiently to warrant discounting the chance factor.

However, there were significant differences between student teachers and associate teachers on the three dimensions of self-efficacy as teachers, $F(2, 164) = 10.35, p < .01$. The means show that student teachers gave lower mean z scores than associate teachers for task difficulty, (student teachers $M_z = -0.20, SD = 0.94$; associate teachers $M_z = 0.10, SD = 1.00$), strength of self-efficacy, (student teachers $M_z = -0.52, SD = 1.01$; associate teachers $M_z = 0.37, SD = 0.75$), and innovativeness, (student teachers $M_z = -0.02, SD = 0.91$; associate teachers $M_z = -0.10, SD = 0.83$) (see Figure 5).

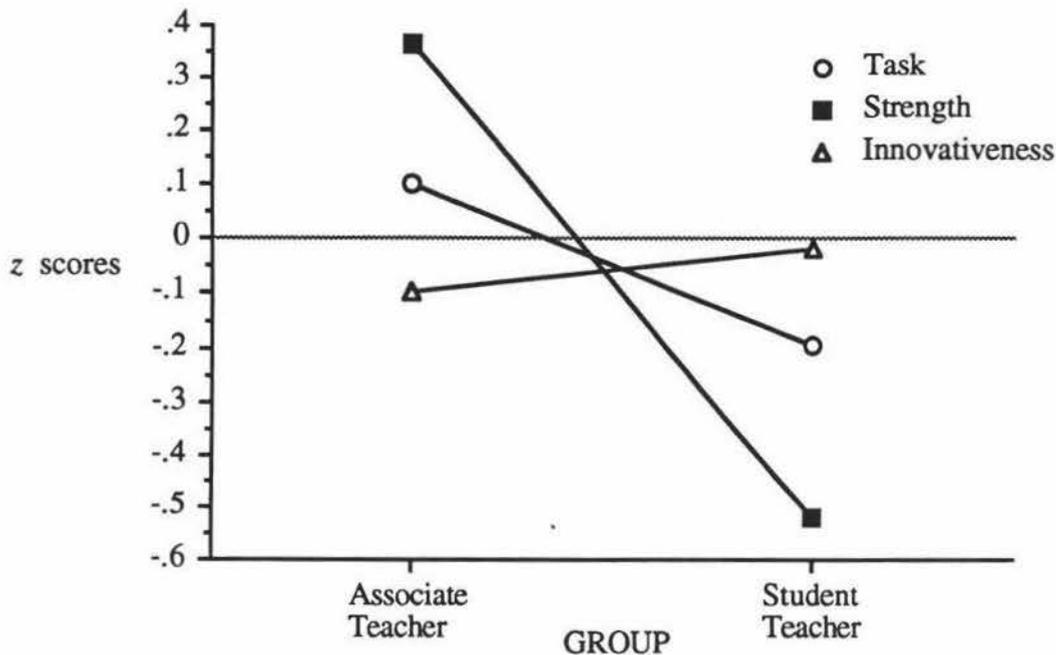


Figure 5. Interaction between group (associate teacher, student teacher), and generality of self-efficacy (task difficulty, strength of efficacy, innovativeness) mean z scores on teacher efficacy vignettes.

Scheffé F -test comparisons revealed that the significant interaction effect was due to the differences between student teachers and associate teachers on task difficulty, $F(2, 164) = 10.71, p < .01$, and strength of self-efficacy, $F(2, 164) = 94.29, p < .01$, but not on innovativeness. Student teachers reported significantly lower judgements than did associate teachers in regard to task difficulty for self, and strength of self-efficacy.

The three-way interaction between group, generality of self-efficacy, and time was not significant. Thus, student teachers' and associate teachers' self-efficacy (task difficulty, strength, innovativeness) do not vary significantly across student teaching practice.

Table 6

Summary of Analysis of Variance (ANOVA) with Means (M) and Standard Deviations (SD) for Generality of Self-Efficacy as Teachers (z-Scores) on Teacher Efficacy Vignettes for Associate Teachers and Student Teachers

Source	F	p	Overall		Pre		Post	
			M	SD	M	SD	M	SD
GROUP	7.62	.007**						
associate teacher			.13	0.89				
student teacher			-.25	0.98				
TIME	.37	.54			-.04	0.95	-.07	0.95
GENERALITY	.04	.96						
task difficulty			-.04	0.98				
strength of efficacy			-.07	0.99				
innovativeness			-.06	0.87				
TIME x GROUP	2.18	.14						
associate teacher					.19	0.91	.06	0.86
student teacher					-.27	0.93	-.22	1.02
GENERALITY x GROUP	10.35	.0001**						
task, associate teacher			.10	1.00				
task, student teacher			-.20	0.94				
strength, associate teacher			.37	0.75				
strength, student teacher			-.52	1.01				
innovative, associate teacher			-.10	0.83				
innovative, student teacher			-.02	0.91				
TIME x GENERALITY	.04	.96						
task difficulty					-.02	1.01	-.07	0.96
strength of efficacy					-.05	1.03	-.08	0.96
innovativeness					-.04	0.80	-.07	0.94
TIME x GENERALITY x GROUP	.08	.91						
task, associate teacher					.16	1.05	.05	0.96
task, student teacher					-.20	0.94	-.19	0.96
strength, associate teacher					.43	0.74	.31	0.77
strength, student teacher					-.55	1.06	-.49	0.97
innovative, associate teacher					-.03	0.88	-.16	0.79
innovative, student teacher					-.06	0.72	.02	1.08

Note $df = (1, 164)$ for GROUP, TIME, and GROUP x TIME

$df = (2, 164)$ for GENERALITY, and interactions with GENERALITY

In summary, overall self-efficacy as teachers was reported as significantly lower for student teachers than for associate teachers. Student teaching practice did not produce

significant differences on overall self-efficacy as teachers, or between student teachers and associate teachers. However, the groups varied significantly on their overall self-perceptions of task difficulty and strength of efficacy, but not on innovativeness. Both task difficulty and strength of efficacy were significantly lower for student teachers than those of associate teachers. Finally, student teachers' and associate teachers' perceptions of self-efficacy as teachers (task difficulty, strength of self-efficacy, innovativeness) did not vary significantly across student teaching practice.

c. *Generality: efficacy about others as teachers.*

Generality for efficacy about others as teachers (task difficulty, strength of efficacy, innovativeness) was calculated as mean scores across the twelve vignettes. These were then converted into standardised *z* scores in order to provide a common metric.

Data on efficacy about others as teachers were analysed using a 2 x 2 x 3 analysis of variance (ANOVA) with repeated measures. This analysis involved one between-subjects group factor (associate teacher, student teacher), and two within-subjects factors of generality of efficacy about others as teachers (task difficulty, strength of efficacy, innovativeness), and time (pre, post).

There were neither significant main effects for group, time, or generality of efficacy about others as teachers, nor significant interaction effects (see Table 7).

The interaction between time and group indicates that across student teaching practice overall efficacy about others as teachers did not differ significantly for student teachers and associate teachers. There were no significant differences between student teachers and associate teachers on overall scores on task difficulty for others, strength of efficacy about others, and innovativeness for others as teachers. When the interaction between time and generality of efficacy about others as teachers was considered, differences across student teaching practice on task difficulty for others, strength of efficacy about others, and innovativeness of others as teachers, were also non-significant. This suggests that when student teachers and associate teachers were treated as one group of participants, changes in perceptions about others as teachers were not significant across student teaching practice on the measures of task difficulty for others, strength of efficacy for others, or for innovativeness of others as teachers.

Finally, the three-way interaction between group, generality of efficacy about others as teachers, and time was not significant. Thus, changes in student teachers' and associate teachers' perceptions on the three measures of efficacy about others as teachers did not vary significantly across student teaching practice.

Table 7

Summary of Analysis of Variance (ANOVA) with Means (\bar{M}) and Standard Deviations (SD) for Generality of Efficacy About Others as Teachers (z-Scores) on Teacher Efficacy Vignettes for Associate Teachers and Student Teachers

Source	<i>F</i>	<i>p</i>	Overall		Pre		Post	
			\bar{M}	SD	\bar{M}	SD	\bar{M}	SD
GROUP	1.12	.29						
associate teacher			-.10	0.97				
student teacher			.06	0.98				
TIME	.81	.37			.01	1.01	-.05	0.94
GENERALITY	.02	.98						
task difficulty			-.02	0.96				
strength of efficacy			-.03	1.00				
innovativeness			-.01	0.98				
TIME x GROUP	1.44	.23						
associate teacher					-.03	1.05	-.17	0.89
student teacher					.05	0.98	.07	0.98
GENERALITY x GROUP	1.21	.30						
task, associate teacher			-.17	0.93				
task, student teacher			.14	0.97				
strength, associate teacher			-.02	1.01				
strength, student teacher			-.04	1.00				
innovative, associate teacher			-.11	0.98				
innovative, student teacher			.08	0.98				
TIME x GENERALITY	.15	.86						
task difficulty					.01	0.99	-.05	0.93
strength of efficacy					-.02	1.04	-.04	0.96
innovativeness					.03	1.02	-.05	0.95
TIME x GENERALITY x GROUP	1.16	.31						
task, associate teacher					-.14	0.99	-.20	0.87
task, student teacher					.17	0.99	.10	0.96
strength, associate teacher					.02	0.99	-.05	1.04
strength, student teacher					-.06	1.10	-.03	0.89
innovative, associate teacher					.03	1.17	-.24	0.75
innovative, student teacher					.04	0.86	.13	1.09

Note $df = (1, 160)$ for GROUP, TIME, and GROUP x TIME

$df = (2, 160)$ for GENERALITY, and interactions with GENERALITY

To summarise, perceptions about the efficacy of others as teachers on the dimensions of task difficulty for others as teachers, strength of efficacy for others as teachers, and

innovativeness of others as teachers did not vary significantly either between student teachers and associate teachers, or across student teaching practice.

Scope of Influence

In this discussion, scope of influence refers to vignettes in which the contexts either involve individual children or groups of children.

a. *Scope of influence: global efficacy.*

Two 2 x 2 x 3 analyses of variance (ANOVA) with repeated measures were performed on measures of efficacy derived from either the six vignettes involving individual children, or the six vignettes about groups of children. Measures of generality of efficacy were obtained by treating self-efficacy as teachers and efficacy about others as teachers as global efficacy across the vignettes about individual children. Measures of generality of efficacy were also derived from the vignettes about groups of children. In both analyses there was a between-subjects factor of group (associate teacher, student teacher), and two within-subjects factors of generality of efficacy (task difficulty, strength of efficacy, innovativeness), and time (pre, post).

Vignettes about individuals. There were no significant main effects for either group, time, or generality of efficacy. Likewise, there were no significant interaction effects between time and group, or between time and generality of efficacy (see Table 8). However, the interaction effect between generality of efficacy and group was significant, $F(2, 160) = 5.28, p < .01$. Finally, the three-way interaction between group, generality of efficacy, and time was not significant.

Post hoc comparisons with Scheffé F -tests indicated that the significant interaction between generality of efficacy and group was due to the group difference on strength of efficacy, $F(2, 160) = 26, p < .01$, and not to either task difficulty or innovativeness. In this regard, associate teachers' perceptions of strength of efficacy, ($M_z = 0.18, SD = 0.82$), were significantly higher than those of student teachers, ($M_z = -0.33, SD = 1.09$) (see Figure 6).

The non-significant three-way interaction between group, generality of efficacy, and time indicated that global efficacy for student teachers and associate teachers did not differ significantly across student teaching practice when measured on vignettes about individual children (see Table 8).

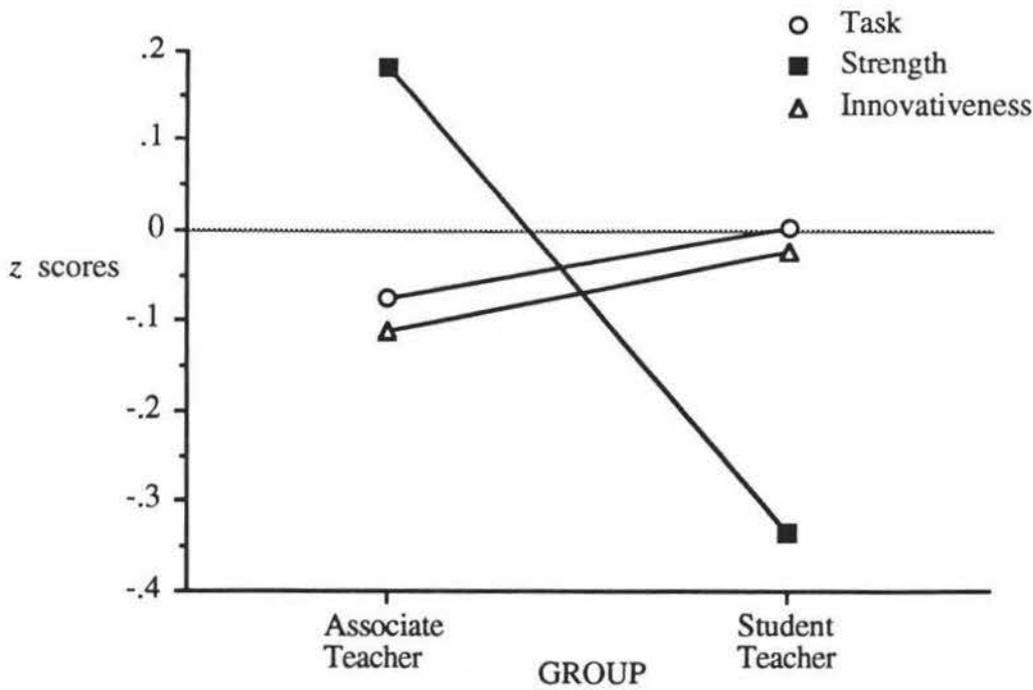


Figure 6. Interaction between group (associate teacher, student teacher), and generality of global efficacy (task difficulty, strength of efficacy, innovativeness) mean z scores on teacher efficacy vignettes about individual children.

Vignettes about groups. The analysis of vignettes about groups of children produced no significant main effects for group, time, or generality of efficacy. In addition, there were no significant interactions either between time and group, time and generality of efficacy, or generality of efficacy and group. The three-way interaction between group, generality of efficacy, and time also yielded no significant differences indicating that efficacy for student teachers and associate teachers did not differ significantly across student teaching practice when measured on vignettes about groups of children (see Table 9).

In summary, generality of global efficacy on vignettes about groups of children produced similar results to those vignettes involving individual children. There were no significant main effects for group (associate teacher, student teacher), generality of efficacy (task difficulty, strength of efficacy, innovativeness), or time (pre, post). With one exception, all interactions were not significant. The exception was the group interaction (associate teachers, student teachers) with generality of efficacy (task difficulty, strength of efficacy, innovativeness) on vignettes about individuals. In this instance, associate teachers reported significantly higher overall strength of efficacy than did student teachers.

Table 8

Summary of Analysis of Variance (ANOVA) with Means (M) and Standard Deviations (SD) for Global Generality of Efficacy (z-Scores) on Teacher Efficacy Vignettes about Individual Children for Associate Teachers and Student Teachers

Source	F	p	Overall		Pre		Post	
			M	SD	M	SD	M	SD
GROUP	.64	.42						
associate teacher			-.0001	0.88				
student teacher			-.12	1.02				
TIME	.50	.48			-.03	0.96	-.08	0.94
GENERALITY	.07	.93						
task difficulty			-.04	0.98				
strength of efficacy			-.06	0.99				
innovativeness			-.07	0.88				
TIME x GROUP	.50	.48						
associate teacher					.04	0.91	-.04	0.86
student teacher					-.12	1.01	-.12	1.03
GENERALITY x GROUP	5.28	.006**						
task, associate teacher			-.08	0.97				
task, student teacher			.0001	1.00				
strength, associate teacher			.18	0.82				
strength, student teacher			-.33	1.09				
innovative, associate teacher			-.11	0.83				
innovative, student teacher			-.02	0.94				
TIME x GENERALITY	.17	.84						
task difficulty					-.0004	1.01	-.07	0.96
strength of efficacy					-.06	1.05	-.07	0.92
innovativeness					-.04	0.80	-.09	0.96
TIME x GENERALITY x GROUP	.88	.41						
task, associate teacher					-.06	1.04	-.10	0.90
task, student teacher					.05	0.98	-.05	1.02
strength, associate teacher					.24	0.79	.13	0.85
strength, student teacher					-.38	1.21	-.29	0.96
innovative, associate teacher					-.06	0.87	-.16	0.80
innovative, student teacher					-.03	0.74	-.02	1.12

Note $df = (1, 160)$ for GROUP, TIME, and GROUP x TIME

$df = (2, 160)$ for GENERALITY, and interactions with GENERALITY

Table 9

Summary of Analysis of Variance (ANOVA) with Means (M) and Standard Deviations (SD) for Global Generality of Efficacy (z-Scores) on Teacher Efficacy Vignettes about Groups of Children for Associate Teachers and Student Teachers

Source	F	p	Overall		Pre		Post	
			<u>M</u>	SD	<u>M</u>	SD	<u>M</u>	SD
GROUP	.82	.36						
associate teacher			.01	0.94				
student teacher			-.11	0.95				
TIME	.69	.40			-.03	0.96	-.08	0.93
GENERALITY	.02	.98						
task difficulty			-.04	0.97				
strength of efficacy			-.05	1.00				
innovativeness			-.06	0.87				
TIME x GROUP	3.04	.08						
associate teacher					.09	0.98	-.07	0.89
student teacher					-.14	0.93	-.09	0.98
GENERALITY x GROUP	2.31	.10						
task, associate teacher			-.03	0.97				
task, student teacher			-.06	0.97				
strength, associate teacher			.14	0.98				
strength, student teacher			-.26	0.99				
innovative, associate teacher			-.09	0.86				
innovative, student teacher			-.03	0.89				
TIME x GENERALITY	.03	.97						
task difficulty					-.01	1.01	-.07	0.93
strength of efficacy					-.03	1.05	-.08	0.96
innovativeness					-.04	0.82	-.08	0.92
TIME x GENERALITY x GROUP	.08	.92						
task, associate teacher					.05	1.03	-.11	0.92
task, student teacher					-.07	1.00	-.04	0.95
strength, associate teacher					.21	0.98	.07	0.98
strength, student teacher					-.28	1.07	-.23	0.92
innovative, associate teacher					-.0001	0.94	-.17	0.77
innovative, student teacher					-.08	0.69	.01	1.06

Note $df = (1, 164)$ for GROUP, TIME, and GROUP x TIME
 $df = (2, 164)$ for GENERALITY, and interactions with GENERALITY

b. *Scope of influence: self-efficacy as teachers.*

Two further 2 x 2 x 3 analyses of variance (ANOVA) with repeated measures were performed. The first was on measures of self-efficacy from the six vignettes involving individual children, and the second on measures from the six vignettes about groups of children. In both analyses there was a between-subjects factor of group (associate teacher, student teacher) and two within-subjects factors of generality of self-efficacy as teachers (task difficulty, strength of efficacy, innovativeness), and time (pre, post).

Vignettes about individuals. There was a significant main effect for group, $F(1, 160) = 8.04, p < .01$, but not for either time or generality of self-efficacy. The interactions between time and group, and time and generality of self-efficacy were not significant. There was a significant interaction effect between group and generality of self-efficacy, $F(2, 160) = 10.88, p < .01$. Finally, the three-way interaction between group, generality of self-efficacy, and time was not significant (see Table 10).

These findings for the group main effect indicate that when self-perceptions of task difficulty, strength of efficacy, and innovativeness were treated as one measure, student teachers responded significantly lower, ($Mz = -.26, SD = 1.02$), than did associate teachers, ($Mz = .13, SD = .08$).

The significant interaction between group and generality of self-efficacy, $F(2, 160) = 10.88, p < .01$, suggests that student teachers and associate teachers vary on their overall perceptions of task difficulty, strength of self efficacy, and innovativeness (see Figure 7). Further analysis using Scheffé F -test comparisons reveals that this significant interaction effect is due to the difference between student teachers and associate teachers on perceptions of strength of self-efficacy as teachers, $F(2, 160) = 88, p < .01$, and not on task difficulty for self, or innovativeness of self. When mean z scores are considered, student teachers' perceptions about the strength of self-efficacy as teachers are significantly lower than those for associate teachers, (student teachers $Mz = -.56, SD = 1.07$; associate teachers $Mz = .38, SD = .65$) (see Figure 7).

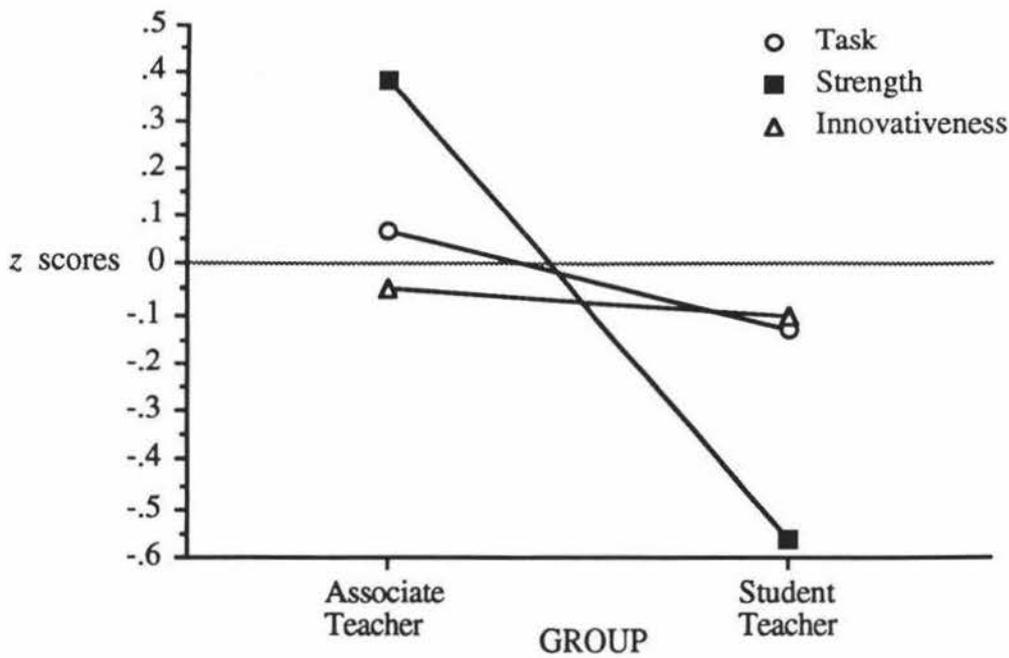


Figure 7. Interaction between group (associate teacher, student teacher) and generality of self-efficacy (task difficulty, strength of efficacy, innovativeness) mean z scores on teacher efficacy vignettes about individual children.

The non-significant interaction between time and group suggests that self-efficacy as teachers for student teachers and associate teachers did not vary sufficiently across student teaching practice to discount the chance factor. Likewise, the interaction between time and generality of self-efficacy revealed no significant differences. This result affirms that when treated apart from the group factor, the three measures of self-efficacy as teachers do not differ significantly across student teaching practice. Finally, the three-way interaction between group, generality of self-efficacy, and time was not significant indicating that the three measures of self-efficacy as teachers do not differ significantly across student teaching practice for either student teachers or associate teachers.

In summary, these results suggest that student teachers report significantly lower strength of self-efficacy as teachers than do associate teachers on vignette tasks about individuals. However, the results also indicate that student teachers' and associate teachers' responses on task difficulty for self, strength of self-efficacy as teachers, and innovativeness of self do not differ significantly across student teaching practice in situations involving individual children.

Table 10

Summary of Analysis of Variance (ANOVA) with Means (M) and Standard Deviations (SD) for Generality of Self-Efficacy (z-Scores) on Teacher Efficacy Vignettes about Individual Children for Associate Teachers and Student Teachers

Source	F	p	Overall		Pre		Post	
			M	SD	M	SD	M	SD
GROUP	8.04	.005**						
associate teacher			.13	0.83				
student teacher			-.26	1.02				
TIME	.20	.65			-.04	0.94	-.07	0.96
GENERALITY	.17	.84						
task difficulty			-.03	0.99				
strength of efficacy			-.07	0.99				
innovativeness			-.07	0.86				
TIME x GROUP	.04	.84						
associate teacher					.15	0.83	.11	0.83
student teacher					-.26	1.01	-.27	1.05
GENERALITY x GROUP	10.88	.0001**						
task, associate teacher			.07	0.97				
task, student teacher			-.13	1.01				
strength, associate teacher			.38	0.65				
strength, student teacher			-.56	1.07				
innovative, associate teacher			-.05	0.78				
innovative, student teacher			-.10	0.94				
TIME x GENERALITY	.11	.89						
task difficulty					-.0004	1.01	-.05	0.97
strength of efficacy					-.06	1.04	-.07	0.95
innovativeness					-.06	0.75	-.09	0.96
TIME x GENERALITY x GROUP	1.08	.34						
task, associate teacher					.08	1.01	.05	0.93
task, student teacher					-.10	1.00	-.16	1.03
strength, associate teacher					.43	0.63	.34	0.68
strength, student teacher					-.61	1.13	-.51	1.02
innovative, associate teacher					-.06	0.73	-.04	0.84
innovative, student teacher					-.06	0.78	-.15	1.08

Note $df = (1, 160)$ for GROUP, TIME, and GROUP x TIME

$df = (2, 160)$ for GENERALITY, and interactions with GENERALITY

Vignettes about groups. A 2 x 2 x 3 analysis of variance with repeated measures was also carried out using self-efficacy measures on vignettes involving groups of children. The main effect for group was significant, $F(1, 162) = 10.08, p < .01$. Both the main effects for generality of self-efficacy and time were not significant. The interaction between group and generality of self-efficacy was significant, $F(2, 162) = 5.21, p < .01$. However, the interactions between time and generality of self-efficacy, and time and group were not significant. Finally, the three-way interaction between group, generality of self-efficacy, and time was not significant (see Table 11).

The main effect for group shows that overall, student teachers' responses were significantly lower than those of associate teachers. Furthermore, student teachers' responses on each of the three measures of self-efficacy as teachers (task difficulty strength of efficacy, innovativeness) were significantly lower than those for associate teachers (see Figure 8). Scheffé F -test comparisons on this interaction between group and generality of self-efficacy as teachers indicated that the significance is due to differences between student teachers and associate teachers on both the strength of self-efficacy as teachers, $F(2, 162) = 10, p < .01$, and difficulty of task for self, $F(2, 162) = 66, p < .01$, and not due to differences in innovativeness for self.

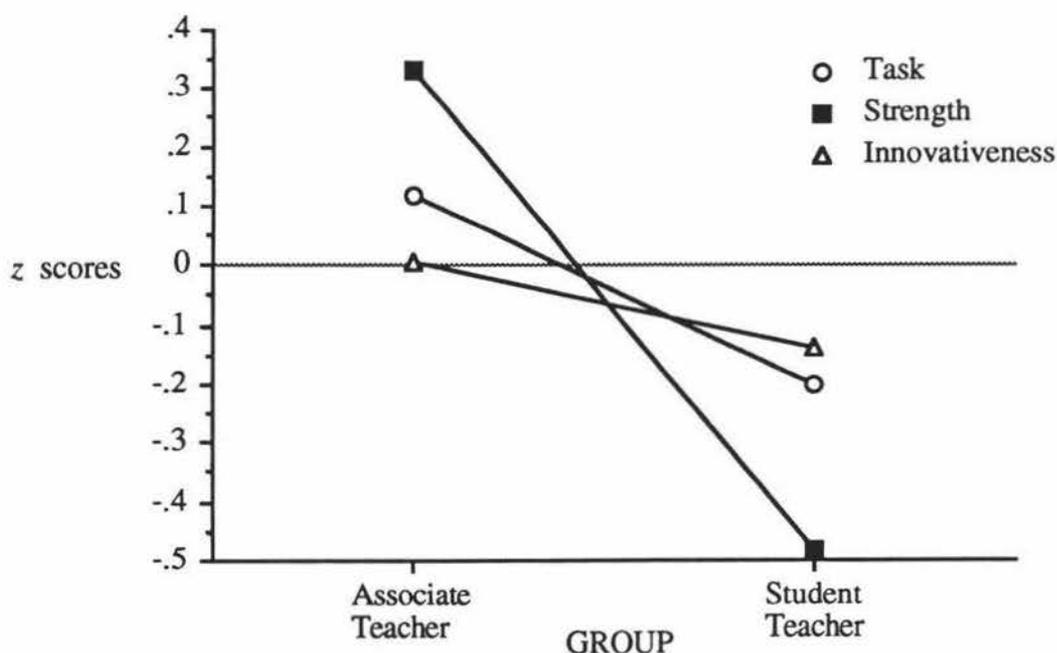


Figure 8. Interaction between group (associate teacher, student teacher) and generality of self-efficacy (task difficulty, strength of efficacy, innovativeness) mean z scores on teacher efficacy vignettes about groups of children.

However, when student teachers and associate teachers were treated as one group of participants, the three measures of self-efficacy as teachers (task difficulty, strength of efficacy, innovativeness) did not vary significantly across student teaching practice. Likewise, the interaction between group and time was not significant. These results indicate when the three measures of self-efficacy as teachers are treated as one measure, differences across student teaching practice were not significant.

Finally, the three-way interaction between group, generality of self-efficacy as teachers, and time was not significant. Thus, student teachers' and associate teachers' perceptions of task difficulty for self, strength of self-efficacy as teachers, and innovativeness of self did not produce reliable differences across student teaching practice.

In summary, student teachers reported significantly lower self-efficacy as teachers on tasks involving groups of children than did associate teachers. Furthermore, in these same situations, student teachers' perceptions were significantly lower than those of associate teachers on strength of self-efficacy as teachers, and judgements of task difficulty for self. Student teachers reported significantly lower strength of self-efficacy as teachers, and perceived the tasks as more difficult than did associate teachers. Finally, student teachers' and associate teachers' judgements of task difficulty for self, strength of self-efficacy as teachers, and innovativeness of self on the vignettes about groups of children did not vary significantly across student teaching practice.

Table 11

Summary of Analysis of Variance (ANOVA) with Means (M) and Standard Deviations (SD) for Generality of Self-Efficacy (z-Scores) on Teacher Efficacy Vignettes about Groups of Children for Associate Teachers and Student Teachers

Source	F	p	Overall		Pre		Post	
			M	SD	M	SD	M	SD
GROUP	10.08	.002**						
associate teacher			.15	0.90				
student teacher			-.27	0.95				
TIME	.29	.58			-.03	0.94	-.07	0.96
GENERALITY	.06	.94						
task difficulty			-.03	0.99				
strength of efficacy			-.06	1.01				
innovativeness			-.06	0.85				
TIME x GROUP	2.66	.10						
associate teacher					.22	0.91	.08	0.89
student teacher					-.31	0.90	-.24	1.01
GENERALITY x GROUP	5.21	.006**						
task, associate teacher			.12	1.00				
task, student teacher			-.20	0.96				
strength, associate teacher			.33	0.86				
strength, student teacher			-.48	0.98				
innovative, associate teacher			.0004	0.81				
innovative, student teacher			-.14	0.88				
TIME x GENERALITY	.14	.87						
task difficulty					-.0001	1.02	-.07	0.97
strength of efficacy					-.04	1.05	-.08	0.98
innovativeness					-.06	0.74	-.07	0.95
TIME x GENERALITY x GROUP	.20	.81						
task, associate teacher					.22	1.03	.02	0.97
task, student teacher					-.24	0.96	-.16	0.96
strength, associate teacher					.40	0.87	.27	0.87
strength, student teacher					-.51	1.02	-.45	0.96
innovative, associate teacher					.04	0.81	-.04	0.83
innovative, student teacher					-.17	0.64	-.10	1.08

Note $df = (1, 162)$ for GROUP, TIME, and GROUP x TIME

$df = (2, 162)$ for GENERALITY, and interactions with GENERALITY

c. *Scope of influence: efficacy about others as teachers.*

Two 2 x 2 x 3 analyses of variance (ANOVA) with repeated measures were performed on measures of efficacy about others as teachers. In the first instance, the analysis involved the six vignettes about individual children. The second analysis used data from the six vignettes about groups of children. In both analyses there was a between-subjects factor of group (associate teacher, student teacher) and two within-subjects factors of generality of efficacy about others as teachers (task difficulty for others, strength of efficacy about others, innovativeness for others), and time (pre, post).

Vignettes about individuals. There were no significant main effects for group, generality of efficacy about others as teachers, or time. The interactions between group and generality of efficacy about others as teachers, time and group, and time and generality of efficacy about others as teachers, were all not significant. Finally, the three-way interaction between group, generality of efficacy about others as teachers, and time was significant, $F(2, 152) = 3.22, p < .05$ (see Table 12).

These results show that student teachers' and associate teachers' responses on the three measures of efficacy about others (task difficulty, strength of efficacy, innovativeness) do not vary significantly. When student teachers and associate teachers were treated as one group, the differences in perceptions about others on task difficulty, strength of efficacy, and innovativeness do not vary significantly across student teaching practice. Likewise, when the three measures of efficacy about others as teachers (task difficulty, strength of efficacy, innovativeness) were treated as one measure, the differences between student teachers and associate teachers were not significant across student teaching practice.

However, the three-way interaction between group, generality of efficacy about others as teachers, and time was significant, $F(2, 152) = 3.22, p < .05$ (see Figure 9). Scheffé F -test comparisons of means in this interaction reveal that the significance is due to the differences across student teaching practice on perceptions about the task difficulty for other teachers as reported by both associate teachers, $F(2, 152) = 11.3437, p < .01$, and student teachers, $F(2, 152) = 8.7604, p < .01$, and associate teachers' perceptions about the innovativeness of other teachers, $F(2, 152) = 9.375, p < .01$. Conversely, the Scheffé F -test comparisons did not attribute the significant interaction to either student teachers' or associate teachers' perceptions about the strength of efficacy of others as teachers, or to student teachers' judgements about the innovativeness of other teachers.

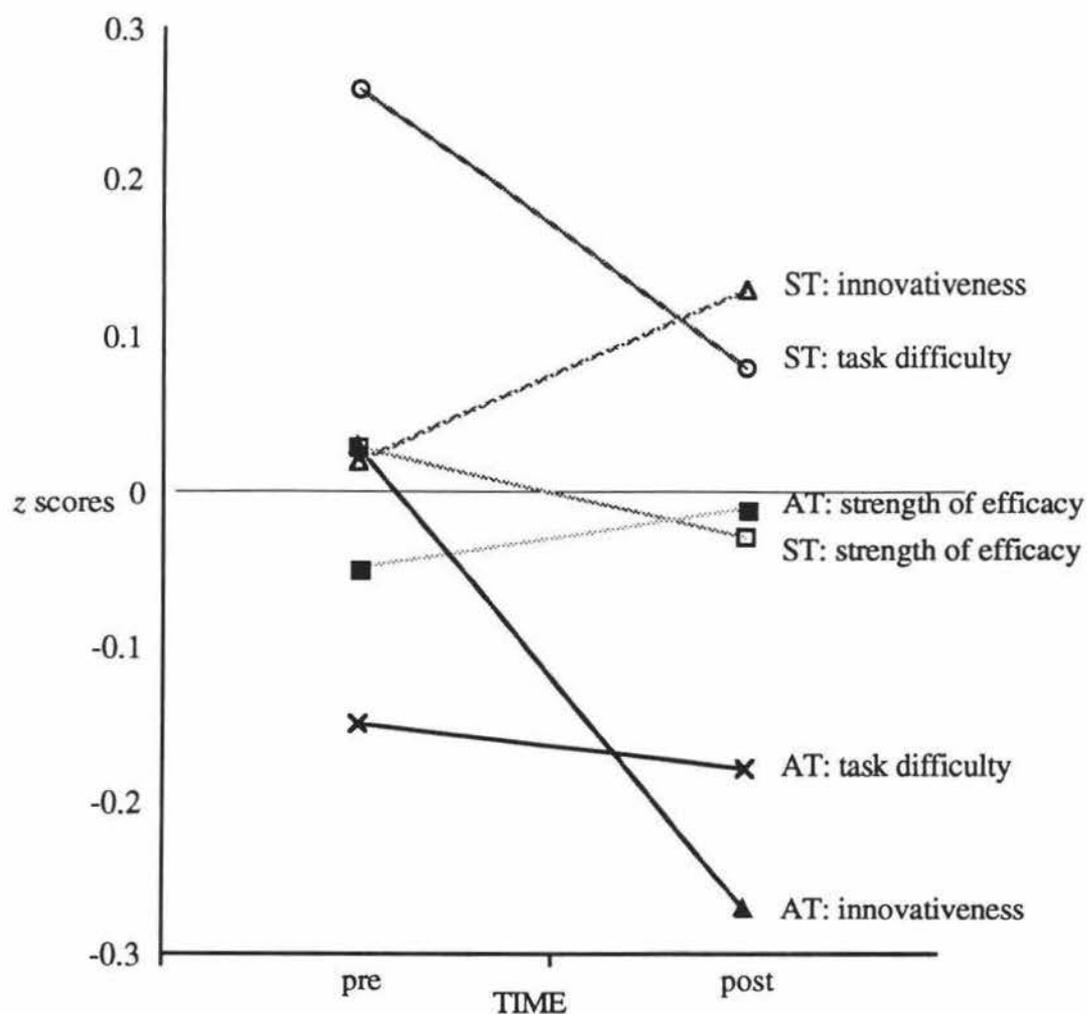


Figure 9. Interaction between group (associate teacher, student teacher), generality of efficacy about others as teachers (task difficulty, strength of efficacy, innovativeness) mean z scores on teacher efficacy vignettes about individual children, and time (pre, post).

In summary, efficacy of others as teachers on vignettes about individuals produced no significant main effects for group, efficacy, or time. While all other interaction effects were not significant, the three-way interaction between group, efficacy about others as teachers, and time was significant. This effect was due to both perceptions of task difficulty and innovativeness for others as teachers. In the case of perceptions about the task difficulty, both student teachers' and associate teachers' means declined after student teaching practice indicating that they perceived the tasks as being more difficult for other teachers to cope with. Associate teachers' perceptions about the

innovativeness of others also declined significantly on these vignettes about individuals after student teaching practice.

Table 12

Summary of Analysis of Variance (ANOVA) with Means (M) and Standard Deviations (SD) for Generality of Efficacy About Others as Teachers (z-Scores) on Teacher Efficacy Vignettes about Individual Children for Associate Teachers and Student Teachers

Source	F	p	Overall		Pre		Post	
			M	SD	M	SD	M	SD
GROUP	1.19	.27						
associate teacher			-.10	0.97				
student teacher			.07	0.98				
TIME	.96	.33			.02	1.02	-.05	0.94
GENERALITY	.03	.97						
task difficulty			-.01	0.97				
strength of efficacy			-.01	0.99				
innovativeness			-.03	0.99				
TIME x GROUP	.75	.38						
associate teacher					-.03	1.05	-.16	0.88
student teacher					.08	0.98	.07	0.99
GENERALITY x GROUP	1.40	.24						
task, associate teacher			-.17	0.91				
task, student teacher			.17	1.00				
strength, associate teacher			.0007	0.98				
strength, student teacher			-.03	1.00				
innovative, associate teacher			-.12	1.02				
innovative, student teacher			.08	0.96				
TIME x GENERALITY	.49	.61						
task difficulty					.04	0.99	-.06	0.94
strength of efficacy					-.01	1.05	-.02	0.92
innovativeness					.02	1.02	-.08	0.96
TIME x GENERALITY x GROUP	3.22	.04*						
task, associate teacher					-.15	0.99	-.18	0.85
task, student teacher					.26	0.97	.08	1.03
strength, associate teacher					.03	0.96	-.03	1.00
strength, student teacher					-.05	1.16	-.01	0.83
innovative, associate teacher					.03	1.21	-.27	0.77
innovative, student teacher					.02	.78	.13	1.11

Note $df = (1, 152)$ for GROUP, TIME, and GROUP x TIME

$df = (2, 152)$ for GENERALITY, and interactions with GENERALITY

Vignettes about groups. A further analysis of variance (ANOVA) with repeated measures was conducted on pre and post measures of associate teachers' and student teachers' perceptions about the efficacy of others as teachers based on vignettes that involved groups of children. This analysis revealed that there were no significant main effects for group, time, or generality of efficacy about others as teachers, or significant interaction effects (see Table 13).

The group factor produced no significant interaction effects with generality of efficacy about others as teachers, or with time. The group interaction with generality of efficacy suggests that student teachers' and associate teachers' perceptions on the three measures of efficacy about others as teachers (task difficulty, strength of efficacy, innovativeness) did not vary significantly. The interaction between group and time indicates that when the three efficacy measures (task difficulty, strength of efficacy, innovativeness) were treated as one measure, there were no reliable differences between student teachers and associate teachers across student teaching practice. When student teachers and associate teachers were treated as one participant group, the three measures of efficacy about others as teachers (task difficulty, strength of efficacy, innovativeness) also did not differ significantly across student teaching practice.

Finally, the three-way interaction between group, generality of efficacy about others as teachers, and time was not significant. Thus, student teachers' and associate teachers' perceptions about the task difficulty for others as teachers, the strength of efficacy for others as teachers, and the innovativeness of others as teachers did not vary significantly across student teaching practice.

Table 13

Summary of Analysis of Variance (ANOVA) with Means (M) and Standard Deviations (SD) for Generality of Efficacy About Others as Teachers (z-Scores) on Teacher Efficacy Vignettes about Groups of Children for Associate Teachers and Student Teachers

Source	F	p	Overall		Pre		Post	
			M	SD	M	SD	M	SD
GROUP	1.43	.23						
associate teacher			-.08	0.98				
student teacher			.09	0.95				
TIME	.79	.37			.04	1.01	-.02	0.93
GENERALITY	.06	.94						
task difficulty			.01	0.96				
strength of efficacy			.02	0.97				
innovativeness			-.01	0.97				
TIME x GROUP	2.93	.09						
associate teacher					.01	1.05	-.16	0.89
student teacher					.06	0.96	.12	0.94
GENERALITY x GROUP	.89	.41						
task, associate teacher			-.15	0.94				
task, student teacher			.17	0.96				
strength, associate teacher			.02	1.00				
strength, student teacher			.03	0.94				
innovative, associate teacher			-.10	0.99				
innovative, student teacher			.07	0.95				
TIME x GENERALITY	.15	.86						
task difficulty					.04	1.01	-.02	0.92
strength of efficacy					.03	1.00	.01	0.94
innovativeness					.03	1.03	-.06	0.92
TIME x GENERALITY x GROUP	.78	.46						
task, associate teacher					-.09	0.99	-.20	0.90
task, student teacher					.17	1.02	.17	0.91
strength, associate teacher					.06	0.98	-.03	1.03
strength, student teacher					.01	1.02	.05	0.85
innovative, associate teacher					.04	1.19	-.25	0.73
innovative, student teacher					.02	0.84	.13	1.06

Note $df = (1, 156)$ for GROUP, TIME, and GROUP x TIME

$df = (2, 156)$ for GENERALITY, and interactions with GENERALITY

Summary: Student Teachers' and Associate Teachers' Efficacy

Hypothesis 1

Perceptions of efficacy as teachers (self and others) differ between student teachers and associate teachers.

1.1 Perceptions of self-efficacy as teachers (including personal teaching efficacy) are significantly higher for student teachers than for associate teachers.

1.2 Perceptions of efficacy about others as teachers (including teaching efficacy) are significantly higher for student teachers than for associate teachers.

RAND Efficacy Items

First, while student teachers scored significantly lower than associate teachers on overall RAND efficacy, $F(1, 98) = 6.77, p = .01$, the real difference emerged on the RAND 1 item, Scheffé $F(1, 98) = 25.928, p < .01$, and not on RAND 2. Thus, student teachers reported significantly lower judgements of teaching efficacy (RAND 1), than those reported by associate teachers.

Second, differences between RAND 1 and RAND 2 were significant for student teachers, Scheffé $F(1, 98) = 7.174, p < .01$, but not for associate teachers. This finding indicates that student teachers' judgements about personal teaching efficacy were reported to be significantly higher than their judgements about teaching efficacy. The same case was not true for associate teachers.

In summary, perceptions of personal teaching efficacy do not differ significantly between student teachers and associate teachers. Thus, hypothesis 1.1 is rejected. Perceptions about teaching efficacy are significantly lower, not higher for student teachers than for associate teachers, and therefore hypothesis 1.2 is also rejected.

Teacher Efficacy Scale

While personal teaching efficacy (TES 1) was rated significantly higher than teaching efficacy (TES 2) for the group of all participants on the Teacher Efficacy Scale, $F(1, 98) = 184.9, p < .01$, there were no significant differences between student teachers and

associate teachers on these two factors of efficacy. Thus, because perceptions of personal teaching efficacy do not differ significantly between student teachers and associate teachers, hypothesis 1.1 is rejected.

Perceptions of efficacy about teaching efficacy do not differ significantly between student teachers and associate teachers. Therefore, hypothesis 1.2 is also rejected.

Teacher Efficacy Vignettes

a. *Generality: Global Efficacy* When scores for self-efficacy as teachers, and efficacy about others as teachers were treated as global efficacy, there were no significant differences between student teachers and associate teachers. Initial analysis suggested the differences between student teachers and associate teachers on overall perceptions of task difficulty, strength of efficacy, and innovativeness were significant, $F(2, 164) = 3.88, p < .05$, but these differences failed to withstand the more stringent requirements of the Scheffé F -test. These non-significant differences on the vignettes for global efficacy suggest that hypothesis 1.1 and hypothesis 1.2 be rejected.

Scope of influence When self-efficacy as teachers, and efficacy about others as teachers were treated as global efficacy for vignettes involving individual children, there was no significant difference between student teachers and associate teachers. However, the Group \times Efficacy interaction was significant, $F(2, 160) = 5.28, p < .01$, revealing that strength of efficacy was significantly lower for student teachers than that reported for associate teachers, Scheffé $F(2, 160) = 26, p < .01$.

On vignettes involving groups of children there was no significant difference between student teachers and associate teachers on global efficacy, or on the three measures of efficacy (task difficulty, strength of efficacy, innovativeness).

Thus, because strength of global efficacy on vignettes about individual children was significantly lower for student teachers than that reported for associate teachers, hypothesis 1.1 is rejected. Likewise, because there were no significant differences between student teachers' and associate teachers' global efficacy on vignettes about groups of children, hypothesis 1.1 is therefore rejected.

b. *Generality: Self-efficacy as Teachers* Student teachers' reports of self-efficacy as teachers were significantly lower than those reported by associate teachers, $F(2, 164) = 17.26, p < .01$. Further Scheffé F -test analysis revealed that the lower self-perceptions reported by student teachers for task difficulty, $F(2, 164) = 10.71, p < .01$, and strength of self-efficacy as teachers, $F(2, 164) = 94.29, p < .01$, differed

significantly from the higher mean scores reported by associate teachers. Thus, student teachers' reports about the difficulty of the tasks suggest that they perceive these to be more difficult than the self-perceptions reported by associate teachers. Student teachers also judged the strength of their self-efficacy as teachers on these tasks at lower levels than the self-reports of associate teachers. Perceptions about innovativeness for self as teacher did not vary significantly.

Thus, because student teachers' self-efficacy indicated that they perceived the tasks as more difficult and their strength of self-efficacy as teachers as being lower than those reported by associate teachers on the Teacher Efficacy vignettes, hypothesis 1.1 is rejected.

Scope of influence For vignettes about individual children, global self-efficacy as teachers for student teachers was reported at significantly lower levels than that for associate teachers, $F(1, 160) = 8.04, p < .01$. When the dimensions of self-efficacy as teachers are considered, the lower judgements of strength of self-efficacy as teachers for student teachers were significantly different to those reported by associate teachers, Scheffé $F(2, 160) = 88, p < .01$, but not for self-perceptions about task difficulty or innovativeness.

On vignettes about groups of children, overall responses from student teachers were also significantly lower than those for associate teachers, $F(1, 162) = 10.08, p < .01$. When the three measures of self-efficacy as teachers were considered, student teachers' self-perceptions were significantly lower than associate teachers on strength of efficacy as teachers, Scheffé $F(2, 162) = 10, p < .01$, and on task difficulty, Scheffé $F(2, 162) = 66, p < .01$, but not on innovativeness.

Thus, self-efficacy as teachers differs between student teachers and associate teachers in terms of strength of self-efficacy as teachers on vignettes about individual children, and for strength of self-efficacy as teachers and task difficulty on vignettes about groups. These differences vary with the direction indicated by hypothesis 1.1. Thus, hypothesis 1.1 is rejected.

c. *Generality: Efficacy About Others as Teachers* There were no significant differences between student teachers and associate teachers either on global efficacy about others as teachers, or on the three measures of efficacy about others as teachers (task difficulty, strength of efficacy, innovativeness). Thus, these non significant differences between student teachers and associate teachers on teacher vignettes on efficacy about others as teachers lead to the rejection of hypothesis 1.1.

Scope of influence When efficacy about others as teachers was gauged on vignettes about individual children, the differences between student teachers and associate teachers on global efficacy, and on the three measures of efficacy about others as teachers (task difficulty, strength of efficacy, innovativeness) were not significant. Likewise, the differences between student teachers and associate teachers on global, and on the dimensions of efficacy about others as teachers (task difficulty, strength of efficacy, innovativeness) were not significant on vignettes about groups of children.

Thus, the non-significant differences between student teachers and associate teachers on efficacy about others as teachers on vignettes about individual children, and from vignettes that involve groups of children, lead to the rejection of hypothesis 1.1.

Hypothesis 2

Significant differences between student teachers and associate teachers across student teaching practice are attributed to increases in student teachers' self-efficacy as teachers, and decreases in their efficacy about others as teachers.

2.1 Significant differences between student teachers and associate teachers across student teaching practice are attributed to increases in student teachers' perceptions of self-efficacy as teachers.

2.2 Significant differences between student teachers and associate teachers across student teaching practice are attributed to decreases in student teachers' perceptions of efficacy about others as teachers.

RAND Efficacy Items

When the interaction of Group x RAND x Time is considered, the perceptions of efficacy (teaching efficacy, personal teaching efficacy) reported by student teachers and associate teachers do not differ significantly across student teaching practice. Thus, hypothesis 2.1 and hypothesis 2.2 is rejected for efficacy on RAND items.

Teacher Efficacy Scale

Scores on the Teacher Efficacy Scale varied significantly between student teachers and associate teachers across student teaching practice, $F(1, 98) = 4.56, p < .05$. This significance was due to increases in student teachers' judgements on personal teaching efficacy (TES 1), Scheffé $F(1, 98) = 4.571, p < .05$, across student teaching practice.

Thus, when Teacher Efficacy Scale scores are used to measure efficacy, associate teachers' perceptions of efficacy did not differ significantly across student teaching practice while there were significant differences on personal teaching efficacy (TES 1) for student teachers. Personal teaching efficacy (TES 1) increased significantly for student teachers across student teaching practice. Thus, hypothesis 2.1 is accepted.

As there were no significant differences across student teaching practice on teaching efficacy (TES 2) for student teachers or associate teachers, hypothesis 2.2 is rejected.

Teacher Efficacy Vignettes

a. *Generality: Global Efficacy* When self-efficacy as teachers, and efficacy about others as teachers were treated as one measure of efficacy, the differences between student teachers and associate teachers were not significant across student teaching practice. Thus, hypothesis 2.1 and hypothesis 2.2 are rejected for global efficacy on the teacher efficacy vignettes.

Scope of influence On vignettes involving individual children, no significant differences appeared on global efficacy, or on the three measures of efficacy (task difficulty, strength of efficacy, innovativeness) between student teacher and associate teachers across student teaching practice. Likewise, vignettes about groups did not produce significant differences between student teachers and associate teachers across student teaching practice.

Thus, hypothesis 2.1 and hypothesis 2.2 are rejected for global efficacy on the teacher vignettes about individual children, and about groups of children.

b. *Generality: Self-Efficacy as Teachers* Student teachers' and associate teachers' judgements of self-efficacy as teachers on the vignettes did not vary significantly across student teaching practice. Therefore, hypothesis 2.1 is rejected.

Scope of influence When self-efficacy was gauged on vignettes concerning individual children, there were no significant differences between student teachers and associate teachers across student teaching practice. Likewise, the self-efficacy of

student teachers and associate teachers did not differ significantly across student teaching practice on vignettes about groups of children.

Thus, hypothesis 2.1 is rejected for self-efficacy as teachers on the teacher efficacy vignettes about individual children, and about groups of children.

c. *Generality: Efficacy About Others as Teachers* The differences in efficacy about others as teachers (task difficulty, strength of efficacy, innovativeness) between student teachers and associate teachers were not significant across student teaching practice. Thus, hypothesis 2.2 is rejected for efficacy about others as teachers.

Scope of influence When student teachers' and associate teachers' judgements concerning the efficacy of others as teachers was determined from vignettes involving individual children, there was a significant effect across student teaching practice, $F(2, 152) = 3.22, p < .05$. Scheffé F -tests revealed that this significance was due to three differences. These explanations relate to declines across student teaching practice in associate teachers' perceptions about the task difficulty for others as teachers, $F(2, 152) = 11.34, p < .01$, associate teachers' perceptions about the innovativeness of others as teachers, $F(2, 152) = 9.37, p < .01$, and student teachers' perceptions about task difficulty for others as teachers $F(2, 152) = 8.76, p < .01$.

However, when student teachers' and associate teachers' judgements about the efficacy of others as teachers were determined from vignettes involving groups of children, there were no significant effects across student teaching practice.

Thus, given these differences and the direction of change, hypothesis 2.1 and hypothesis 2.2 are rejected on evidence arising from the scope of influence dimension.

What Relationships Exist Between the Measures of Efficacy?

These findings raise questions about the degree of association between the measures of efficacy used in this study. A series of Pearson product-moment correlations were therefore carried out using the pre and post student teaching practice scores on the RAND, Teacher Efficacy Scale, and the teacher efficacy vignettes.

RAND and Teacher Efficacy Scale For teaching efficacy, the pre and post correlations between RAND 1 and TES 2 were $r = .49$ and $.37$ respectively for associate teachers, and $r = .40$ and $.63$ for student teachers. On personal teaching efficacy, the pre and post

correlations between RAND 2 and TES 1 were $r = .39$ and $.34$ for associate teachers, and $r = .46$ and $.46$ for student teachers.

Teacher Efficacy Vignettes, RAND, and Teacher Efficacy Scale When the three dimensions of self-efficacy as teachers (task difficulty, strength of self-efficacy, innovativeness) were correlated with personal teaching efficacy on the RAND (RAND 2), and with the Teacher Efficacy Scale (TES 1) correlations varied between $r = .20$ and $-.22$ for associate teachers, and $r = .12$ and $-.30$ for student teachers on vignettes about individual children. On vignettes about groups of children, correlations varied between $r = .21$ and $-.08$ for associate teachers, and $r = .26$ and $-.30$ for student teachers.

The three dimensions of efficacy about others as teachers (task difficulty, strength of efficacy, innovativeness) were correlated with teaching efficacy on the RAND (RAND 1), and with Teacher Efficacy Scale (TES 2). Correlations varied between $r = .35$ and $-.13$ for associate teachers, and $r = .53$ and $.08$ for student teachers on vignettes about individual children. In the case of student teachers, the correlations for pre scores on the three vignette dimensions varied with RAND and TES between $r = .53$ and $.33$, and were consistently stronger than those correlations arising from post score comparisons which varied between $r = .37$ and $r = .08$.

On vignettes about groups of children, correlations varied between $r = .14$ and $-.16$ for associate teachers, and $r = .45$ and $-.01$ for student teachers. Once again, the correlations for student teachers' pre scores on three dimensions of efficacy about others as teachers with the RAND, and with TES varied between $r = .45$ and $.32$, and were consistently stronger than those correlations arising from post score comparisons which varied between $r = .38$ and $.01$.

To summarise, the RAND and Teacher Efficacy Scale share a moderate degree of commonality. However, both the RAND and Teacher Efficacy Scale show weak correlations with the three dimensions of self-efficacy on vignettes about individuals, and about groups of children. These three dimensions of self-efficacy appear to differ with the personal teaching efficacy factor in the RAND and Teacher Efficacy Scale.

For associate teachers, the RAND and the Teacher Efficacy Scale both have low correlations with the three dimensions of efficacy about others as teachers on vignettes about individuals, and about groups of children. Student teachers' post student teaching practice scores also produced similar low correlations on vignettes about individual children, and about groups of children. This suggests that for associate teachers (pre and post student teaching practice), and for student teachers (post student teaching

practice) the three dimensions of efficacy about others as teachers are not the same as the teaching efficacy factor in either the RAND or Teacher Efficacy Scale.

Orientations Toward Children

Orientations Toward the Control of Children

Student teachers' and associate teachers' orientations toward the control of children were determined on four measures of orientations (high autonomy, moderate autonomy, moderate control, high control). Measures of overall orientations were calculated as mean responses across all twelve vignettes. The scope of influence dimension for orientations was determined on mean responses across the six vignettes about individual children, and the six vignettes about groups of children. Ratings on seven-point Likert scales were converted to overall means across the vignettes with high scores being associated with preferences for strong appropriateness and low scores indicating strong inappropriateness for particular orientations toward children.

a. *Overall Orientations.* Using both student teachers' and associate teachers' mean scores across the twelve vignettes, a three-way analysis of variance (ANOVA) with repeated measures was carried out with one between-subjects group factor (associate teacher, student teacher), and two within-subjects factors of time (pre, post) and orientation (high autonomy, moderate autonomy, moderate control, high control).

While there was no significant main effect for group, there were significant differences for the main effects of orientation, $F(3, 294) = 100.01, p < .01$, and time, $F(1, 294) = 8.36, p < .01$. The two-way interactions between orientations and group, $F(3, 294) = 3.21, p < .05$, time and group, $F(1, 294) = 9.46, p < .01$, and time and orientation, $F(3, 294) = 4.95, p < .01$, were all significant. Finally, the three-way interaction between group, orientation, and time produced a non-significant result (see Table 14).

The means for the group of all participants indicate that high autonomy, ($M = 5.50, SD = 0.80$), and high control, ($M = 5.12, SD = 0.76$), were the most preferred orientations, followed by moderate autonomy, ($M = 4.63, SD = 0.97$), and moderate control, ($M = 4.0, SD = 1.16$). The pre scores, ($M = 4.89, SD = 1.11$), were significantly higher than post scores, ($M = 4.73, SD = 1.07$) for the group of all participants.

The interaction between group and time indicates that means for associate teachers declined significantly across student teaching practice while means for student teachers remained relatively constant (see Table 14). Figure 10 illustrates this interaction.

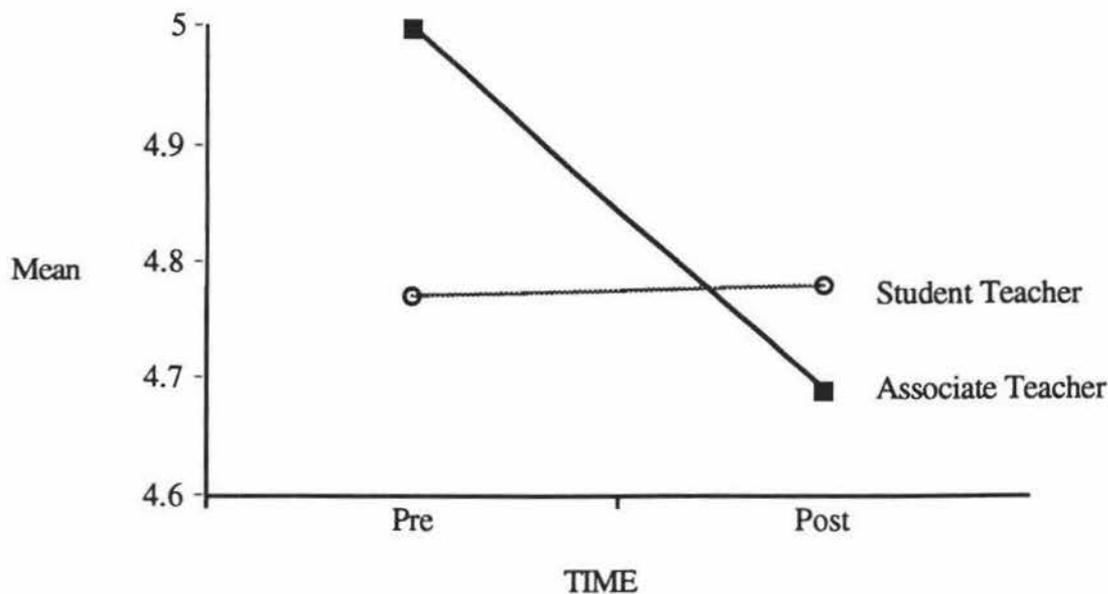


Figure 10. Orientations toward children mean scores and the interaction between time (pre, post) and group (associate teacher, student teacher).

The interaction between orientation and group was also significant (see Figure 11). Scheffé *F*-test comparisons indicate that the significance of this interaction is due to the differences of student teachers and associate teachers on high control orientations, $F(3, 294) = 17.11, p < .01$, and moderate control orientations, $F(3, 294) = 3.61, p < .05$. Associate teachers gave higher ratings of appropriateness for high control orientations, ($M = 5.30, SD = 0.70$), than did student teachers, ($M = 4.93, SD = 0.78$). Conversely, moderate control orientations were rated higher by student teachers, ($M = 4.08, SD = 1.00$), than by associate teachers ($M = 3.91, SD = 1.30$). However, the Scheffé *F*-test comparisons in the Group x Orientations interaction produced non-significant group differences on high autonomy and moderate autonomy orientations toward children.

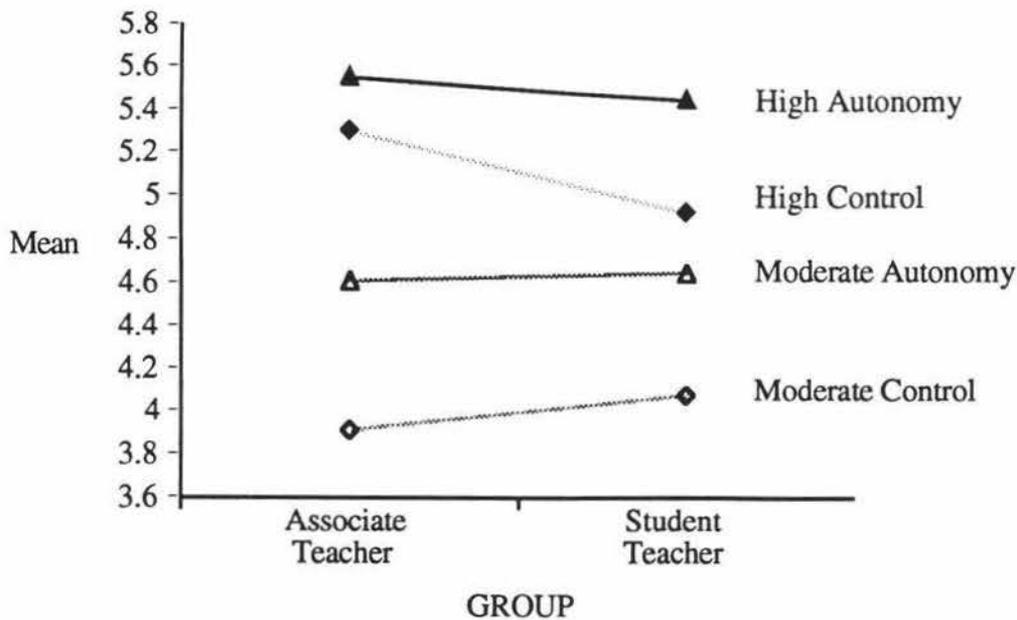


Figure 11. Interaction between orientations toward children (high autonomy, moderate autonomy, moderate control, high control), and group (associate teacher, student teacher).

When student teachers and associate teachers were treated as one group of participants, there was a significant difference in preferences for orientations across student teaching practice (see Figure 12). Scheffé F -test comparisons indicate that this significance was due to changes in high autonomy, $F(3, 294) = 5.0, p < .01$, moderate autonomy, $F(3, 294) = 7.2, p < .01$, and moderate control orientations, $F(3, 294) = 7.2, p < .01$, but not on high control orientations. Across student teaching practice, overall declines were apparent for high autonomy, (pre $M = 5.60, SD = 0.79$; post $M = 5.40, SD = 0.80$), moderate autonomy, (pre $M = 4.75, SD = 0.97$; post $M = 4.51, SD = 0.96$), and moderate control orientations, (pre $M = 4.12, SD = 1.26$; post $M = 3.88, SD = 1.03$). Thus, when student teachers and associate teachers are considered as one group, there were significant decreases across student teaching practice in the overall preference for high autonomy, moderate autonomy, and moderate control orientations, while preference for the high control orientation remained relatively unchanged. However, the most preferred orientations for the group of all participants remained as high autonomy and high control, followed by moderate autonomy and moderate control.

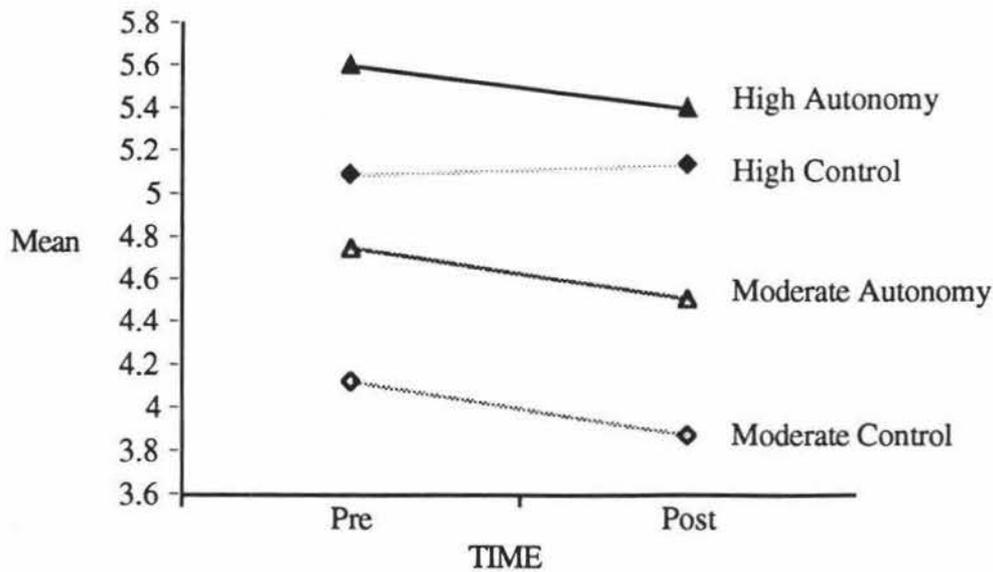


Figure 12. Interaction between orientations toward children (high autonomy, moderate autonomy, moderate control, high control), and time (pre, post).

Finally, though failing to reach significance, the three-way interaction between group, orientations toward children, and time is worth noting, $F(3, 294) = 2.42, p = .06$ (see Table 14). While not statistically significant, the means for associate teachers indicate a decline across student teaching practice for high autonomy, moderate autonomy and moderate control orientations toward children. For student teachers, the trends are for high autonomy orientations to lessen across time, and for high control orientations to increase, though the interaction remains non-significant.

Table 14

Summary of Analysis of Variance (ANOVA) with Means (*M*) and Standard Deviations (*SD*) on Orientations Toward Children for Associate Teachers and Student Teachers

Source	<i>F</i>	<i>p</i>	Overall		Pre		Post	
			<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
GROUP	.28	.59						
associate teacher			4.84	1.16				
student teacher			4.78	1.01				
TIME	8.36	.004**			4.89	1.11	4.73	1.07
ORIENTATION	100	.0001**						
HA high autonomy			5.50	0.80				
MA moderate autonomy			4.63	0.97				
MC moderate control			4.00	1.16				
HC high control			5.12	0.76				
TIME x GROUP	9.46	.002**						
associate teacher					5.00	1.15	4.69	1.16
student teacher					4.77	1.05	4.78	0.97
ORIENTATION x GROUP	3.21	.02*						
HA, associate teacher			5.55	0.78				
HA, student teacher			5.45	0.82				
MA, associate teacher			4.61	1.01				
MA, student teacher			4.65	0.93				
MC, associate teacher			3.91	1.30				
MC, student teacher			4.08	1.00				
HC, associate teacher			5.30	0.70				
HC, student teacher			4.93	0.78				
TIME x ORIENTATION	4.95	.002**						
HA high autonomy					5.60	0.79	5.40	0.80
MA moderate autonomy					4.75	0.97	4.51	0.96
MC moderate control					4.12	1.26	3.88	1.03
HC high control					5.09	0.78	5.14	0.75
TIME x ORIENTATION x GROUP	2.42	.06						
HA, associate teacher					5.68	0.71	5.41	0.83
HA, student teacher					5.52	0.87	5.39	0.78
MA, associate teacher					4.85	1.00	4.37	0.98
MA, student teacher					4.64	0.94	4.66	0.93
MC, associate teacher					4.16	1.42	3.67	1.13
MC, student teacher					4.07	1.10	4.08	0.89
HC, associate teacher					5.32	0.73	5.29	0.68
HC, student teacher					4.86	0.76	5.00	0.80

Note *df* = (1, 294) for GROUP, TIME, and GROUP x TIME

df = (3, 294) for ORIENTATION, and interactions with ORIENTATION

b. *Scope of influence: orientations toward children.* In order to determine whether there were effects related to vignettes portraying scenarios about individual children rather than groups of children, a further two $2 \times 2 \times 4$ analyses of variance (ANOVA) with repeated measures were conducted. The first analysis drew on data from the six vignettes about individual children, and the second analysis was based on the six vignettes about groups of children. Each analysis involved one between-subjects factor of group (associate teacher, student teacher), and two within-subjects factors of time (pre, post), and orientation (high autonomy, moderate autonomy, moderate control, high control).

Vignettes about individual children. The analysis of variance conducted with data from vignettes about individual children did not yield a significant main effect for group (see Table 15). However, there were significant main effects for orientation, $F(3, 294) = 52.21, p < .01$, and for time, $F(1, 294) = 17.88, p < .01$. All interactions produced significant differences. The two-way interactions between orientation and group, $F(3, 294) = 23.44, p < .01$, between time and group, $F(1, 294) = 17.88, p < .01$, and between time and orientation, $F(3, 294) = 47.03, p < .01$, revealed significant differences. Finally, the three-way interaction between group, orientation, and time was also significant, $F(3, 294) = 47.03, p < .01$.

For the group of all participants, the most preferred orientations overall were high autonomy, ($M = 5.48, SD = 0.84$), and high control, ($M = 5.09, SD = 0.78$), followed by moderate autonomy, ($M = 4.92, SD = 0.88$), and moderate control, ($M = 4.44, SD = 1.17$). The overall orientation means were also higher before student teaching practice commenced, (pre $M = 5.05, SD = 1.20$; post $M = 4.92, SD = 0.75$).

Comparison of student teachers' and associate teachers' means indicates there was decrease in overall mean scores for student teachers, (pre $M = 5.02, SD = 1.05$; post $M = 4.81, SD = 0.97$), while the means for associate teachers remained stable, (pre $M = 5.05, SD = 1.15$; post $M = 5.05, SD = 1.16$) (see Figure 13). Thus, on vignettes about individual children, the overall confidence in orientations reduced significantly for student teachers across student teaching practice, but not for associate teachers.

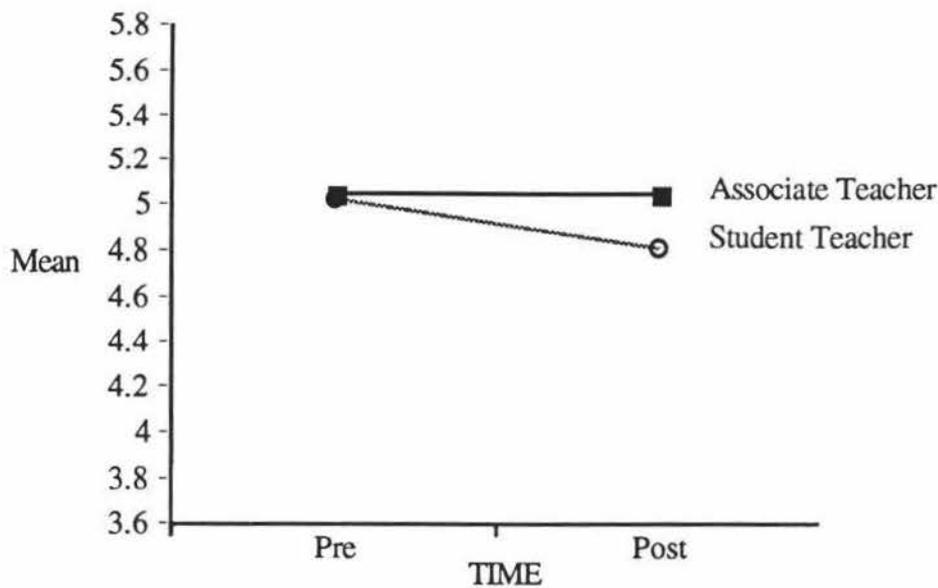


Figure 13. Orientations toward children and the interaction between time (pre, post), and group (associate teacher, student teacher) on vignettes about individual children.

The significant interaction between preferred orientations and group indicates that student teachers and associate teachers responded differently (see Figure 14). Scheffé F -test comparisons of the means in this interaction indicate that the significance is due to all four orientations, (high autonomy, $F(3, 294) = 243, p < .01$; moderate autonomy, $F(3, 294) = 8.33, p < .01$; moderate control, $F(3, 294) = 280.33, p < .01$; high control, $F(3, 294) = 363, p < .01$). In short, associate teachers rated high autonomy and high control orientations significantly higher than did student teachers, while student teachers rated moderate autonomy and moderate control orientations toward children significantly higher than did associate teachers (see Table 15).

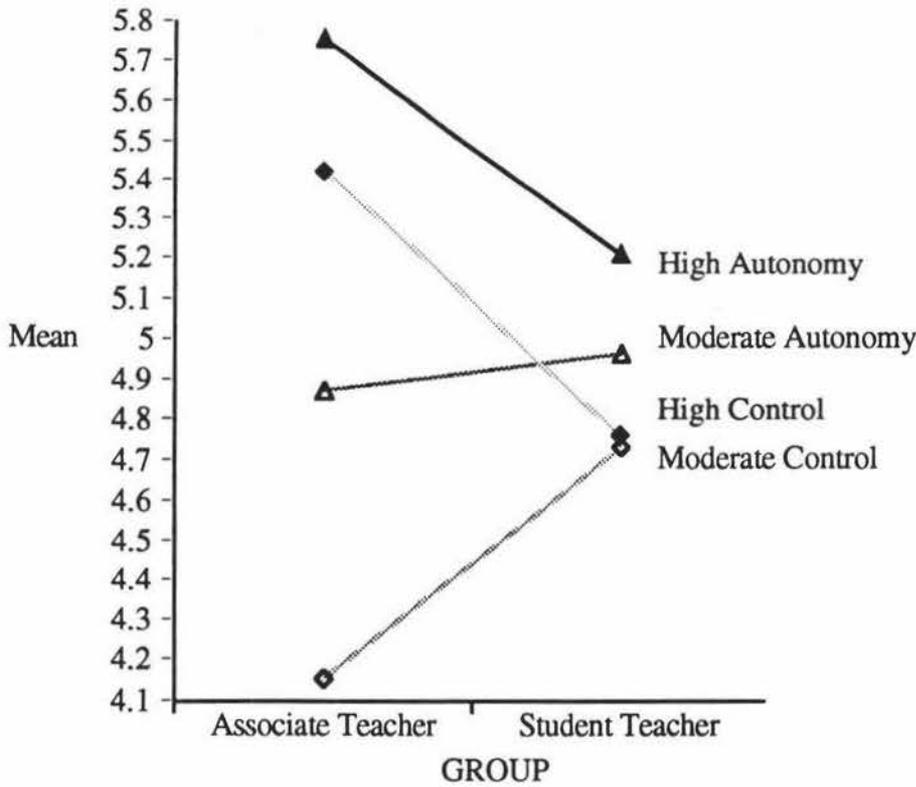


Figure 14. Interaction between orientations toward children (high autonomy, moderate autonomy, moderate control, high control), and group (associate teacher, student teacher) on vignettes about individual children.

The interaction between time and orientation was also significant, $F(3, 294) = 47.03, p < .01$. Post hoc Scheffé F -test comparisons of means in this interaction indicate that the significance was due to changes across student teaching practice for high autonomy orientations, $F(3, 294) = 85.33, p < .01$, and for moderate autonomy orientations, $F(3, 294) = 12, p < .01$, but not for moderate control or high control orientations. The means indicate that there was an overall decrease across student teaching practice in high autonomy orientations, (pre $M = 5.64, SD = 0.83$; post $M = 5.52, SD = 0.83$), and a decrease also in moderate autonomy orientations, (pre $M = 4.98, SD = 0.90$; post $M = 4.86, SD = 0.85$).

Thus, across student teaching practice the mean ratings for high and moderate autonomy orientations reduced significantly, while the mean ratings for both moderate control and high control orientations did not vary significantly (see Figure 15).

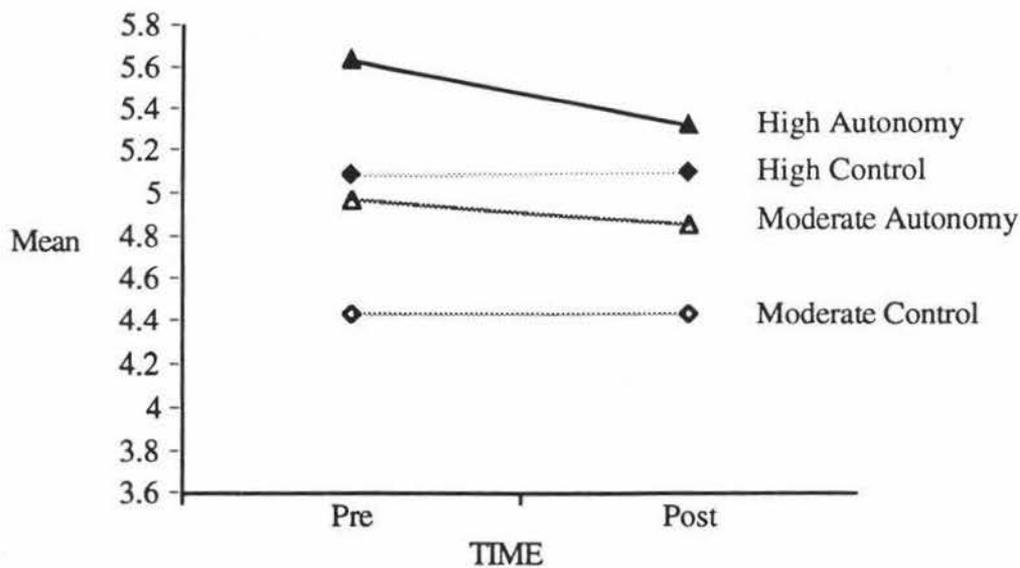


Figure 15. Interaction between orientations toward children (high autonomy, moderate autonomy, moderate control, high control), and time (pre, post) on vignettes about individual children.

Finally, the significant three-way interaction between group, orientations, and time was subjected to further analysis (see Figure 16). Post hoc comparisons with Scheffé F -tests indicate that the significance in this interaction was due to differences across student teaching practice for student teachers on high autonomy, $F(3, 294) = 341.33, p < .01$, and moderate autonomy orientations, $F(3, 294) = 44, p < .01$, but not for moderate control or high control orientations. In both autonomy orientation cases, there was a significant decline in means across student teaching practice for high autonomy, (pre $M = 5.53, SD = 0.87$; post $M = 4.89, SD = 0.64$), and moderate autonomy orientations, (pre $M = 5.08, SD = 1.02$; post $M = 4.85, SD = 1.02$). However, for associate teachers, the Scheffé F -test comparisons of pre and post means on the four orientations indicated that the differences across student teaching practice were not significant.

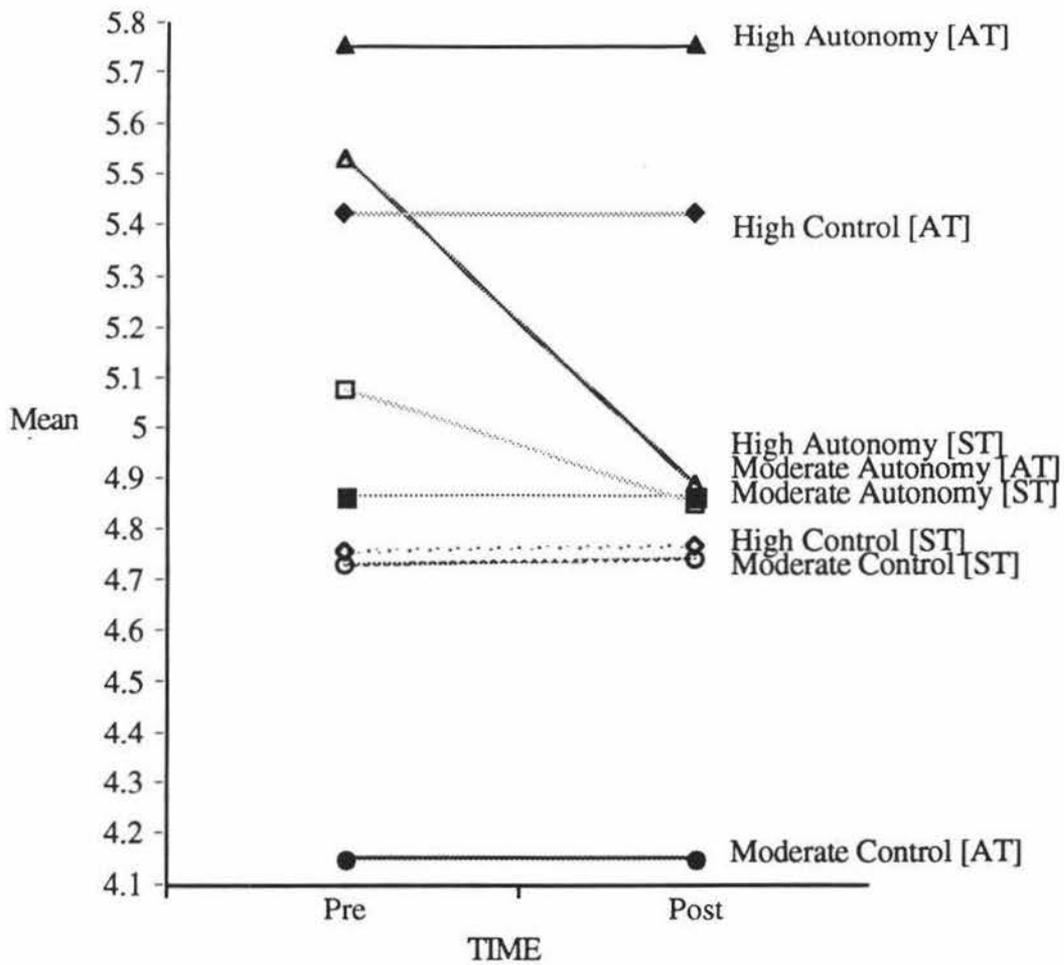


Figure 16. Interaction between orientations toward children (high autonomy, moderate autonomy, moderate control, high control), time (pre, post), and group (associate teacher, student teacher) on vignettes about individual children.

Table 15

Summary of Analysis of Variance (ANOVA) with Means (M) and Standard Deviations (SD) on Orientations Toward Children for Associate Teachers and Student Teachers on Vignettes About Individual Children

Source	F	p	Overall		Pre		Post	
			M	SD	M	SD	M	SD
GROUP	.85	.35						
associate teacher			5.05	1.20				
student teacher			4.92	0.75				
TIME	17.88	.0001**			5.04	1.03	4.93	0.97
ORIENTATION	52.21	.0001**						
HA high autonomy			5.48	0.84				
MA moderate autonomy			4.92	0.88				
MC moderate control			4.44	1.17				
HC high control			5.09	0.78				
TIME x GROUP	17.88	.0001**						
associate teacher					5.05	1.15	5.05	1.16
student teacher					5.02	1.05	4.81	0.97
ORIENTATION x GROUP	23.44	.0001**						
HA, associate teacher			5.75	0.77				
HA, student teacher			5.21	0.82				
MA, associate teacher			4.87	1.01				
MA, student teacher			4.97	0.72				
MC, associate teacher			4.15	1.45				
MC, student teacher			4.73	0.71				
HC, associate teacher			5.42	0.76				
HC, student teacher			4.76	0.65				
TIME x ORIENTATION	47.03	.0001**						
HA high autonomy					5.64	0.83	5.32	0.83
MA moderate autonomy					4.98	0.90	4.86	0.85
MC moderate control					4.44	1.19	4.44	1.16
HC high control					5.09	0.80	5.10	0.76
TIME x ORIENTATION x GROUP	47.03	.0001**						
HA, associate teacher					5.75	0.77	5.75	0.77
HA, student teacher					5.53	0.87	4.89	0.64
MA, associate teacher					4.87	1.02	4.87	1.02
MA, student teacher					5.08	0.77	4.85	0.66
MC, associate teacher					4.15	1.45	4.15	1.45
MC, student teacher					4.73	0.77	4.74	0.65
HC, associate teacher					5.42	0.76	5.42	0.76
HC, student teacher					4.76	0.70	4.77	0.61

Note $df = (1, 294)$ for GROUP, TIME, and GROUP x TIME

$df = (3, 294)$ for ORIENTATION, and interactions with ORIENTATION

Vignettes about groups. The analysis of data drawn from the six vignettes about groups of children produced a non significant main effect for group but the main effects for orientation, $F(3, 294) = 47.72, p < .01$, and time, $F(1, 294) = 15.55, p < .01$, were significant (see Table 16). The interactions between group and time, $F(1, 294) = 15.55, p < .01$, orientation and group, $F(3, 294) = 19.18, p < .01$, and orientation and time were significant, $F(3, 294) = 23.85, p < .01$. Finally, the three-way interaction between group, orientation, and time was also significant, $F(3, 294) = 28.85, p < .01$.

These significant main effects indicate that for the group of all participants, the overall preferred orientations were high autonomy, ($M = 5.44, SD = 0.85$), and high control, ($M = 5.00, SD = 0.74$), followed by moderate autonomy, ($M = 4.90, SD = 0.89$), and moderate control, ($M = 4.47, SD = 1.15$). The initial mean ratings were also significantly higher than the subsequent mean ratings, (pre $M = 5.00, SD = 1.02$; post $M = 4.90, SD = 0.94$) for this group of all participants.

The stability of the means for associate teachers across time, (pre $M = 4.97, SD = 1.17$; post $M = 4.97, SD = 1.17$), indicates that the significance of the interaction between group and time was due to the overall decline in certainty about orientations by student teachers, (pre $M = 5.03, SD = 0.85$; post $M = 4.83, SD = 0.64$) (see Figure 17).

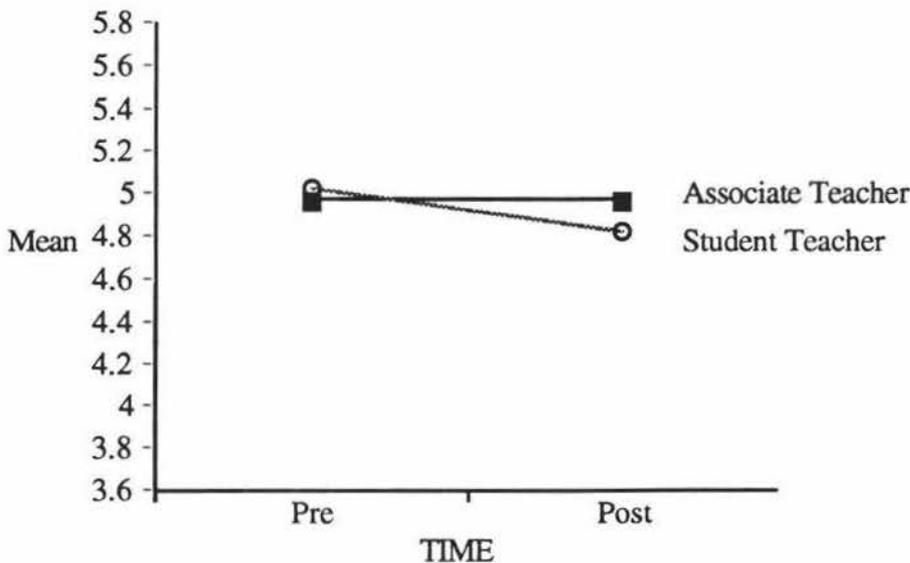


Figure 17. Orientations toward children and the interaction between time (pre, post), and group (associate teacher, student teacher) on vignettes about groups of children.

The significant interaction between preferred orientations and group reveal different patterns of preference for student teachers and associate teachers. The preferred orientations for associate teachers were high autonomy, ($M = 5.69$, $SD = 0.77$), and high control, ($M = 5.21$, $SD = 0.76$), followed by moderate autonomy, ($M = 4.82$, $SD = 1.03$), and moderate control, ($M = 4.17$, $SD = 1.42$). The pattern for student teachers differed (see Figure 18). Student teachers' preferred orientations toward groups of children were high autonomy, ($M = 4.95$, $SD = 0.92$), and moderate autonomy, ($M = 4.97$, $SD = 0.72$), followed by high control, ($M = 4.79$, $SD = 0.66$), and moderate control, ($M = 4.76$, $SD = 0.70$). Post hoc Scheffé F -test comparisons indicated that the significance in the interaction between group and orientation was due to all four orientations, namely high autonomy, $F(3, 294) = 150.06$, $p < .01$, moderate autonomy, $F(3, 294) = 14.06$, $p < .01$, moderate control, $F(3, 294) = 217.56$, $p < .01$, and high control orientations, $F(3, 294) = 110.25$, $p < .01$.

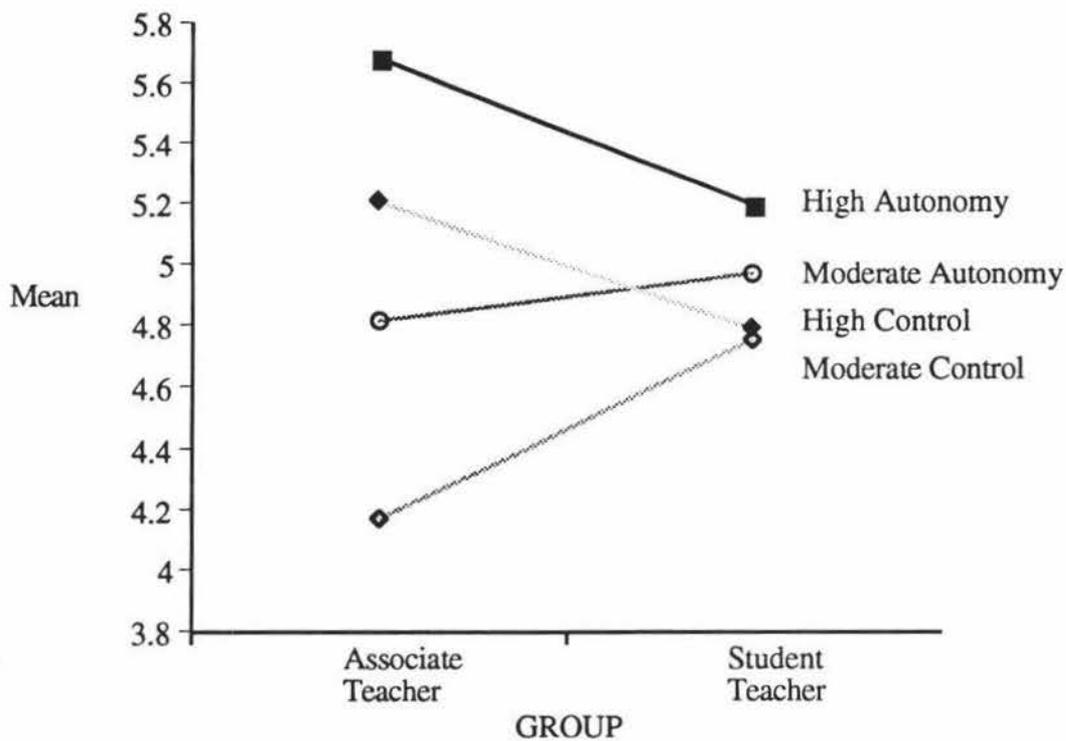


Figure 18. Interaction between orientations toward children (high autonomy, moderate autonomy, moderate control, high control), and group (associate teacher, student teacher) on vignettes about groups of children.

The significant interaction between orientation and time was subjected to Scheffé F -test comparisons of the pre and post means for each orientation. The results indicated that the significance was due to high autonomy orientations, $F(3, 294) = 56.25, p < .01$, and moderate autonomy orientations, $F(3, 294) = 7.56, p < .01$, but not to moderate control or high control orientations. The means suggest that preferences for high autonomy orientations declined across student teaching practice, (pre $M = 5.59, SD = 0.86$; post $M = 5.29, SD = 0.81$), as did those for moderate autonomy orientations, (pre $M = 4.95, SD = 0.92$; post $M = 4.84, SD = 0.87$) (see Figure 19). These results indicate that across student teaching practice the overall mean ratings for high autonomy and moderate autonomy orientations reduced significantly, whereas both moderate control and high control mean ratings did not differ significantly.

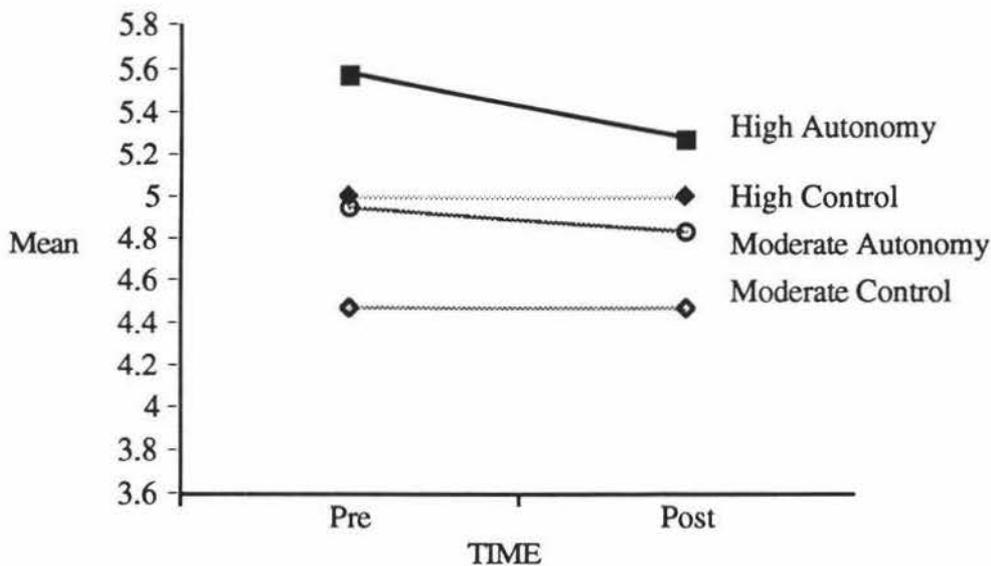


Figure 19. Interaction between orientations toward children (high autonomy, moderate autonomy, moderate control, high control), and time (pre, post) on vignettes about groups of children.

The significance of the three-way interaction between group, orientation, and time was also explored further. Scheffé F -test comparisons conducted on student teachers' and associate teachers' pre and post means for each orientation revealed that this significance was due to differences for student teachers on high autonomy orientations, $F(3, 294) = 225, p < .01$, and moderate autonomy orientations, $F(3, 294) = 30.25, p < .01$ (see Figure 20). Differences on moderate control and high control orientations for student teachers were not significant, as were all four orientations for associate

teachers. Inspection of the means in this interaction indicates that the mean ratings for student teachers reduced significantly for high autonomy, (pre $M = 5.50$, $SD = 0.94$; post $M = 4.90$, $SD = 0.65$), and moderate autonomy orientations, (pre $M = 5.08$, $SD = 0.77$; post $M = 4.82$, $SD = 1.04$). Thus, across student teaching practice, student teachers' preferences in orientation became less autonomous but they did not necessarily become more controlling. Conversely, associate teachers' orientations remained relatively stable across student teaching practice.

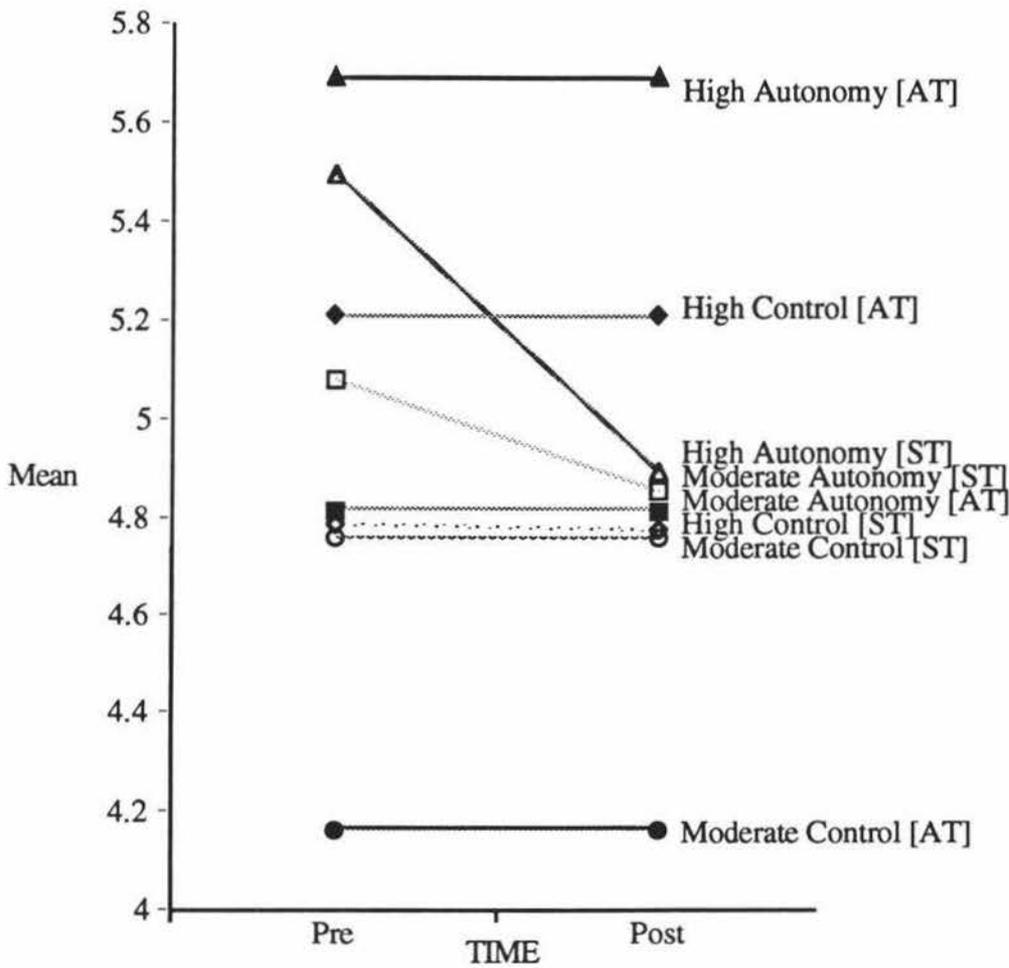


Figure 20. Interaction between orientations toward children (high autonomy, moderate autonomy, moderate control, high control), time (pre, post), and group (associate teacher, student teacher) on vignettes about groups of children.

Table 16

Summary of Analysis of Variance (ANOVA) with Means (M) and Standard Deviations (SD) on Orientations Toward Children for Associate Teachers and Student Teachers on Vignettes About Groups of Children

Source	F	p	Overall		Pre		Post	
			M	SD	M	SD	M	SD
GROUP	.10	.75						
associate teacher			4.97	1.17				
student teacher			4.93	0.76				
TIME	15.55	.0002**			5.00	1.02	4.90	0.94
ORIENTATION	47.72	.0001**						
HA high autonomy			5.44	0.85				
MA moderate autonomy			4.90	0.89				
MC moderate control			4.47	1.15				
HC high control			5.00	0.74				
TIME x GROUP	15.55	.0002**						
associate teacher					4.97	1.17	4.97	1.17
student teacher					5.03	0.85	4.83	0.64
ORIENTATION x GROUP	19.18	.0001**						
HA, associate teacher			5.69	0.77				
HA, student teacher			5.20	0.86				
MA, associate teacher			4.82	1.03				
MA, student teacher			4.97	0.72				
MC, associate teacher			4.17	1.42				
MC, student teacher			4.76	0.70				
HC, associate teacher			5.21	0.76				
HC, student teacher			4.79	0.66				
TIME x ORIENTATION	28.85	.0001**						
HA high autonomy					5.59	0.86	5.29	0.81
MA moderate autonomy					4.95	0.92	4.84	0.87
MC moderate control					4.47	1.17	4.47	1.14
HC high control					5.00	0.76	5.00	0.72
TIME x ORIENTATION x GROUP	28.85	.0001**						
HA, associate teacher					5.69	0.77	5.69	0.77
HA, student teacher					5.50	0.94	4.90	0.65
MA, associate teacher					4.82	1.04	4.82	1.04
MA, student teacher					5.08	0.77	4.86	0.66
MC, associate teacher					4.17	1.42	4.17	1.13
MC, student teacher					4.76	0.76	4.76	1.42
HC, associate teacher					5.21	0.77	5.21	0.65
HC, student teacher					4.79	0.71	4.78	0.61

Note $df = (1, 294)$ for GROUP, TIME, and GROUP x TIME

$df = (3, 294)$ for ORIENTATION, and interactions with ORIENTATION

Summary: Student Teachers' and Associate Teachers' Orientations Toward Children

Hypothesis 3

Perceived preferences in orientations toward children differ between student teachers and associate teachers.

3.1 Student teachers' perceived preferences in orientations toward children are significantly more autonomous than those of associate teachers.

3.2 Student teachers' perceived preferences in orientations toward children are significantly less controlling than those of associate teachers.

a. *Overall Orientations* Overall orientations toward children were determined by combining the responses from vignettes about individual children with vignettes about groups of children. The significant differences between the groups on orientations were explained by high control and moderate control orientations, but not autonomous orientations. Thus, the absence of significance between student teachers and associate teachers on autonomous orientations leads to hypothesis 3.1 being rejected.

The significant differences between student teachers and associate teachers on high control orientations with student teachers' mean scores being lower than those for associate teachers, provides support for hypothesis 3.2. However, the significant difference was also explained by moderate control orientations which were rated higher by student teachers than by associate teachers. Thus, hypothesis 3.2 is supported by high control orientations, but is rejected when applied to moderate control orientations.

b. *Orientations and Scope of Influence* On vignettes about individual children, there was a significant difference between student teachers and associate teachers on preferences for orientations toward children. This significance is due to all four orientations. High autonomy orientations and high control orientations were significantly lower for student teachers than those reported by associate teachers. Moderate autonomy orientations, and moderate control orientations, were significantly higher for student teachers than for those reported by associate teachers.

On vignettes about groups the pattern was the same. There was a significant difference between student teachers and associate teachers on all four orientations. For student

teachers, high autonomy, and high control orientations were significantly lower than those reported by associate teachers. Conversely, moderate autonomy, and moderate control orientations were significantly higher than those reported by associate teachers.

Thus, the evidence from the vignettes about individual children, and about groups of children provides conditional support for the hypotheses. On the one hand, hypothesis 3.1 is supported in the case of moderate control orientations (which are significantly higher for student teachers than for associate teachers), but is rejected by high autonomy orientations where significantly lower preferences were made by student teachers than by associate teachers. On the other hand, hypothesis 3.2 is supported by the significantly stronger preference by associate teachers for high control orientations, but is rejected by the significantly higher preference for moderate control orientations expressed by student teachers.

Hypothesis 4

Significant differences between student teachers and associate teachers across student teaching practice are attributed to student teachers' becoming less autonomous and more controlling in their orientations toward children.

4.1 Significant differences between student teachers and associate teachers across student teaching practice are attributed to student teachers' becoming less autonomous in their orientations toward children.

4.2 Significant differences between student teachers and associate teachers across student teaching practice are attributed to student teachers' becoming more controlling in their orientations toward children.

a. *Overall Orientations* Overall orientations toward children were found to not differ significantly for student teachers and associate teachers across student teaching practice. Thus, for overall orientations toward children, hypothesis 4 is rejected.

b. *Orientations and Scope of Influence* On vignettes about individual children, the significant differences between student teachers and associate teachers on orientations toward children were due to differences on autonomy orientations for student teachers. Across student teaching practice, student teachers' high autonomy, and the moderate

autonomy orientations declined significantly. These differences were not evident on student teachers' preferences for high control and moderate control orientations, or for any of the four orientations for associate teachers.

On vignettes about groups of children, the significant differences between student teachers' and associate teachers' preferences on orientations toward children were also similar to those evidenced on vignettes about individual children. High autonomy and moderate autonomy orientations declined for student teachers across student teaching practice. Likewise, these differences did not appear for student teachers' high and moderate control orientations, or for any of the four orientations for associate teachers.

Thus, when the scope of influence is accounted for, hypothesis 4.1 is accepted given that across student teaching practice the preferences for high autonomy and moderate autonomy orientations toward children expressed by student teachers, decline significantly. This decline is evidenced on vignettes that involve individual children as well as the vignettes about groups of children. However, the lack of significant increase for student teachers' preferences for controlling orientations leads to the rejection of hypothesis 4.2.

What Relationships Exist Between Orientations Toward Children, and Efficacy?

A series of Pearson product-moment correlations were carried out using the pre and post student teaching practice scores on orientations toward children, and efficacy (RAND, Teacher Efficacy Scale, Teacher Vignettes).

Orientations Toward Children and Teaching Efficacy For teaching efficacy, the correlations between associate teachers' scores on the four orientations toward children on vignettes about individual children, and RAND 1 were between $r = .32$ and $-.04$ on the pre measures, and between $r = .09$ and $-.16$ on the post scores. Correlations for student teachers were likewise low, ranging between $r = .0016$ and $-.11$ on pre scores, and between $r = .29$ and $.21$ on post student teaching practice scores.

The pattern was similar when orientations toward children on vignettes about groups were correlated with RAND 1. Correlations for associate teachers ranged between $r = .20$ and $-.02$ on the pre scores, and between $r = .004$ and $-.22$ on the post scores. On these same measures, student teachers' scores correlated between $r = -.06$ and $-.13$, and $r = .29$ and $.19$ for the pre and post measures respectively.

When orientations toward children on vignettes about individuals were correlated with teaching efficacy on the Teacher Efficacy Scale (TES 2), the relationship continued to be weak. For associate teachers, correlations ranged between $r = .21$ and $-.18$ on the pre scores, and between $r = .20$ and $-.22$ on post scores. Correlations ranged between $r = .11$ and $-.03$ on the pre scores, and $r = .18$ and $.13$ on the post scores for student teachers. When orientations from vignettes about groups were correlated with TES 2, the relationship was meagre. Correlations ranged between $r = .06$ and $-.10$ on pre scores, and $r = .02$ and $-.15$ on post scores for associate teachers, and between $r = .11$ and $-.06$ on pre scores and $r = .21$ and $.16$ on post scores for student teachers.

Orientations Toward Children and Personal Teaching Efficacy Orientations toward children on vignettes about individuals produced low correlations with TES 1 for both associate teachers and student teachers. For associate teachers, correlations ranged between $r = .30$ and $-.13$ on pre scores, and between $r = .15$ and $-.08$ on post scores. Correlations for student teachers ranged between $r = .36$ and $.30$ on pre scores, and between $r = .32$ and $.26$ on post student teaching practice scores. Orientations from vignettes about groups of children correlated with TES 1 for associate teachers' pre scores between $r = .20$ and $-.10$, and on post scores between $r = .11$ and $-.14$. For student teachers, correlations ranged between $r = .30$ and $.20$ on pre scores and between $r = .30$ and $.23$ on post student teaching practice scores.

RAND 2 scores correlated with associate teachers' orientations on vignettes about individual children between $r = .30$ and $-.26$ on pre scores, and between $r = .17$ and $-.24$ on post scores. On vignettes about groups of children, the correlations remained low, ranging between $r = .19$ and $-.17$ on pre scores and between $r = .12$ and $-.04$ on post scores. Student teachers' orientations on vignettes about individual children correlated with RAND 2 between $r = .35$ and $.22$. On vignettes about groups of children, the correlations were between $r = .41$ and $.34$ and between $r = .43$ and $.35$ on the pre and post scores respectively. The somewhat higher correlations for student teachers with these post measures applied to all four orientations toward children.

Orientations Toward Children and Self-Efficacy as Teachers Orientations toward children produced low correlations with self-efficacy as teachers (task difficulty, strength of self-efficacy, innovativeness) for associate teachers. Correlations between orientations on vignettes about individuals and self-efficacy as teachers ranged from $r = .21$ to $-.25$ on pre scores and $r = .34$ and $-.35$ on post scores. Correlations between orientations on vignettes about groups and self-efficacy as teachers ranged from $r = .37$ to $-.18$ on pre scores and $r = .26$ and $-.36$ on post scores. For student teachers, correlations based on vignettes about individuals, and vignettes about groups were

similar. When orientations for student teachers were correlated with self-efficacy for task difficulty, correlations ranged between $r = .25$ and $.01$, and with innovativeness between $r = .31$ and $.05$. On strength of self-efficacy, high and moderate autonomy and high control orientations correlated between $r = .37$ and $.03$. Moderate control orientations, however, produced somewhat stronger correlations with strength of self-efficacy as teachers on vignettes about individuals ($r = .52$) and vignettes about groups ($r = .44$).

Orientations Toward Children and Efficacy About Others as Teachers Orientations toward children also produced low correlations with efficacy about others as teachers (task difficulty, strength of efficacy, innovativeness) for student teachers. Correlations with efficacy about others as teachers, and orientations that were based on vignettes about individuals and vignettes about groups, were essentially similar. Given this, the correlation between task difficulty for others as teachers and orientations ranged from $r = .05$ and $-.31$ for associate teachers, and between $r = .13$ and $-.24$ for student teachers. The correlation between strength of efficacy about others as teachers and orientations ranged from $r = .34$ and $-.13$ for associate teachers, and between $r = .36$ and $-.27$ for student teachers. Finally, innovativeness about others as teachers correlated with orientations toward children between $r = .20$ and $-.09$ for student teachers.

These data suggest that the relationships between orientations toward children, and teaching efficacy and personal teaching efficacy on the RAND and Teacher Efficacy Scale are tenuous. When the vignettes were used, the relationship between orientations toward children and the dimensions of self-efficacy as teachers was also not strong. Finally, the correlation between orientations toward children and efficacy about others as teachers indicated that the degree of commonality was predominantly weak.

Self-Esteem as Teachers

Self-Esteem as Teachers Scale

Data on student teachers' and associate teachers' self-esteem as teachers on an occupationally-specific version of the Self-Esteem Scale (Rosenberg, 1965, 1979) were subjected to a 2 x 2 analysis of variance (ANOVA) with repeated measures involving one between-subjects factor of group (associate teacher, student teacher), and one within-subjects factor of time (pre, post). Scoring protocols followed those used for the Rosenberg Self-Esteem Scale. All data were then reversed scored so that high scores are interpreted as high self-esteem as teachers.

There were significant main effects for group, $F(1,98) = 7.62, p < .01$, and for time, $F(1,98) = 7.13, p < .01$. The interaction between time and group was not significant.

Overall, student teachers reported significantly lower perceptions of self-esteem as teachers, ($M = 5.62, SD = 0.79$), than did associate teachers, ($M = 5.98, SD = 0.64$). Thus, there are significant differences between associate teachers and student teachers on overall perceptions of self-esteem as teachers.

When all participants were treated as one group, perceptions of self-esteem as teachers increased across student teaching practice (see Table 17). However, when the group factor was included in the interaction with time, the differences were not significant. In effect, the increases in student teachers' and associate teachers' self-esteem as teachers did not differ significantly across student teaching practice (see Table 17).

Table 17

Summary of Analysis of Variance (ANOVA) with Means (M) and Standard Deviations (SD) on Self-esteem as Teachers for Associate Teachers and Student Teachers

Source	F	p	Overall		Pre		Post	
			M	SD	M	SD	M	SD
GROUP	7.62	.007**						
associate teacher			5.98	0.64				
student teacher			5.62	0.79				
TIME	7.13	.009**			5.73	0.75	5.88	0.72
TIME x GROUP	3.49	.06						
associate teacher					5.96	0.64	6.01	0.64
student teacher					5.49	0.78	5.75	0.79

Note $df = (1, 98)$

Summary: Student Teachers' and Teachers' Self-Esteem as Teachers

Hypothesis 5

Student teachers' self esteem as teachers is significantly higher than associate teachers' self-esteem as teachers.

Significant differences were reported between student teachers and associate teachers on perceptions of self-esteem as teachers, $F(1,98) = 7.62, p < .01$. Overall, student teachers reported perceptions of self-esteem as teachers that were significantly lower than those reported by associate teachers. Thus, hypothesis 5 is rejected.

Hypothesis 6

Significant differences between student teachers and associate teachers across student teaching practice are attributed to increases in student teachers' perceptions of self-esteem as teachers.

The interaction between group (associate teachers, student teachers) and time (pre, post) was non significant. This result suggests that the differences between student teachers and associate teachers across student teaching practice did not vary sufficiently to account for the chance factor. Thus, these results lead to an rejection of hypothesis 6.

What Relationships Exist Between Self-Esteem as Teachers, Efficacy and Orientations?

Relationships between self-esteem as teachers, efficacy and orientations toward children were probed using a series of Pearson product-moment correlations.

Self-Esteem as Teachers and Teaching Efficacy For associate teachers, self-esteem as teachers and teaching efficacy correlated between $r = .13$ and $.22$ for pre and post RAND 1 scores, and $r = .19$ and $.10$ for pre and post TES 2 scores. However, student teachers' self-esteem and teaching efficacy correlated between $r = .33$ and $.48$ for pre and post RAND 1 scores, and between $r = .53$ and $.38$ for pre and post TES 2 scores.

Self-Esteem as Teachers and Personal Teaching Efficacy Self-esteem as teachers and personal teaching efficacy were correlated for associate teachers between $r = .14$ and $.24$ on RAND 2, but between $r = .46$ and $.52$ on pre and post TES 1 scores. For student

teachers, self-esteem and personal teaching efficacy were correlated between $r = .22$ and $.40$ on RAND 2, but between $r = .47$ and $.57$ on pre and post scores for TES 1.

Self-Esteem as Teachers and Self-Efficacy as Teachers For associate teachers, self-esteem as teachers and self-efficacy as teachers (task difficulty, strength of efficacy, innovativeness) correlated between $r = .25$ and $-.23$. Student teachers' self-esteem as teachers correlated with self-efficacy for task difficulty between $r = .37$ and $.24$, and with self-efficacy for innovativeness between $r = .25$ and $.05$. However, student teachers' self-esteem as teachers and strength of self-efficacy as teachers produced correlations of between $r = .58$ and $.42$.

Self-Esteem as Teachers and Efficacy About Others as Teachers Associate teachers' self-esteem as teachers correlated with their efficacy about others (task difficulty, strength of efficacy, innovativeness) between $r = .16$ and $-.31$. Student teachers' self-esteem as teachers correlated with efficacy about others for task difficulty between $r = .33$ and $.22$, and with efficacy about others for innovativeness between $r = .23$ and $.03$. Correlations between self-esteem as teachers and strength of efficacy about others were somewhat stronger, ranging between $r = .43$ and $.32$.

Self-Esteem as Teachers and Orientations Toward Children For associate teachers, self-esteem and orientations toward children correlated between $r = .19$ and $-.27$. Student teachers' self-esteem and orientations toward children were correlated between $r = .45$ and $.12$. In particular, high autonomous orientations for student teachers correlated with self-esteem between $r = .40$ and $.45$ after student teaching practice. This finding was not so for associate teachers and suggests that student teachers' self-esteem as teachers relate positively to their preferences for autonomous orientations.

These findings indicate that associate teachers' perceptions of self-esteem as teachers hold little association with either teaching efficacy or personal teaching efficacy on the RAND and Teacher Efficacy Scale. However, student teachers' self-esteem as teachers was moderately correlated with both teaching efficacy (RAND 1, TES 2) and personal teaching efficacy (RAND 2, TES 1). The vignettes revealed that the relationship between associate teachers' self-esteem as teachers and self-efficacy was only tenuous, as was their self-esteem as teachers with efficacy about others as teachers. Student teachers' self-esteem as teachers was moderately correlated with strength of self-efficacy, and strength of efficacy about others as teachers. Self-esteem as teachers held weak correlations with associate teachers' orientations toward children, but for student teachers there was a moderate correlation. In particular, self-esteem as teachers was moderately correlated with high autonomous as preferences for student teachers.

CHAPTER 5

DISCUSSION

It has been claimed in the literature that student teachers are likely to hold unrealistic optimism about teaching (Weinstein, 1988), and a sense of idealism that often exceeds that of their associate teachers (Broussard, Book, & Byars, 1988; Walker, 1992). It has also been argued that student teaching practice affects the teaching behaviour of student teachers in that they become more custodial rather than humanistic (Hoy, 1967, 1968, 1969; Hoy & Rees, 1977; Jones, 1982; Packard, 1988), and more controlling rather than autonomous in their orientations toward children (Hoy & Woolfolk, 1990; McNeely & Maertz, 1990). Conventional wisdom suggests that as student teachers undertake student teaching practice, their sense of self-esteem as teachers increases. This study addresses these issues by attempting to clarify two general questions:

- (a) How do final year primary student teachers compare with their associate teachers on perceptions of efficacy, orientations toward children, and self-esteem as teachers?

- (b) What effect does student teaching practice have on primary student teachers' and associate teachers' perceptions of efficacy, orientations toward children, and self-esteem as teachers?

In interpreting the results, it is important to consider the context of this present study which differs demonstrably from many related studies that have investigated the effects of student teaching practice on the perceptions of student teachers or associate teachers. It is a difference that makes any comparative analysis with overseas studies both difficult yet distinctive. One important feature is the variation that is apparent across teacher education programmes (Denham & Michael, 1981). The present study involved student teachers who were completing a three year preservice teacher education programme which is usually undertaken concurrently with a Bachelor of Education programme. Components of student teaching practice are distributed across the three years with the most extensive block being around six weeks in their final year. The study also takes place in the New Zealand educational setting, in both primary and intermediate schools. These schools and associate teachers are in the midst of implementing major curriculum innovations which, because of government policies,

increasingly have become more self-managing and less centrally governed. Differences in teachers' and student teachers' perspectives on teaching (Tom, Cooper, & McGraw, 1984), the values held by teachers (Ames, 1983), their personal life histories, cultural and temperamental characteristics (Ashton & Webb, 1986), all contribute to presenting variations between this and other related studies. With such ecological considerations in mind, the results of the present study are discussed in terms of the two questions outlined earlier.

How do final year primary student teachers compare with their associate teachers on perceptions of efficacy, orientations toward children, and self-esteem as teachers?

Personal Teaching Efficacy and Teaching Efficacy The findings of this present study suggest that student teachers' judgements about overall efficacy were significantly lower than those reported by associate teachers on both the RAND items and the Teacher Efficacy Scale. In particular, student teachers' perceptions of teaching efficacy on the RAND items were lower than those of associate teachers. This result, however, was not supported by the Teacher Efficacy Scale. Student teachers' and associate teachers' perceptions of personal teaching efficacy did not differ significantly on either the RAND or Teacher Efficacy Scale. However, student teachers' personal teaching efficacy on the RAND was significantly higher than their perceptions of teaching efficacy, but not significantly different to associate teachers' perceptions of personal teaching efficacy.

The differences in results between the RAND items and Teacher Efficacy Scale may be explained, in part, by the extent to which the factors of efficacy can be demonstrated to have commonality across these instruments. In the original validation study of the Teacher Efficacy Scale, Gibson and Dembo (1984) distinguished teacher efficacy from other attributes such as teachers' verbal ability and flexibility. However, they did not determine convergent validity with the RAND construct from which they claim teacher efficacy was first conceptualised (Dembo & Gibson, 1985). In this present study, the RAND and Teacher Efficacy Scale produced correlations of between $r = .34$ and $.49$ for associate teachers, and between $r = .40$ and $.64$ for student teachers, suggesting that some commonality exists for teaching efficacy and personal teaching efficacy across these two instruments. Yet, this degree of association may be insufficient, particularly for associate teachers, to be sure that the two factors identified in the RAND and Teacher Efficacy Scale are essentially similar.

Given the results in this present study, the claim that student teachers are optimistic about teaching (Broussard, Book, & Byars, 1988), and indeed are said to hold an unrealistic optimism (Weinstein, 1988) warrants further consideration. If optimism relates to the positive discrepancy for student teachers' perceptions in relation to associate teachers' perceptions of self-efficacy, then the lack of a significant difference in this present study discounts any sense of such optimism. On the other hand, if optimism relates to the discrepancy between student teachers' perceptions about personal teaching efficacy and teaching efficacy, then the significant differences revealed in these results provide at least some evidence of such optimism on the RAND items but not on the Teacher Efficacy Scale. Whether this optimism can be fairly judged as unrealistic, however, is relative and cannot be established without further clarification. We must conclude, therefore, that any optimism associated with student teachers' perceptions of personal teaching efficacy (as measured on the RAND items, but not confirmed by the Teacher Efficacy Scale in this present study), is best explained in relation to their lower perceptions of teaching efficacy, than to the perceptions of personal teaching efficacy as reported by associate teachers.

What is clear from these findings is that evidence from both the RAND items and Teacher Efficacy Scale disconfirm Broussard et al.'s. (1988) and Weinstein's (1988) claim that student teachers are unrealistically optimistic. Indeed, with regard to teaching efficacy on the RAND it could be claimed that student teachers have a relatively pessimistic view of teaching compared with associate teachers (see Figure 1). While seemingly more conservative, the non-significant interaction between group and efficacy on the Teacher Efficacy Scale would also concur that student teachers are not more optimistic as Broussard et al. (1988) and Weinstein (1988) would claim.

Self-Efficacy as Teachers, and Efficacy About Others as Teachers The inclusion of teacher vignettes is an important aspect of this study, providing as it does, additional insights into teacher efficacy. While the RAND and Teacher Efficacy Scale are useful in process-product research, nevertheless they are global measures of the two factors of efficacy. Bandura (1977, 1982) argues that such global measures do not provide the finer-grained analysis that is necessary to probe efficacy. To this end, more sophisticated measures of student teachers' and associate teachers' sense of efficacy need to be used. In this present study, the teacher efficacy vignettes provide a basis for such deeper analysis of efficacy than do these traditional measures. This is achieved in several ways.

First, consistent with Rooney and Osipow's (1992) guidelines for developing functional self-efficacy scales, Bandura's (1978) three dimensions of efficacy (task difficulty,

strength of efficacy, generality of efficacy) are incorporated in the vignettes. Secondly, because several studies relate efficacy with the willingness of teachers to take on innovativeness (Berman et al., 1977; Guskey, 1988; Rose & Medway, 1981; Smylie, 1988; Stein & Wang, 1988; Wax & Dutton, 1991), efficacy for innovativeness was added as a further aspect in the teacher efficacy vignettes.

The analysis of efficacy responses on these teacher vignettes revealed that global efficacy (that is, when scores for self-efficacy as teachers were combined with scores for efficacy about others as teachers) did not produce any significant differences between student teachers and associate teachers on either the set of vignettes, or on the vignettes about groups of children. However, student teachers' global efficacy was significantly lower than that reported by associate teachers on vignettes about individual children. This latter result concurs with those gained for overall efficacy on the RAND items and Teacher Efficacy Scale.

This finding is important for two reasons. First, it confirms that scores on the RAND, Teacher Efficacy Scale and teacher efficacy vignettes about individual children consistently report significantly lower global efficacy for student teachers than for associate teachers.

Secondly, because this finding appears on vignettes about individual children but not on vignettes about groups, it affirms the importance of incorporating scope of influence in the study of student teachers' and associate teachers' efficacy. Much research to date (Aston & Webb, 1986; Evans & Tibble, 1986; Glickman & Tamashiro, 1982) has summed the two aspects of efficacy and treated them as one efficacy factor in the analysis, often without deliberately accounting for the dimension of scope of influence. An implication from these findings is that analyses that do not incorporate the scope of influence dimension have the potential to produce misleading results.

The analysis also shows that there were no significant differences between student teachers' and associate teachers' perceptions about the efficacy of others as teachers, either on the vignettes about individual children, or on vignettes about groups of children. This result suggests that student teachers and associate teachers do not vary significantly in their judgements about the difficulty they perceive these tasks to be for others as teachers to deal with, the strength of efficacy they hold about others as teachers to cope with these situations, or the extent to which they believe others are able to be innovative as teachers in resolving the problems illustrated in the vignettes.

This result supports the findings from the Teacher Efficacy Scale, but is inconsistent with the general conclusion drawn from the analyses of the RAND items concerning teaching efficacy. In contrast to the two-item measure used in the RAND instrument, the perceptions of efficacy about others as teachers when gauged on the dimensions of task difficulty, strength of efficacy, and innovativeness did not produce significant differences between student teachers and associate teachers. Whether the disparity between these measures of efficacy can be attributed to the more generalised approach to efficacy adopted by the RAND as a measure of teacher efficacy, is open to question. Bandura (1989) does point out that the more general the items are, the greater the burden is on the participants to define for themselves what is being asked of them. The Teacher Efficacy Scale certainly increases the range of items that are presented, while the teacher efficacy vignettes reduce this burden for participants to define for themselves what is being asked of them by focussing them on the specific dimensions of efficacy that are being probed.

However, it is more likely that teaching efficacy, as measured on the RAND items and Teacher Efficacy Scale, is not the same factor as efficacy about others as teachers as measured on the teacher vignettes. Correlations between the measures were low. The post student teaching practice scores for teaching efficacy on the RAND and Teacher Efficacy Scale correlated with efficacy about others as teachers between $r = .37$ and $r = .08$ on vignettes about individuals, and between $r = .38$ and $r = .01$ on vignettes about groups of children. In the case of the RAND items, clearly RAND 1 focusses on perceptions of the causal impact of the home environment on the ability of teachers to influence students' motivation and performance. Likewise, at least six of the seven TES 2 (teaching efficacy) items are also causal statements about the impact of the environment on student's learning, or as Woolfolk, Rosoff, and Hoy (1990) put it "the power of teaching to counteract any negative influences in the student's background" (p. 138). Efficacy about others as teachers, on the other hand, focusses on perceptions about others' unconditional capability to make a difference as teachers. In this regard, teaching efficacy, and efficacy about others as teachers may be probing two different, though somewhat related kinds of efficacy. If this holds true, then the implication for understanding teacher efficacy is clear -- research about teacher efficacy needs to be interpreted with cautious regard to the kind of instrumentation employed.

Two major differences are apparent between the perceptions of self-efficacy as teachers for student teachers and associate teachers on the teacher efficacy vignettes. First, consistent with measures of personal teaching efficacy on the RAND items and Teacher Efficacy Scale, perceptions of overall self-efficacy as teachers (that is, when the three dimensions of difficulty of task for self, strength of self-efficacy, and innovativeness for

self are treated as one efficacy factor) were significantly lower for student teachers than those reported for associate teachers. This pattern was apparent on the vignettes about individual children, and on vignettes about groups of children. Post hoc analyses revealed that the differences between groups could be attributed to the lower strength of self-efficacy as teachers reported by student teachers as compared with associate teachers on the vignettes about individual children, and on vignettes about groups of children. Thus, in situations involving individual children or groups of children, student teachers' perceptions about the strength or confidence they have in their capability to deal with the challenges is not as high as the self-reports of associate teachers.

Secondly, there were differences in perceptions of self-efficacy as teachers between student teachers and associate teachers when the tasks involved dealing with groups of children. Here, the perceived difficulty for themselves in dealing with the tasks was reported as lower (that is, was perceived as more difficult) by student teachers than that which was reported by associate teachers. Student teachers viewed the tasks as significantly more difficult than did their associate teachers, when those tasks occurred with groups of children rather than with individual children. Given the dynamics of working with a group of children as contrasted with individual children it would seem reasonable to infer that student teachers' perceptions of self-efficacy as teachers may be more threatened by the unpredictability and complexity involved in working with a group of children more so than working with individual children.

It is not surprising that compared with associate teachers, student teachers' judgements about themselves indicated they were significantly less confident in situations with both individual children and groups of children, and that they gave ratings that indicated that they perceived the group tasks as being more difficult for them. Certainly, the relative inexperience of student teachers as contrasted to the more experienced associate teachers cannot be discounted. But these two dimensions of self-efficacy as teachers -- strength of self-efficacy and task difficulty -- imply that student teachers' overall self-efficacy as teachers is perceived to be significantly lower than that of associate teachers. This is at odds with the claims that student teachers' perceptions about their capability to make a significant effect in children's lives are often in excess of more experienced teachers and their student teaching practice supervisors (Broussard et al., 1988; Weinstein, 1988; Walker, 1992). In fact, the present research suggests that student teachers are less confident in situations involving both individuals and groups, and they perceive problems in group situations to be more difficult to deal with than do their associate teachers.

These findings may, at best, indicate a sense of realism about themselves as teachers relative to their stage of professional development, rather than optimism (Broussard et al., 1988), unrealistic optimism (Weinstein, 1988), or idealism (Walker, 1992). As beginning teachers who are inexperienced and developing competence, it is plausible to assume that student teachers will hold lower perceptions about their confidence than those self-perceptions of associate teachers, and as judging problems in group situations to be more difficult to deal with than do their more experienced and skilled colleagues.

One implication arising from these findings concerns the focus of programmes that prepare student teachers for teaching. Student teachers need to be prepared to not only cope in situations involving individuals and groups of children, but to do so with confidence in their beliefs that they are capable of managing difficult tasks. This implies that student teachers not only need opportunities to demonstrate successful performances with groups and individuals, but that they are able to personally perceive these performances as genuine accomplishments. Furthermore, the verbal persuasiveness of associate teachers and the vicarious experiences provided through student teaching practice need to be perceived by student teachers as both personally credible and attainable if perceptions of self-efficacy as teachers are to be strengthened. Inevitably, these conditions generate implications for the design and delivery of student teaching practice, as well as in the preparation of associate teachers for supervision.

Orientations Toward Children Four types of orientations toward children were presented in this study. These were developed from the Adults' Orientations Toward Control versus Autonomy With Children: Problems in School Questionnaire (Deci et al., 1981). The four solutions that accompanies each vignette purport to represent one of these four types of orientations toward children.

High control orientations toward children typically involve the teacher in deciding the solution and using sanctions (including reinforcement) to ensure the solution is implemented, whereas high autonomy orientations toward children involve encouraging the child to consider the various elements of a problem in order to arrive at a solution. Moderate autonomy orientations toward children typically encourage the child to use social comparison in an attempt to solve the problem. In moderate control orientations toward children the teacher characteristically decides on the solution and uses strategies such as invoking guilt or stressing that it is for the child's own good in order to get the child to implement the solution.

The correlations between orientations toward children and measures of efficacy were low, suggesting that the variables were more dissimilar than similar. On post student teaching practice scores, orientations toward children had weak associations with personal teaching efficacy on the RAND with correlations of between $r = .43$ and $r = -.24$, and with the Teacher Efficacy Scale of between $r = .32$ and $r = -.10$. For self-efficacy as teachers, correlations with orientations toward children ranged between $r = .52$ and $r = -.35$. Orientations toward children correlated with teaching efficacy on the RAND between $r = .29$ and $r = -.22$, and on the Teacher Efficacy Scale between $r = .21$ and $r = -.22$. Finally, orientations toward children and efficacy about others as teachers were correlated between $r = .36$ and $r = -.31$.

The analysis of orientations toward children on the vignettes revealed that both student teachers' and associate teachers' overall preferred orientations toward children were high autonomy, followed by high control, moderate autonomy and moderate control orientations. When explored further, it was found that the significant difference related to the high control orientations toward children which were lower for student teachers than those reported by associate teachers. Conversely, high autonomy, moderate autonomy, and moderate control orientations toward children did not vary significantly between student teachers and associate teachers.

Thus, associate teachers' preferences were stronger than those reported by student teachers with regard to orientations toward children that typically involve them as teachers in making the decisions and using strategies such as applying sanctions and reinforcement to ensure that these decisions are implemented. This finding is consistent with much of the literature to date (Swanson, O'Connor, & Cooney, 1990; Woolfolk & Hoy, 1990) which suggests that experienced teachers tend to be more controlling in their orientations than are student teachers.

The scope of influence dimension was not accounted for in the original research on the Problems in School Questionnaire (Deci et al., 1981) and has been included in this present research in order to provide a more fine-grained analysis. When vignettes about individuals and vignettes about groups were analysed as two sets, the pattern for preferences remained the same for associate teachers, but not for student teachers. Student teachers, when asked about their preferences in orientations toward children in the vignettes about individual children and the vignettes about groups of children, reported their strongest overall preferences to be high autonomy followed by moderate autonomy, high control and moderate control orientations toward children.

More importantly, the significant differences between student teachers and associate teachers on the vignettes about individual children and groups of children were attributed to all four orientations. In particular, two findings emerged.

First, associate teachers reported significantly higher preferences for high autonomy and high control orientations toward children than those reported by student teachers. This means that, on the one hand, associate teachers had stronger preferences for orientations toward children that involve the teacher in deciding on the solution and using sanctions (including reinforcement) to ensure the solution is implemented. On the other hand, when compared with student teachers, associate teachers reported stronger preferences for orientations that encourage the child to consider the various aspects of the problem so as to arrive at their own solution.

In a sense, these preferences appear somewhat contradictory especially if the contention is that the four orientations represent points on the same control versus autonomy continuum as Deci et al. (1981) would claim. However, while both are strongly preferred by teachers, it may be that one orientation takes first preference and the other is applied only when the first fails to achieve the desired outcomes. This finding suggests not only that orientations toward children may vary according to situations, but that teachers are prepared to adopt seemingly opposing orientations rather than to adhere to one strongly preferred orientation. In a sense, the need to produce a solution to a problem involving children may override the strict adherence to particular beliefs about orientations towards children. This latter claim, in particular, is an untested speculation that needs to be subjected to systematic empirical analysis. Such research enquiry has implications for our understandings about the structure, adaptability and complexity of teachers' beliefs within specific situational contexts.

Secondly, student teachers indicated preferences for moderate autonomy and moderate control orientations toward children which were significantly higher than those of associate teachers. This means that student teachers' preferences were stronger than those of associate teachers for orientations toward children that involved them in encouraging children to use social comparison in an attempt to solve problems. Compared with associate teachers, student teachers also reported significantly higher preferences for orientations where they decide on the solutions and get children to implement these solutions by invoking guilt or by stressing that it is for their own good.

This evidence supports the contention that teachers hold significantly more controlling orientations than student teachers. However, what is surprising is that compared with associate teachers, student teachers did not hold correspondingly more autonomous

preferences. In fact, the evidence is that compared with student teachers, associate teachers hold significantly stronger preferences for both high controlling and high autonomy orientations toward children. This is somewhat surprising, given that student teachers are said to place heavy emphasis on the affective, interpersonal and humanistic aspects of teaching (Bontempo & Digman, 1985; Brousseau & Freeman, 1984; Calderhead, 1987; Hollingsworth, 1989; Rathbone & Pierce, 1989) which Weinstein (1990) suggests contribute to their sense of unrealistic optimism.

Self-Esteem as Teachers The Self-Esteem as Teachers Scale, which was developed from the Rosenberg (1965) Self-Esteem Scale, attempts to relate the concept of self-esteem more directly to the perceptions that student teachers and associate teachers have about themselves as teachers. To do this, items on the Self-Esteem Scale have been made more occupationally-specific. In this present study, the results indicate that primary student teachers' perceptions about their self-esteem as teachers were significantly lower than those self perceptions reported by associate teachers.

Why this is so is unclear. On the one hand, it may be speculated that the perceptions of self-esteem as teachers were enhanced in the group of teachers simply because of their assigned role as associate teachers. Their selection as associate teachers may have served to acknowledge and reinforce their sense of worth as teachers.

On the other hand, the lower perceptions of self-esteem as teachers that were reported by student teachers may be attributed to their relative inexperience as contrasted with that of their associate teachers. It could also relate to the nature of the feedback they receive about themselves which may affirm them in the role of student teachers rather than as teachers. Evidence is needed in support of these claims. Certainly, student teachers' experiences as teachers usually are confined to student teaching practice where they work unpaid and under the supervision of associate teachers. The nature of student teaching practice means that relationships with children and colleagues are not as sustained as those that are able to be developed by associate teachers. As teachers in training, student teachers have yet to assume the full responsibilities of practicing teachers, and their status as student teachers may mean that they do not yet fully identify themselves as teachers. In this regard, the associate teachers' higher levels of self-esteem as teachers may reflect the certainty of successful survivors in the profession, whereas student teachers' lower levels of self-esteem as teachers may be indicative of a degree of uncertainty resulting from them yet having to test themselves as teachers in situations they perceive as authentic.

A further explanation may relate to the degree to which self-esteem as teachers and self-efficacy as teachers are perceived as separate constructs by associate teachers and student teachers. Both self-esteem and self-efficacy as teachers are perceptions which are claimed to focus on judgements about different aspects of the self. The correlations between self-esteem as teachers and personal teaching efficacy were strong but not discernably different on the Teacher Efficacy Scale between associate teachers (pre $r = .52$, post $r = .46$) and student teachers (pre $r = .57$, post $r = .47$). When the scope of influence factor was accounted for on the teacher vignettes, the three dimensions of self-efficacy as teachers (task difficulty, strength of self-efficacy, innovativeness) showed only weak correlations with self-esteem as teachers for associate teachers (pre $r = .25$, post $r = -.23$). The pattern was somewhat similar for student teachers when self-esteem as teachers was correlated with self-efficacy (task difficulty) (pre $r = .37$, post $r = .24$), and self-efficacy for innovativeness (pre $r = .25$, post $r = .05$). However, there were clear differences when self-esteem as teachers was correlated with strength of self-efficacy as teachers for student teachers (pre $r = .58$, post $r = .42$).

While the causal nature of the relationship between self-esteem as teachers and self-efficacy as teachers is not established, it is likely to be interactional. As student teachers' beliefs about their confidence in coping with problems is challenged so also is their sense of self-esteem as teachers threatened, and vice versa. This finding suggests that the relationship between self-esteem as teachers and strength of self-efficacy as teachers is less well refined for student teachers than for associate teachers.

What effect does student teaching practice have on primary student teachers' and associate teachers' perceptions of efficacy, orientations toward children, and self-esteem as teachers?

The literature suggests that student teachers become more confident in their personal efficacy and less confident in teaching efficacy (Hoy & Woolfolk, 1990; Volkman, Scheffler, & Dana 1992; Woolfolk, Rosoff, & Hoy, 1990), and more controlling and less autonomous in their orientations toward children (Hoy & Woolfolk, 1990; McNeely & Maertz, 1990) as a result of student teaching practice, and that self-esteem is related to their ability to cope with stress (Anderson & Iwanicki, 1984; Faber, 1990; Friedman & Barber, 1992; Malanowski & Wood, 1984). Unlike these previous studies, this present study ascertained both student teachers' and associate teachers' perceptions of efficacy, orientations towards others, and self-esteem as teachers across student teaching practice in order to establish what effects, if any, may have accrued.

circumvent?

Efficacy as Teachers The results of this present study show that student teachers and associate teachers do not vary significantly on their perceptions of teaching efficacy (RAND 1) or personal teaching efficacy (RAND 2) across student teaching practice. However, on the Teacher Efficacy Scale, there was a significant increase in personal teaching efficacy for student teachers. This result is consistent with Hoy and Woolfolk's (1990) study which employed the Teacher Efficacy Scale. However, Hoy and Woolfolk also found that on the Teacher Efficacy Scale student teachers' sense of teaching efficacy declined across student teaching practice, while in this present study there was no significant difference for teaching efficacy.

Why student teachers' perceptions about teaching efficacy remained unaffected across student teaching practice is unknown. It could be related to length of student teaching practice. Woolfolk and Hoy's (1990) study spanned a semester of student teaching practice which, in itself, presents increased opportunities for changes in teaching efficacy to become apparent. Yet, Jones (1982) found that student teachers' beliefs about working with children changed regardless of whether they had eight or sixteen weeks of student teaching practice. So these differences between studies about perceptions relating to teaching efficacy are unlikely to be explained by the length of student teaching practice.

A further explanation relates to the inclusion of associate teachers' beliefs in the present analysis which makes the study distinctively different from Woolfolk and Hoy's (1990) study. There is some evidence, though not explicitly focusing on efficacy beliefs, that student teachers are able to resist the tendency to change their beliefs across student teaching practice if their preservice programmes are more enquiry-based, or if their associate teachers share similar beliefs (Volkman, Scheffler, & Dana 1992; Zeichner & Grant, 1981). Given that there were not significant differences on teaching efficacy between associate teachers and student teachers to begin with, it may be that this lack of disparity was sufficient enough not to provoke change in beliefs. If one intention of student teaching practice is to facilitate change in student teachers' beliefs about efficacy, then an implication from this finding is that more consideration may need to be given to the beliefs of associate teachers and student teachers when pairings are determined for student teaching practice.

The teacher vignettes provided a further and finer-grained analysis of the efficacy construct than was available in either the RAND items or the Teacher Efficacy Scale. On these vignettes it is clear that the differences between student teachers' and associate teachers' perceptions for either global efficacy (self-efficacy as teachers scores combined with scores for efficacy about others as teachers), self-efficacy as teachers, or

efficacy about others as teachers, were not significant across student teaching practice. In short, student teaching practice had no significant effect on student teachers' or associate teachers' perceptions of efficacy about themselves as teachers and about others as teachers on the dimensions of task difficulty, strength or confidence of efficacy, and innovativeness.

Furthermore, scope of influence made no difference for discerning between beliefs about self-efficacy as teachers. There were no significant shifts in either student teachers' or associate teachers' perceptions of self-efficacy as teachers on the vignettes about individual children, or about groups of children. In effect, student teachers' and associate teachers' perceptions of the difficulty for themselves in dealing with the tasks, the strength of their self-efficacy as teachers, and their efficacy for innovativeness did not appear to be influenced significantly by student teaching practice.

Student teachers' and associate teachers' perceptions about the efficacy of others as teachers as reported on the vignettes about groups of children, also remained relatively unchanged. Student teaching practice did not seem to significantly influence student teachers' or associate teachers' perceptions about how difficult the tasks would be for others as teachers, the strength of efficacy to deal with these tasks, or efficaciousness to be innovative in solving problems that involved groups of children.

However, two significant changes occurred across student teaching practice in the perceptions about the efficacy of others as teachers when dealing with vignettes about individual children as distinct from those situations that involved groups of children.

First, across student teaching practice, associate teachers' perceptions about the efficacy of others as teachers declined significantly on the dimension of innovativeness when these situations involved individual children rather than groups. Student teachers' perceptions, on the other hand, remained relatively unaffected. For associate teachers, the perceptions they held about how efficacious other teachers were in being able to produce multiple solutions lessened across student teaching practice when they considered tasks that involved individual children. So, after supervising student teachers across student teaching practice, associate teachers' perceptions about the innovativeness of other teachers such as student teachers in dealing with individual children, declined significantly.

This finding affirms Yee's (1969) suggestion that attitudinal influences may not only be from associate teachers to student teachers, but also from student teachers to associate teachers. The result suggests that the expectations held by associate teachers about

other teachers such as student teachers may have not been as realistic as first thought. Certainly, a general expectation of teachers is that preservice teachers will bring fresh ideas and innovative practices into schools. It may well be that associate teachers expect student teachers to demonstrate this innovativeness at least with individual children, if not within the complex dynamics of group situations. The apparent failure of student teachers to realise this expectation with individual children during student teaching practice may help explain the significant decline in associate teachers' perceptions about the innovativeness of others as teachers.

Secondly, after student teaching practice, both student teachers' and associate teachers' perceptions about the difficulty for others as teachers to deal with the tasks that involved individual children, declined significantly. That is, after student teaching practice, the tasks about individual children were judged to be more difficult to cope with for others as teachers than both student teachers and associate teachers originally thought. On the one hand, associate teachers' perceptions about student teachers' capability to deal with the problem tasks about individual children declined as they supervised student teachers across student teaching practice. Associate teachers' beliefs about how difficult tasks about individual children would be for others as teachers, and the capability of others as teachers in being innovative by providing multiple solutions, did not match the reality.

One implication from these findings is that associate teachers' overly optimistic initial beliefs about how difficult tasks involving individual children would be for student teachers, and about how innovative student teachers are likely to be when working with individual children, may reflect the limited experience most associate teachers have had in studying the field of student teachers' professional development during preservice teacher education. While experienced as practitioners in their classes and oftentimes having supervised many student teachers, few associate teachers have undertaken substantive in-service study in the domain of teaching in preservice teacher education or in the supervision of student teachers. If teacher educators value the role of associate teachers in providing relevant developmental experiences for student teachers while on student teaching practice, then further opportunities for such in-service work will serve to foster positive outcomes on supervisory effectiveness.

On the other hand, student teachers' perceptions about other teachers' (such as their associate teachers') capability to deal with the problem tasks about individual children also declined as they undertook student teaching practice. As student teachers observed the performance accomplishments of their associate teachers in dealing with problems about individuals, their perceptions about the efficacy of others as teachers declined. In

this sense, initial student teachers' perceptions were overly optimistic about how difficult others such as associate teachers would find problems involving individual children to deal with.

Thus, after having completed student teaching practice, both student teachers and associate teachers perceived tasks involving individual children to be more difficult for others to deal with as teachers, while associate teachers were also not as optimistic as they had first thought that other teachers such as student teachers would be as innovative in dealing with these problems about individual children.

These results suggest that within the confines of dealing with individual children, student teaching practice has effects not only on student teachers' perceptions but also on associate teachers' perceptions about the efficacy of others as teachers. Both student teachers and associate teachers act as models during student teaching practice. The implication from these results affirms the importance of taking into account the interaction between student teachers and associate teachers when determining the effects of student teaching practice on perceptions about self and others as teachers.

Orientations Toward Children Across student teaching practice, there was a significant overall decline in preference for high autonomy, moderate autonomy and moderate control orientations toward children on the set of vignettes. However, there were no significant differences between student teachers' and associate teachers' orientations toward children on these same tasks across student teaching practice.

The scope of influence factor introduced a degree of sophistication which helped reveal some useful differences. Analysis of responses on the vignettes about individual children, and on the vignettes about groups of children showed that there was an overall significant decline in preferences for high autonomy and moderate autonomy orientations toward children. When the group variable was considered, significant differences emerged between student teachers and associate teachers across student teaching practice. This significance was attributed to the decline in student teachers' preferences for high autonomy and moderate autonomy orientations toward children. This means that the preferences made by student teachers for orientations toward children that emphasised encouraging children to consider the various elements of problems to arrive at solutions, or that encouraged children through social comparison to solve problems, were not as strong after they had completed their student teaching practice. Thus, across student teaching practice, student teachers' preferences in orientations toward children became less autonomous (high autonomy, moderate autonomy), but not necessarily correspondingly more controlling (high control,

moderate control) on tasks that involved individual children, and on tasks that involved groups of children.

Hoy and Woolfolk (1990) found that student teachers' social problem-solving strategies became more controlling after a semester of student teaching practice. Other studies report that across student teaching practice student teachers become more custodial rather than humanistic in their management of children (Hoy, 1967, 1968, 1969; Hoy & Rees, 1977; Jones, 1982; McNeely & Maertz, 1990; Packard, 1988), and more controlling than autonomous in their orientations toward children (Hoy & Woolfolk, 1990; McNeely & Maertz, 1990).

The present study, while conducted over a shorter span of student teaching practice than is usual for such studies, does not fully support these trends. Regardless of whether these four orientations toward children actually represent points on the same control versus autonomy continuum, it would be necessary to see significant decreases in high autonomy and moderate autonomy orientations, as well as significant increases in high control and moderate control orientations to satisfy the claim that student teachers become both less autonomous and more controlling across student teaching practice. The results of the present study do not satisfy both these conditions.

Rather, the significant declines in student teachers' preferences for high autonomy and moderate autonomy orientations toward children without associated increases in either high control or moderate control orientations toward children, suggest that student teachers may well be expressing their preferences for high and moderate autonomy orientations with less certainty after student teaching practice. Such a claim would be consistent with contention that the experience of student teaching practice presents student teachers with situations that provoke uncertainty in their beliefs that specific actions relate inextricably to teaching effectiveness.

One implication from this finding relates to the structuring of opportunities for reflective practice both during and after student teaching practice. If student teaching practice does provoke such uncertainty in student teachers' beliefs, then structured experiences which facilitate clarification, reflection and redefinition during and subsequent to student teaching practice may assist student teachers to develop a deeper appreciation of and confidence in their preferred orientations toward children in different situations. Such a view is consistent with some recent research on field-based experiences that emphasise reflective practice (Volkman, Scheffler, & Dana, 1992).

In examining the original scripts it became apparent that student teachers and associate teachers often scored two orientations toward children as being of equal appropriateness as solutions for dealing with a specific vignettes problem. For example, high control and high autonomy orientations toward children, or moderate autonomy and moderate control orientations toward children may be scored as equally appropriate by student teachers or associate teachers on a specific vignette. This pattern indicates that student teachers' and associate teachers' preferences in orientations toward children may be both eclectic as well as global. These observations also suggest that student teachers and associate teachers may consider two apparently conflicting orientations toward children as being equally appropriate but prefer to act initially in ways that are consistent with one orientation and may adopt the second orientation only when the first selection appears not to produce the desired outcomes. Thus, structured opportunities for reflective practice both during and subsequent to student teaching practice may enable student teachers to develop an increased sensitivity to shifts in their perceived preferences within and across specific situations with children.

The finding that student teachers are less generous after student teaching practice in their ratings for autonomous orientations as solutions to problems, suggests that the experience of working with children increases their uncertainty about the effectiveness of such approaches. However, the lack of corresponding increases in preferences for controlling orientations suggests that student teaching practice does not increase their certainty about the effectiveness of such approaches. It would seem that student teaching practice does challenge student teachers' beliefs about their orientations toward children in that they reported lower preferences for autonomous solutions, while still resisting the tendency to favour more controlling approaches.

Self-Esteem as Teachers While it was found that the perceptions of student teachers about their self-esteem as teachers were significantly lower than those reported by their associate teachers, any changes in these perceptions across student teaching practice were not significant. Student teaching practice, it seems, does not significantly affect student teachers' or associate teachers' perceptions of self-esteem as teachers.

At first glance this result seems somewhat surprising. Informal reports from teacher educators, student teachers and associate teachers would suggest that for most student teachers the student teaching practice experience, in spite of being tiring and stressful, is often claimed to be highly valued, worthwhile, enjoyable and professionally helpful and affirming to them as teachers. It is true that the basis of such claims may well be influenced by socially-desirable responding. The impression from such comments is that student teachers' self-esteem as teachers is thought to increase as a result of student

teaching practice. However, the results of this study suggest that student teaching practice does not impact as strongly on student teachers' perceptions of self-esteem as teachers as these claims would suggest.

The degree of association between self-esteem as teachers and other self-perceptions suggest that self-esteem as teachers was not as refined for student teachers as it was for associate teachers. Student teachers' perceptions for self-esteem as teachers had moderately high correlations with teaching efficacy and personal teaching efficacy on the RAND and Teacher Efficacy Scale, and with strength of self-efficacy as teachers, and strength of efficacy about others as teachers. In this regard, Bezzina and Butcher's (1990) claim that preservice teachers have a less refined structure of teacher efficacy than practising teachers may also be applicable to beliefs about self-esteem as teachers.

While the constructs of self-efficacy, orientations toward children, and self-esteem as teachers are considered as independent entities, it is also presumed they will likely interact with each other. Given that student teachers' perceptions of self-efficacy as teachers remain relatively unchanged across student teaching practice, and that they became less autonomous in their orientation towards children, it is not surprising to find that perceptions of self-esteem as teachers also do not register any significant change. For example, the fact that student teachers' perceptions about their confidence and capability to make a difference in dealing with challenges in teaching did not shift significantly across student teaching practice, in itself, may well have acted as a disincentive for strengthening their self-esteem as teachers. Given this, the truth of the rhetoric that student teaching practice has positive effects on student teachers' perceptions of self-esteem as teachers, it seems, may be more apparent than real.

Further Considerations

Several further considerations that arise from this present study are worth noting.

First, the results of this study indicate that the RAND items and the Teacher Efficacy Scale have utility as global measures of efficacy. However, as global measures they do benefit from more substantive situationally-specific measurements that account for important underlying dimensions such as efficacy for task difficulty, strength of efficacy, and generality of efficacy that may help further explain the nature and effects of efficacy. In this regard, the teacher efficacy vignettes used in this present study illustrate that the guidelines proposed by Bandura (1977, 1982) provide important considerations in the study of student teachers' and associate teachers' efficacy. One

implication from this consideration is that research regarding the efficacy beliefs held by student teachers during student teaching practice should be interpreted with due regard to the type of measures employed.

Secondly, the use of the scope of influence dimension in the teacher efficacy vignettes supports Guskey's (Guskey, 1987; Guskey & Passaro, 1986) contention that teachers' beliefs about their influence over the learning of a single child versus that of a group or class of children is an important dimension in the study of teacher efficacy. This present study demonstrates the utility of this scope of influence dimension in the study of efficacy for both student teachers and associate teachers.

This present study further suggests that the scope of influence dimension is important in accounting for the preferences that student teachers and associate teachers express with regard to the appropriateness of specific orientations toward children. The preferences of student teachers and associate teachers in their orientations toward children may vary in relation to specific situations, and according to whether they are dealing with an individual child or a group of children. Scope of influence, therefore provides a useful dimension in the study of the effects of student teaching practice on student teachers' and associate teachers' perceptions.

Traditional student teaching practices, especially at the latter stages of preservice teacher education programmes, often favour whole class teaching in preference to teaching individual children. Thus, an implication from these scope of influence findings is that opportunities need to be structured so that student teachers encounter not only whole class teaching challenges but also situations that involve them in working with individual children. In this way student teachers can gain performance accomplishments from both dimensions on this scope of influence which, in turn, may foster positive and realistic development of their self-perceptions.

Thirdly, the present study affirms the importance of accounting for both student teachers' and their associate teachers' perceptions when investigating the effects of student teaching practice. Yee (1969) makes the point that the influences within student teacher and associate teacher pairings are likely to be reciprocal rather than unidirectional. Numerous studies confirm the influential role that associate teachers have in working with student teachers (Alper & Retish, 1980; Dispoto, 1980; Karmos & Jacko, 1977; Stolworthy, 1988; Wood & Eichner, 1989). In this regard, one variable not fully accounted for in this present study is that of supervisory style. Given that some studies claim that often the cooperating teacher provides little or no feedback

concerning the performance or effectiveness of the student teacher (McIntyre & Killan, 1986), it would seem that the factor of supervisory style deserves further investigation.

In this present study, when asked to identify their supervisory style from Blumberg's (1974) four supervisory styles, seventy six per cent (76%) of the associate teachers considered they typically demonstrated Style A. This style, described as High Direct - High Indirect [HDHI], is one where both direct and indirect behaviour is emphasised, and the associate teacher is willing to tell and criticise as well as to ask and listen. Student teachers who view the supervisory style of their associate teachers as being High Direct - High Indirect [HDHI], tend to register more progressive views toward education after their student teaching practice (Sanders & Merritt, 1974). In the present study, seventy three per cent (73%) of the student teachers considered that their associate teachers' supervisory style could be best characterised as Style A. In all, there was a fifty nine per cent (59%) independent agreement between student teachers and associate teachers that the supervisory style of the associate teacher was Style A. This finding suggests that the nature of supervision undertaken in this student teaching practice was perceived to be both active and interactive.

In this regard, an implication from this present study is that in order to understand the belief changes in student teachers across student teaching practice, it is important to also understand the beliefs and practices of associate teachers. The influential power of associate teachers cannot be underestimated. Yet, by failing to account for the perceptions held by associate teachers, our understandings about the perceptions of student teachers may be potentially misleading.

Fourthly, the present study also provides a basis for further finer-grained analysis of the differential effects on student teachers' perceptions of efficacy, orientations toward children, and self-esteem as teachers when placed in pairings with associate teachers who hold very similar or extremely dissimilar beliefs. Bunting (1988) provides some exploratory enquiry in this regard, though with a small sample, which suggests that associate teachers who hold more extreme views on the Educational Attitudes Inventory often witness no change in the views of student teachers assigned to them. This conclusion is not necessarily consistent with earlier research which suggests that the attitudes of student teachers tend to move during student teaching practice in the direction of those held by their associate teachers (Cohen, 1969; Finlayson & Cohen, 1967; Johnson, 1968; Peters, 1971; Price, 1961; Turney, 1987; Yee, 1969). The use of instruments that are multidimensional, domain specific and finer-grained rather than the traditional global composite measures may help resolve some of this equivocation.

Further development of the instrumentation in this regard will profit this type of research enquiry.

Fifthly, in studies of this kind, there is an inevitable concern about the veracity of self-reports. The body of literature concerning the veracity of self-reports and their susceptibility to dissimulation is well documented (see Anastasi, 1988). Bandura's (1982) view is that veridical self-appraisal is best determined under test conditions that reduce social evaluative factors. In the present research, responses were private and anonymous rather than public, respondents participated voluntarily and without the inducement of incentives, and the test items were unlikely to produce undue additional motivational effects. Given these factors, there is an assumption that the responses that were gathered have sufficient veracity with the actual beliefs held by respondents, and that this degree of veracity remains relatively constant across the two occasions when data were gathered.

This present study did not set out to establish the consistency of the self-reports about self-efficacy as teachers, and orientations toward children with the actual classroom practice of student teachers and associate teachers either with individual children or groups of children. The Gibson and Dembo (1984) study does explore this relationship to some degree, with regard to the two factor Teacher Efficacy Scale. However, the scope of influence factor, and the dimensions of task difficulty, strength of efficacy, and generality of efficacy have either not been accounted for, or are not well clarified in Teacher Efficacy Scale and its associated validation study.

In this present study, the vignettes which were used for gauging perceptions of student teachers' and associate teachers' efficacy and orientations toward children provide scenarios that are situationally-specific. Consistent with Bandura's (1989) recommendations, the items in these vignettes are written in ways that narrow the focus of participants onto the specifics of what is required. Nevertheless, any triggering effects (Arisohn, Bruch, & Heimberg, 1988) across the questions within each vignette, and across vignettes remain unaccounted for, but are assumed to be essentially subject to the randomisation procedures that were adopted in this present study.

Finally, the tension between the need to treat self-esteem as being a global versus an occupationally-specific construct is an important consideration for future research with student teachers and associate teachers. Furthermore, given that the population of primary student teachers and associate teachers is predominantly female, and that self-esteem is subject to culturally-mandated and gender-appropriate norms, it seems imperative that we develop deeper understandings of gender differences in the

developmental nature of perceptions of self-esteem as teachers, and the impact across student teaching practice of gender within student teacher and associate teacher pairings. Josephs, Markus, and Tafarodi (1992) suggest that while gender differences are not usually apparent in the level of overall self-esteem, differences may underlie the basis of self-esteem. They contend that self-esteem for men is linked to individualisation in which personal achievements are stressed whereas for women self-esteem typically is associated with attachments and interdependence with important others. Interestingly, the dynamics of teaching require both high levels of interpersonal attachment as well as individual detachment for objective reflection about children's achievement. In this debate, both characteristics could be claimed to contribute to interpretations of perceptions not only about global self-esteem but also of the occupationally-specific self-esteem of teachers. The case therefore deserves further enquiry.

Conclusion

The experience of student teaching practice is highly valued in preservice teacher education programmes by student teachers, their associate teachers and teacher educators. The results of this present study indicate that many of the claims about the positive effects of student teaching practice on student teachers' perceptions may be more rhetoric than reality.

The results from this present study disconfirm Broussard et al's (1988) and Weinstein's (1988) claim that student teachers hold unrealistic optimism about teaching. Indeed, student teachers reported significantly lower self-confidence as teachers (strength of self-efficacy) in coping with the problem tasks compared with the judgements of associate teachers. Furthermore, in situations involving groups of children, student teachers' self-efficacy as teachers judgements about the difficulty of tasks suggest they perceive these as significantly more difficult than that indicated by associate teachers' self-judgements. These findings suggest that student teachers' perceptions of self-efficacy as teachers about task difficulty in group situations may demonstrate more a sense of realism, rather than optimism (Broussard et al., 1988), unrealistic optimism (Weinstein, 1988), or idealism (Walker, 1992).

Secondly, this study contends that when compared with associate teachers, student teachers held significantly stronger preferences for moderate autonomy and moderate control orientations, and less preference for high control and high autonomy orientations toward children. This finding varies with the prevailing view that student

teachers are less controlling and more autonomous when compared with experienced teachers.

Thirdly, this study shows that student teachers' self-esteem as teachers are reported at significantly lower levels than those of associate teachers, and that across teaching practice there is no significant change. This result challenges the conventional wisdom that teaching practice serves to build student teachers' self-esteem as teachers.

Fourthly, the results indicate that associate teachers' efficacy perceptions about the innovativeness of others such as student teachers declined significantly across student teaching practice when the contexts being considered involve individual children. This suggests that associate teachers' initial perceptions about the innovativeness of student teachers on vignettes about individual children were overly optimistic, and that the student teaching practice experience challenged these beliefs. Furthermore, both student teachers' and associate teachers' perceptions of the capability of others as teachers to cope with problem tasks involving individual children declined significantly across student teaching practice. These findings affirm Yee's (1969) claim that the attitudinal influences arising during student teaching practice may not only be from associate teachers to student teachers, but also from student teachers to associate teachers, rather than being unidirectional.

Finally, most studies to date have relied extensively on the RAND items and the Teacher Efficacy Scale to measure global teacher efficacy. This study highlights the importance of developing finer-grained instruments and analyses. Such analyses reveal that the effects of student teaching practice on perceptions of efficacy, for instance, may not be as simple as first seems. The application of the scope of influence dimension also is demonstrated to have utility within the measurement of both efficacy and orientations toward children. This study affirms the importance for studies about student teaching practice to account for the perceptions held by student teachers as well as associate teachers. Put simply, both student teachers and associate teachers are active participants in the student teaching practice experience, and as such, should be acknowledged in research design.

In terms of research design, future studies might consider the use of a control group condition. In the present study there were practical difficulties in establishing a control group. On the one hand, all final year student teachers in this preservice programme undertake student teaching practice at the same time. Introducing a control group within this programme was both impracticable and potentially confounding, and therefore rejected. On the other hand, establishing a control group across several

teacher education programmes posed other difficulties in that the new range of extraneous variables may well obscure important differences. Thus, a contrast group model was considered an appropriate way to ascertain relationships between student teaching practice and the beliefs of student teachers and associate teachers.

Inevitably it is difficult to determine direct causal links between student teaching practice and the perceptions of student teachers and associate teachers. *Effects*, in the context of the second research question, refers to the relationship between the independent and dependent variables. Rather than asking whether *A causes B*, the question asks *in what ways is A related to B?* The nature of this relationship is exemplified in the hypotheses of this present study. In order to explain causation it would be necessary to satisfy three basic criteria, namely

- i that the independent and dependent variables are empirically related
- ii that the cause is demonstrated to precede the effect, and
- iii that the relationship cannot be explained as resulting from the influence of other variables (see Lazarfeld, 1955). In the present study, the perceptions under consideration were explicitly and specifically related to teaching, the items and measures cued participants to focus on teaching-related activity and perceptions, and participants undertook similar tasks during student teaching practice across the same time span, and at the same point in the teacher education programme. The basic assumption, therefore, in this present study is that there were no other major plausible extraneous events which could have produced rival hypotheses. Having said that, future research design should consider the addition of a control group to further enhance the veracity of the present findings. Furthermore, how student teachers and teachers explain and justify the judgements they make about their perceptions of self and others may produce further insights into this field of inquiry, while also clarifying any examples of ambiguity that might otherwise arise. Case studies and interview procedures provide obvious possibilities as research approaches in this regard.

While the primary focus of this present research was not on making ethnic comparisons between student teachers' self-perceptions, future research should consider firstly exploring alternative means, measures, and indices that may attract higher response rates from Maori, and secondly on illuminating the association between teachers' self-beliefs and Maori sense of self. In this regard, by identifying the criteria and indices that are considered as important components of Maori self-perceptions, and through describing those contexts that are identified by Maori to be culturally-appropriate, a basis will be provided for developing valid and sensitive procedures for ascertaining Maori student teachers' and teachers' self-perceptions.

Given these points, the present study therefore has implications for further research. Conventional wisdom suggests that student teaching practice makes a difference in the way that student teachers perceive their ability to cope, their confidence in themselves as teachers, their capability and willingness to be innovative, how they relate with children, and their self-esteem as teachers. The evidence in this present study, however, indicates that many of the claimed effects of student teaching practice on student teachers' and associate teachers' perceptions may be more apparent than real.

In conclusion, the evidence from this study provides substance to Fenstermacher's (1979) claim that "if our purpose and intent are to change the practices of those who teach, it is necessary to come to grips with the objectively reasonable beliefs of teachers" (p. 174). As a basis for enhancing teacher effectiveness, the results of this study highlight the importance of further systematic empirical investigation into student teachers' and associate teachers' self-perceptions as teachers.

APPENDIX A

QUESTIONNAIRES

Appendix A illustrates two coversheets and the follow-up questionnaire. The coversheets provide demographic and other information about the participants. The first coversheet applies to student teachers and the second one illustrates that used for associate teachers. Coversheets for the initial and follow-up questionnaires were essentially similar.

All participants received the same questions within the initial and follow-up questionnaires. However, as items on questionnaires were randomised between participants, the questionnaire which follows therefore exemplifies content rather than order of presentation.

STUDENT TEACHER THINKING AND TEACHING PRACTICE

Thank you for participating in this research. Your identity will be anonymous. Colin J. Gibbs

<p>Gender ✓</p> <p>Male <input type="checkbox"/></p> <p>Female <input type="checkbox"/></p> <p>Age ✓</p> <p>-19 <input type="checkbox"/></p> <p>20-24 <input type="checkbox"/></p> <p>25-29 <input type="checkbox"/></p> <p>30-34 <input type="checkbox"/></p> <p>35-39 <input type="checkbox"/></p> <p>40-44 <input type="checkbox"/></p> <p>45-49 <input type="checkbox"/></p> <p>50- <input type="checkbox"/></p>	<p>Ethnicity ✓</p> <p>European/Pakeha <input type="checkbox"/></p> <p>Maori <input type="checkbox"/></p> <p>Pacific Islander <input type="checkbox"/></p> <p>Asian <input type="checkbox"/></p> <p>Other <input type="checkbox"/></p> <p>_____</p>	<p>Subject Study ✓</p> <p>Art <input type="checkbox"/></p> <p>Bilingual Studies <input type="checkbox"/></p> <p>English <input type="checkbox"/></p> <p>Maori Studies <input type="checkbox"/></p> <p>Mathematics <input type="checkbox"/></p> <p>Music <input type="checkbox"/></p> <p>Physical Education <input type="checkbox"/></p> <p>Science <input type="checkbox"/></p> <p>Social Studies <input type="checkbox"/></p> <p>Other <input type="checkbox"/></p> <p>_____</p>
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Compared with final year student teachers in general, I rate my performance on TE7 as

of real concern	below average	average	above average	outstanding
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Compared with final year student teachers in general, I rate my performance

	of real concern	below average	average	above average	out- standing
on planning and organising programmes					
on teaching a child, groups and class					
on managing children's behaviour					

Which best describes how your associate teacher supervised you as a student teacher on teaching practice (TE7)? (Select only one from either A, B, C, or D) ✓

A	The associate teacher tells me without my prompting, is willing to criticise when I am not performing appropriately, but also asks in a way that suggests s/he wants to understand how I am thinking and listens to me	<input type="checkbox"/>
B	The associate teacher tells me without my prompting, is willing to criticise when I am not performing appropriately but does very little asking of me or listening to me	<input type="checkbox"/>
C	The associate teacher rarely tells me without my prompting, is unwilling to criticise when I am not performing appropriately but instead s/he puts a lot of emphasis on asking me questions, listening to me and reflecting back my ideas and feelings	<input type="checkbox"/>
D	The associate teacher rarely tells me without my prompting, is unwilling to criticise when I am not performing appropriately and does very little asking of me or listening to me	<input type="checkbox"/>

My TE7 class academically were

<u>mostly</u> high achievers	✓ <input type="checkbox"/>
<u>mostly</u> moderate achievers	<input type="checkbox"/>
<u>mostly</u> low achievers	<input type="checkbox"/>
<u>mostly</u> high and moderate achievers	<input type="checkbox"/>
<u>mostly</u> high and low achievers	<input type="checkbox"/>
<u>mostly</u> moderate and low achievers	<input type="checkbox"/>
<u>an even mix</u> of high, moderate, and low achievers	<input type="checkbox"/>

To control my TE7 class was

<u>mostly</u> extremely difficult	✓ <input type="checkbox"/>
<u>mostly</u> difficult	<input type="checkbox"/>
<u>more</u> difficult than easy	<input type="checkbox"/>
<u>neither</u> difficult nor easy	<input type="checkbox"/>
<u>more</u> easy than difficult	<input type="checkbox"/>
<u>mostly</u> easy	<input type="checkbox"/>
<u>mostly</u> extremely easy	<input type="checkbox"/>

TEACHER THINKING AND STUDENT TEACHING PRACTICE

Thank you for participating in this research. Your identity will be anonymous. Colin J. Gibbs

Gender √ Male <input type="checkbox"/> Female <input type="checkbox"/>	Ethnicity √ European/Pakeha <input type="checkbox"/> Maori <input type="checkbox"/> Pacific Islander <input type="checkbox"/> Asian <input type="checkbox"/> Other _____	Qualifications √ No tertiary qualifications <input type="checkbox"/> Trained Teachers Certificate <input type="checkbox"/> Diploma of Teaching <input type="checkbox"/> Advanced Diploma of Teaching <input type="checkbox"/> First degree <input type="checkbox"/> Higher degree (eg., Masters) <input type="checkbox"/> Other teaching qualification _____
Age √ 20-24 <input type="checkbox"/> 25-29 <input type="checkbox"/> 30-34 <input type="checkbox"/> 35-39 <input type="checkbox"/> 40-44 <input type="checkbox"/> 45-49 <input type="checkbox"/> 50- <input type="checkbox"/>	Position √ Untrained teacher <input type="checkbox"/> Teacher <input type="checkbox"/> Senior Teacher <input type="checkbox"/> Assistant Principal <input type="checkbox"/> Principal <input type="checkbox"/> Other _____	

Compared with final year student teachers in general, I rate my student teacher's performance on TE7 as

of real concern	below average	average	above average	outstanding
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Compared with final year students in general, I rate my student teachers' performance

	of real concern	below average	average	above average	outstanding
on planning and organising programmes	<input type="checkbox"/>				
on teaching a child, groups and class	<input type="checkbox"/>				
on managing children's behaviour	<input type="checkbox"/>				

Which best describes the style you use as an associate teacher to supervise a student teacher on their final teaching practice? (Select only one from either A, B, C, or D) √

A	I tell student teachers without their prompting, I am willing to criticise when they are not performing appropriately but I also ask in a way that suggests I want to understand how they are thinking and I listen to them	<input type="checkbox"/>
B	I tell student teachers without their prompting, I am willing to criticise when they are not performing appropriately but I do very little asking of the student teacher or listening to them	<input type="checkbox"/>
C	I rarely tell them without their prompting, I am unwilling to criticise when they are not performing appropriately but instead I put a lot of emphasis on asking them questions, listening to them and reflecting back their ideas and feelings	<input type="checkbox"/>
D	I rarely tell the student teacher without their prompting, I am unwilling to criticise when they are not performing appropriately and I do very little asking of them or listening to them	<input type="checkbox"/>

I would describe my class academically as:

- mostly high achievers
- mostly moderate achievers
- mostly low achievers
- mostly high and moderate achievers
- mostly high and low achievers
- mostly moderate and low achievers
- an even mix of high, moderate, and low achievers

To control my class is:

- mostly extremely difficult
- mostly difficult
- more difficult than easy
- neither difficult nor easy
- more easy than difficult
- mostly easy
- mostly extremely easy

Please indicate the degree to which you agree or disagree with each statement...

20_{TE24} If a child did not remember information I gave in a previous lesson, I would know how to increase his/her retention in the next lesson

1 <i>strongly agree</i>	2 <i>agree</i>	3 <i>agree more than disagree</i>	4 <i>neither agree nor disagree</i>	5 <i>disagree more than agree</i>	6 <i>disagree</i>	7 <i>strongly disagree</i>
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21_{TE26} If a child in my class becomes disruptive and noisy, I feel assured that I know some techniques to redirect him/her quickly

1 <i>strongly agree</i>	2 <i>agree</i>	3 <i>agree more than disagree</i>	4 <i>neither agree nor disagree</i>	5 <i>disagree more than agree</i>	6 <i>disagree</i>	7 <i>strongly disagree</i>
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22_{SE9} I certainly feel useless at times as a teacher

1 <i>strongly agree</i>	2 <i>agree</i>	3 <i>agree more than disagree</i>	4 <i>neither agree nor disagree</i>	5 <i>disagree more than agree</i>	6 <i>disagree</i>	7 <i>strongly disagree</i>
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23_{TE27} The influence of a child's home experiences can be overcome by good teaching

1 <i>strongly agree</i>	2 <i>agree</i>	3 <i>agree more than disagree</i>	4 <i>neither agree nor disagree</i>	5 <i>disagree more than agree</i>	6 <i>disagree</i>	7 <i>strongly disagree</i>
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24_{TE28} If one of my children couldn't do an assignment, I would be able to accurately assess whether the assignment was at the correct level of difficulty

1 <i>strongly agree</i>	2 <i>agree</i>	3 <i>agree more than disagree</i>	4 <i>neither agree nor disagree</i>	5 <i>disagree more than agree</i>	6 <i>disagree</i>	7 <i>strongly disagree</i>
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25_{SE10} At times I think I am no good at all as a teacher

1 <i>strongly agree</i>	2 <i>agree</i>	3 <i>agree more than disagree</i>	4 <i>neither agree nor disagree</i>	5 <i>disagree more than agree</i>	6 <i>disagree</i>	7 <i>strongly disagree</i>
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26_{TE30} Even a teacher with good teaching abilities may not reach many children

1 <i>strongly agree</i>	2 <i>agree</i>	3 <i>agree more than disagree</i>	4 <i>neither agree nor disagree</i>	5 <i>disagree more than agree</i>	6 <i>disagree</i>	7 <i>strongly disagree</i>
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27_{RO1} When it comes right down to it, a teacher can't do much because most of a child's motivation and performance depends on his or her home environment

1 <i>strongly agree</i>	2 <i>agree</i>	3 <i>agree more than disagree</i>	4 <i>neither agree nor disagree</i>	5 <i>disagree more than agree</i>	6 <i>disagree</i>	7 <i>strongly disagree</i>
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28_{RO2} If I try really hard, I can get through to even the most difficult or unmotivated children

1 <i>strongly agree</i>	2 <i>agree</i>	3 <i>agree more than disagree</i>	4 <i>neither agree nor disagree</i>	5 <i>disagree more than agree</i>	6 <i>disagree</i>	7 <i>strongly disagree</i>
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Thank you for participating. Kia ora.

Colin J. Gibbs

APPENDIX B
INSTRUMENTATION

- B-1 Adapted Version of Teacher Efficacy Scale (Gibson and Dembo, 1984)
- B-2 Self-Efficacy as Teachers: Individual and group-based vignettes
Efficacy about Others as Teachers: Individual and group-based vignettes
- B-3 Orientations Toward Children: Individual and group-based vignettes
- B-4 Self-Esteem as Teachers Scale

APPENDIX B-1**Adapted Version of Gibson and Dembo's (1984)
TEACHER EFFICACY SCALE**

Factor 1: Personal Teaching Efficacy

If a child masters a new maths concept quickly, this might be because I knew the necessary steps in teaching that concept.

When the grades of my children improve it is usually because I found more effective teaching approaches.

When I really try, I can get through to the most difficult children.

If a child did not remember information I gave in a previous lesson, I would know how to increase his/her retention in the next lesson.

When a child does better than usual, many times it is because I exerted a little extra effort.

If a child in my class becomes disruptive and noisy, I feel assured that I know some techniques to redirect him quickly.

If one of my children could not do a class assignment, I would be able to accurately assess whether the assignment was at the correct level of difficulty.

When a child is having difficulty with an assignment, I am usually able to adjust it to his/her level.

When a child gets a better grade than he usually gets, it is usually because I found better ways of teaching that child.

Factor 2: Teaching Efficacy

A teacher is very limited in what s/he can achieve because a child's home environment is a large influence on his/her achievement.

If children are not disciplined at home, they aren't likely to accept any discipline.

The hours in my class have little influence on children compared to the influence of their home environment.

The amount that a child can learn is primarily related to family background.

The influences of a child's home experiences can be overcome by good teaching.

If parents would do more with their children, I could do more.

Even a teacher with good teaching abilities may not reach many children.

APPENDIX B-2

Individual-based and group-based Vignettes:

Vignettes about individuals	Vignettes about groups
<p>A child plays solitary most of the time, resists joining in activities with others, and prefers bystanding rather than participating. The teacher is concerned that the child develops social and interpersonal relationship skills.</p>	<p>A group of children plays solitary most of the time, resists joining in activities with others, and prefers bystanding rather than participating. The teacher is concerned that the group develops social and interpersonal relationship skills.</p>
<p>A child with a history of failure, for no apparent reason struggles to memorise and recall even simple facts, becomes easily confused with new concepts, and is unresponsive to activities which usually are successful with same age children.</p>	<p>A group of children with a history of failure, for no apparent reason struggles to memorise and recall even simple facts, becomes easily confused with new concepts, and is unresponsive to activities which usually are successful with same age children.</p>
<p>A child persistently agitates the teacher with refusals, rude remarks and unruly behaviour. When asked to do even simple housekeeping jobs, usually the child refuses, verbally abuses, and turns away.</p>	<p>A group of children persistently agitates the teacher with refusals, rude remarks and unruly behaviour. When asked to do even simple housekeeping jobs, usually the group refuses, verbally abuses, and turns away.</p>
<p>A child has temper outbursts, argues with others over possessions and turntaking, disrupts activity by dispersing materials, name calls, and blames others for conflicts. The teacher is concerned the child learns to get on with others.</p>	<p>A group of children has temper outbursts, argues with others over possessions and turntaking, disrupts activity by dispersing materials, name calls, and blames others for conflicts. The teacher is concerned the group learns to get on with others.</p>
<p>A child reacts in an overly sensitive way (gets angry or sulks) when work is corrected or criticised during instruction, and dislikes taking risks for fear of failure but relies heavily on the teacher providing correct answers.</p>	<p>A group of children reacts in an overly sensitive way (gets angry or sulks) when work is corrected or criticised during instruction, and dislikes taking risks for fear of failure but relies heavily on the teacher providing correct answers.</p>
<p>The teacher needs to constantly demand a child's on-task behaviour. The child struggles to remain settled in one place at a time and frequently roams the room rather than completing assigned tasks.</p>	<p>The teacher needs to constantly demand a group's on-task behaviour. The group struggles to remain settled in one place at a time and frequently roams the room rather than completing assigned tasks.</p>

APPENDIX B-3
Orientations Toward Children:
Individual-based and Group-based Vignettes

Appendix B-3 illustrates the four types of control versus autonomy orientations toward children which are presented as solutions to the vignettes.

VIGNETTE A: (individual-based)

A child plays solitary most of the time, resists joining in activities with others, and prefers bystanding rather than participating. The teacher is concerned that the child develops social and interpersonal relationship skills.

**HIGH
AUTONOMY**

The teacher should ask the child to think of ways to make it easier to become involved in activities with others, and encourage the child to take small steps towards outworking these.

**MODERATE
AUTONOMY**

The teacher should ask the child to talk about how other children find it fun playing together, and to encourage the child to participate like the others.

**MODERATE
CONTROL**

The teacher should explain to the child that being involved with others is good in that it helps develop friendships.

**HIGH
CONTROL**

The teacher should provide cooperative rather than individual tasks, assign work buddies, and praise when the child participates in activities with others.

VIGNETTE A: (group-based)

A group of children plays solitary most of the time, resists joining in activities with others, and prefers bystanding rather than participating. The teacher is concerned that the group develops social and interpersonal relationship skills.

**HIGH
AUTONOMY**

The teacher should ask the group to think of ways to make it easier to become involved in activities with others, and encourage them to take small steps towards outworking these.

**MODERATE
AUTONOMY**

The teacher should ask the group to talk about how other children find it fun playing together, and to encourage the group to participate like the others.

**MODERATE
CONTROL**

The teacher should explain to the group that being involved with others is good in that it helps develop friendships.

**HIGH
CONTROL**

The teacher should provide cooperative rather than individual tasks, assign work buddies, and praise when the group participates in activities with others.

VIGNETTE B: (individual-based)

A child with a history of failure, for no apparent reason struggles to memorise and recall even simple facts, becomes easily confused with new concepts, and is unresponsive to activities which usually are successful with same age children.

**HIGH
AUTONOMY**

The teacher should invite the child to think of various ways of overcoming the difficulties in learning successfully, and begin by taking small steps when ready.

**MODERATE
AUTONOMY**

The teacher should let the child consider children who have successfully overcome learning difficulties by being responsive, and encourage him/her to do the same.

**MODERATE
CONTROL**

The teacher should stress that to learn such material is for the child's own good, and that more effort will lead to more success.

**HIGH
CONTROL**

The teacher should structure learning into small steps, require instruction tasks to be completed, and give feedback on the number of correctly recalled facts.

VIGNETTE B: (group-based)

A group of children with a history of failure, for no apparent reason struggles to memorise and recall even simple facts, becomes easily confused with new concepts, and is unresponsive to activities which usually are successful with same age children.

**HIGH
AUTONOMY**

The teacher should invite the group to think of various ways of overcoming the difficulties in learning successfully, and begin by taking small steps when ready.

**MODERATE
AUTONOMY**

The teacher should let the group consider children who have successfully overcome learning difficulties by being responsive, and encourage them to do the same.

**MODERATE
CONTROL**

The teacher should stress that to learn such material is for the group's own good, and that more effort will lead to more success.

**HIGH
CONTROL**

The teacher should structure learning into small steps, require instruction tasks to be completed, and give feedback on the number of correctly recalled facts.

VIGNETTE C: (individual-based)

A child persistently agitates the teacher with refusals, rude remarks and unruly behaviour. When asked to do even simple housekeeping jobs, usually the child refuses, verbally abuses, and turns away.

**HIGH
AUTONOMY**

The teacher should invite the child to think about why s/he may be acting in such ways, and encourage the child to develop some realistic goals and strategies.

**MODERATE
AUTONOMY**

The teacher should help the child see how others view such behaviour, and to encourage the child to act in ways which others view more positively.

**MODERATE
CONTROL**

The teacher should impress on the child that such behaviour is unacceptable, disruptive and rude, and that the child will gain from acting more appropriately.

**HIGH
CONTROL**

The child should be withdrawn from class to be supervised by another teacher with authority, and should earn in-class time only through showing appropriate behaviour.

VIGNETTE C: (group-based)

A group of children persistently agitates the teacher with refusals, rude remarks and unruly behaviour. When asked to do even simple housekeeping jobs, usually the group refuses, verbally abuses, and turns away.

**HIGH
AUTONOMY**

The teacher should invite the group to think about why they may be acting in such ways, and encourage them to develop some realistic goals and strategies.

**MODERATE
AUTONOMY**

The teacher should help the group see how others view such behaviour, and to encourage them to act in ways which others view more positively.

**MODERATE
CONTROL**

The teacher should impress on the group that such behaviour is unacceptable, disruptive and rude, and that they will gain from acting more appropriately.

**HIGH
CONTROL**

The children should be withdrawn from class to be supervised by another teacher with authority, and should earn in-class time only through showing appropriate behaviour.

VIGNETTE D: (individual-based)

A child has temper outbursts, argues with others over possessions and turntaking, disrupts activity by dispersing materials, name calls, and blames others for conflicts. The teacher is concerned the child learns to get on with others.

HIGH AUTONOMY	The teacher should invite the child to reflect on what is happening and encourage him/her to think of different ways of dealing with problems.
MODERATE AUTONOMY	The teacher should help the child see what it means to other children to have play disrupted in these ways.
MODERATE CONTROL	The teacher needs to stress that the child should be ashamed of acting this way, and how important it is to restrain one's temper when working with others.
HIGH CONTROL	The teacher should make clear what is acceptable behaviour, introduce sanctions such as isolating the child from other's attention when s/he behaves inappropriately, and reward appropriate behaviour with positive attention.

VIGNETTE D: (group-based)

A group of children has temper outbursts, argues with others over possessions and turntaking, disrupts activity by dispersing materials, name calls, and blames others for conflicts. The teacher is concerned the group learns to get on with others.

HIGH AUTONOMY	The teacher should invite the group to reflect on what is happening and encourage them to think of different ways of dealing with problems.
MODERATE AUTONOMY	The teacher should help the children see what it means to other children to have play disrupted in these ways.
MODERATE CONTROL	The teacher needs to stress that the group should be ashamed of acting this way, and how important it is to restrain their temper when working with others.
HIGH CONTROL	The teacher should make clear what is acceptable behaviour, introduce sanctions such as isolating them from other's attention when they behave inappropriately, and reward appropriate behaviour with positive attention.

VIGNETTE E: (individual-based)

A child reacts in an overly sensitive way (gets angry or sulks) when work is corrected or criticised during instruction, and dislikes taking risks for fear of failure but relies heavily on the teacher providing correct answers.

**HIGH
AUTONOMY**

The teacher should invite the child to talk about these responses, to think up alternative ways of coping in such situations, and to try these out in practice.

**MODERATE
AUTONOMY**

The teacher should ask the child to talk about what is happening, to think about how others cope in similar situations, and to encourage similar behaviour from the child.

**MODERATE
CONTROL**

The teacher should explain to the child that sulking, getting angry, and relying on others for answers are not mature responses in these situations.

**HIGH
CONTROL**

The teacher should praise the child for any attempts at being innovative, taking initiative, or receiving correction appropriately, and ignore those behaviours which seek unwarranted attention from the teacher.

VIGNETTE E: (group-based)

A group of children reacts in an overly sensitive way (gets angry or sulks) when work is corrected or criticised during instruction, and dislikes taking risks for fear of failure but relies heavily on the teacher providing correct answers.

**HIGH
AUTONOMY**

The teacher should invite the group to talk about these responses, to think up alternative ways of coping in such situations, and to try these out in practice.

**MODERATE
AUTONOMY**

The teacher should ask the group to talk about what is happening, to think about how others cope in similar situations, and to encourage similar behaviour from the group.

**MODERATE
CONTROL**

The teacher should explain to the group that sulking, getting angry, and relying on others for answers are not mature responses in these situations.

**HIGH
CONTROL**

The teacher should praise the group for any attempts at being innovative, taking initiative, or receiving correction appropriately, and ignore those behaviours which seek unwarranted attention from the teacher.

VIGNETTE F: (individual-based)

The teacher needs to constantly demand a child's on-task behaviour. The child struggles to remain settled in one place at a time and frequently roams the room rather than completing assigned tasks.

HIGH AUTONOMY	The teacher should invite the child to talk about the work, and encourage him/her to suggest ways of increasing on-task behaviour and task completion.
MODERATE AUTONOMY	The teacher should ask the child to consider how others complete work through being on-task, and to encourage him/her to do the same.
MODERATE CONTROL	The teacher should explain to the child that it is important to learn to control one's behaviour and to work on-task as s/he becomes more 'grown-up'.
HIGH CONTROL	The teacher should separate the child's desk from others, require incomplete work or penalty tasks to be completed after school, and provide free play when work is completed on time.

VIGNETTE F: (group-based)

The teacher needs to constantly demand a group's on-task behaviour. The group struggles to remain settled in one place at a time and frequently roams the room rather than completing assigned tasks

HIGH AUTONOMY	The teacher should invite the group to talk about the work, and encourage them to suggest ways of increasing on-task behaviour and task completion.
MODERATE AUTONOMY	The teacher should ask the group to consider how others complete work through being on-task, and to encourage the group to do the same.
MODERATE CONTROL	The teacher should explain to the children that it is important to learn to control one's behaviour and to work on-task as they become more 'grown-up'.
HIGH CONTROL	The teacher should separate the children's desks from others, require incomplete work or penalty tasks to be completed after school, and provide free play when work is completed on time.

APPENDIX B-4
Self-Esteem as Teachers Scale
(adapted from Rosenberg Self-Esteem Scale, 1965, 1979)

Self-Esteem as Teachers Scale (SET)

I feel that I am a teacher of worth, at least on an equal basis with others.

I feel that I have a number of good qualities as a teacher.

- * All in all, I am inclined to feel that I am a failure as a teacher.

I am able to do things as well as most other teachers.

- * I feel I do not have much to be proud of as a teacher.

I take a positive attitude toward myself as a teacher.

On the whole, I am satisfied with myself as a teacher.

- * I wish I could have more respect for myself as a teacher.

- * I certainly feel useless at times as a teacher.

- * At times I think I am no good at all as a teacher.

- * *...reversed scored item*

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TEACHER EFFICACY VIGNETTES: Scoring, Validity and Internal Consistency

1. Scoring

- a. Participants rate task difficulty on a Likert scale (1= *extremely easy* through to 7= *extremely difficult*).
- b. Strength of efficacy is recorded on a scale between 10% (*not sure*) through to 100% (*really sure*)
- c. Innovativeness is recorded as a numerical estimate.
- d. Data for task difficulty are reversed scored so that high scores equate with high efficacy for task difficulty.
- e. All scores are then converted to z -scores to provide a common metric between measures.

2. Calculating Global Efficacy as Teacher

- Global efficacy
represents the mean z -score resulting from combining Self-Efficacy scores with Efficacy About Others scores across all twelve vignettes. Thus, three scores were calculated for each participant, namely
 - Global Efficacy (Task Difficulty)
 - Global Efficacy (Strength)
 - Global Efficacy (Innovativeness)
- Global efficacy on vignettes about individuals
represents the mean z -score resulting from combining Self-Efficacy scores with Efficacy About Others scores across the six vignettes about individual children. Thus, three scores were calculated for each participant, namely
 - Global efficacy on vignettes about individuals (Task Difficulty)
 - Global efficacy on vignettes about individuals (Strength)
 - Global efficacy on vignettes about individuals (Innovativeness)
- Global efficacy on vignettes about groups
represents the mean z -score resulting from combining Self-Efficacy scores with Efficacy About Others scores across the six vignettes about groups of children. Three scores were calculated for each participant, namely
 - Global efficacy on vignettes about groups (Task Difficulty)
 - Global efficacy on vignettes about groups (Strength)
 - Global efficacy on vignettes about groups (Innovativeness)

3. Calculating Self Efficacy as Teachers

- Generality of Self-Efficacy
represents the mean z -score of Self-Efficacy scores across all twelve vignettes. Thus, three scores were calculated for each participant, namely
 - Self-efficacy (Task Difficulty)
 - Self-efficacy (Strength)
 - Self-efficacy (Innovativeness)

- Generality of Self-Efficacy about individuals
represents the mean z -score of Self-Efficacy scores across the six vignettes involving individual children.
Thus, three scores were calculated for each participant, namely
 - Self-efficacy on vignettes about individuals (Task Difficulty)
 - Self-efficacy on vignettes about individuals (Strength)
 - Self-efficacy on vignettes about individuals (Innovativeness)
- Generality of Self-Efficacy about groups
represents the mean z -score of Self-Efficacy scores across the six vignettes involving groups of children.
Thus, three scores were calculated for each participant, namely
 - Self-efficacy on vignettes about groups (Task Difficulty)
 - Self-efficacy on vignettes about groups (Strength)
 - Self-efficacy on vignettes about groups (Innovativeness)

4. Calculating Efficacy About Others as Teachers

- Generality of Efficacy About Others
represents the mean z -score of Efficacy About Others scores across all twelve vignettes.
Thus, three scores were calculated for each participant, namely
 - Efficacy About Others (Task Difficulty)
 - Efficacy About Others (Strength)
 - Efficacy About Others (Innovativeness)
- Generality of Efficacy About Others on vignettes about individuals
represents the mean z -score of all Efficacy About Others scores across the six vignettes involving individual children.
Thus, three scores were calculated for each participant, namely
 - Efficacy About Others on vignettes about individuals (Task Difficulty)
 - Efficacy About Others on vignettes about individuals (Strength)
 - Efficacy About Others on vignettes about individuals (Innovativeness)
- Generality of Efficacy About Others on vignettes about groups of children
represents the mean z -score of all Efficacy About Others scores across the six vignettes involving groups of children.
Thus, three scores were calculated for each participant, namely
 - Efficacy About Others on vignettes about groups (Task Difficulty)
 - Efficacy About Others on vignettes about groups (Strength)
 - Efficacy About Others on vignettes about groups (Innovativeness)

Face validity and content validity

These vignettes are based on the most frequently perceived problems of beginning teachers (Veenman, 1984), the majority of which Weinstein (1988) found fell into three categories, namely, instruction, management and organisation, and interpersonal relations. An original pool of over 70 vignettes were produced with parallel versions about individual children and groups of children. After consultation with student teachers, teachers, and several teacher educators the number of vignettes was reduced to twelve. These included six pairs of individual and group scenarios across the three categories of instruction, management and organisation, and interpersonal relations.

The twelve vignettes were piloted with student teachers and associate teachers not involved in the present study. In all, 47 final year student teachers (female=39; male=8) voluntarily participated. All except two were European. Ages ranged between 20 and 39 years ($M=20-24$ years). In addition, 34 teachers drawn from three urban schools-- an 8 and a 13 teacher primary school, and a 27 teacher intermediate school-- voluntarily completed the vignette tasks. Most were female ($n=22$) and with two exceptions, European. Ages ranged between 20 and over 45 years ($M=40-44$ years). Participants included Principals (2), Assistant Principals and Senior Teachers (12), and teachers (20). All were professionally qualified and twelve had completed further qualifications. Teaching experience ranged between 3 and 37 years ($M=15$ years). Class levels included new entrants through to form two, and class size ranged from special needs groups of six children through to one class of 38 children ($M=33$). Most ($n=22$) had supervised at least one student teacher on teaching practice.

Participants completed the six pairs of randomised vignette tasks. Subsequent group interviews provided insights about these vignettes particularly in terms of their utility, apparent authenticity, and wording. As a result, some modifications in wording were made on some vignettes in order to avoid equivocation and to increase clarity.

Construct validity

The review of literature indicated that efficacy instruments should include the key dimensions of efficacy as indicated by Bandura (1986) of task difficulty, strength of efficacy, and generality of efficacy, as well as Guskey's (1987) scope of influence dimension, and Berman et al's (1977) suggestion of innovativeness. The cluster of vignettes produced for this study therefore incorporated all these dimensions.

Construct validity was further established using factor analysis. The three-factor structure was confirmed using principal-components analyses with varimax rotation on post teaching practice data. These factors were moderately correlated suggesting that they represent related but relatively independent constructs for student teachers (factors 1 and 2, $r=.33$; factors 1 and 3, $r=-.35$; factors 2 and 3, $r=-.29$), and for associate teachers (factors 1 and 2, $r=.13$; factors 1 and 3, $r=-.33$; factors 2 and 3, $r=-.03$). Using a relatively rigorous level of significance for factor loadings ($\geq .45$), these factor analyses confirmed the three factors of Task Difficulty, Strength of Efficacy, and Innovativeness on the vignettes about individual and groups of children. Furthermore, these factors held true for both vignettes about individuals and about groups; and for efficacy about self as well as efficacy about others as teachers (see Table C-1).

Internal Consistency

Internal consistency was determined by correlating each subscale item on each vignette with the mean for the subscale using the pre teaching practice data for student teachers and associate teachers (see Table C-2). For example, each of the Task Difficulty items were correlated with the mean for all Task Difficulty items. These analyses included both efficacy (Efficacy about others as Teachers, Efficacy of Self as Teacher) (see Table C-3), as well as scope of influence (vignettes about individuals, vignettes about groups) (see Table C-4). These data indicate that for both student teachers and associate teachers there is high internal consistency on all the dimensions of efficacy for vignettes about individuals and for vignettes about groups of children.

Table C-1

Factor loadings for the twelve Efficacy Vignettes (V) about individual children (ind) and groups of children (gp) for student teachers and associate teachers

	Student Teachers			Associate Teachers		
	1	2	3	1	2	3
V1(ind): Efficacy Others			.79			.56
V1(ind): Efficacy Others		.73			.48	
V1(ind): Efficacy Others	.83			.86		
V1(ind): Efficacy Self			.81			.69
V1(ind): Efficacy Self		.56				
V1(ind): Efficacy Self	.83			.86		
V1(gp): Efficacy Others			.80			.66
V1(gp): Efficacy Others		.74			.62	
V1(gp): Efficacy Others	.86			.89		
V1(gp): Efficacy Self			.74			.69
V1(gp): Efficacy Self		.66				
V1(gp): Efficacy Self	.85			.88		
V2(ind): Efficacy Others			.46			.56
V2(ind): Efficacy Others		.77			.78	
V2(ind): Efficacy Others	.79			.84		
V2(ind): Efficacy Self			.55			.66
V2(ind): Efficacy Self		.67			.68	
V2(ind): Efficacy Self	.86			.86		
V2(gp): Efficacy Others			.63			.58
V2(gp): Efficacy Others		.71			.77	
V2(gp): Efficacy Others	.85			.86		
V2(gp): Efficacy Self			.68			.65
V2(gp): Efficacy Self		.58			.65	
V2(gp): Efficacy Self	.80			.86		
V3(ind): Efficacy Others			.82			.50
V3(ind): Efficacy Others		.76			.84	
V3(ind): Efficacy Others	.75			.78		
V3(ind): Efficacy Self			.72			.69
V3(ind): Efficacy Self		.81			.67	
V3(ind): Efficacy Self	.71			.82		
V3(gp): Efficacy Others			.87			.53
V3(gp): Efficacy Others		.52			.80	
V3(gp): Efficacy Others	.73			.82		
V3(gp): Efficacy Self			.78			.64
V3(gp): Efficacy Self		.72			.69	
V3(gp): Efficacy Self	.80			.83		
V4(ind): Efficacy Others			.75			.81
V4(ind): Efficacy Others		.77			.72	
V4(ind): Efficacy Others	.88			.85		
V4(ind): Efficacy Self			.82			.85
V4(ind): Efficacy Self		.65			.69	
V4(ind): Efficacy Self	.88			.86		
V4(gp): Efficacy Others			.72			.74
V4(gp): Efficacy Others		.52			.78	
V4(gp): Efficacy Others	.80			.89		
V4(gp): Efficacy Self			.76			.78
V4(gp): Efficacy Self		.54			.60	
V4(gp): Efficacy Self	.77			.91		

V5(ind): Efficacy Others	<i>Task Difficulty</i>			.60		.75
V5(ind): Efficacy Others	<i>Strength</i>		.84			.73
V5(ind): Efficacy Others	<i>Innovativeness</i>	.88			.87	
V5(ind): Efficacy Self	<i>Task Difficulty</i>			.73		.82
V5(ind): Efficacy Self	<i>Strength</i>		.85			.53
V5(ind): Efficacy Self	<i>Innovativeness</i>	.82			.87	
V5(gp): Efficacy Others	<i>Task Difficulty</i>			.63		.58
V5(gp): Efficacy Others	<i>Strength</i>		.84			.76
V5(gp): Efficacy Others	<i>Innovativeness</i>	.86			.88	
V5(gp): Efficacy Self	<i>Task Difficulty</i>			.49		.77
V5(gp): Efficacy Self	<i>Strength</i>		.76			.60
V5(gp): Efficacy Self	<i>Innovativeness</i>	.81			.86	
V6(ind): Efficacy Others	<i>Task Difficulty</i>			.68		.69
V6(ind): Efficacy Others	<i>Strength</i>		.77			.83
V6(ind): Efficacy Others	<i>Innovativeness</i>	.86			.67	
V6(ind): Efficacy Self	<i>Task Difficulty</i>			.64		.69
V6(ind): Efficacy Self	<i>Strength</i>		.63			.53
V6(ind): Efficacy Self	<i>Innovativeness</i>	.75			.84	
V6(gp): Efficacy Others	<i>Task Difficulty</i>			.61		.59
V6(gp): Efficacy Others	<i>Strength</i>		.72			.86
V6(gp): Efficacy Others	<i>Innovativeness</i>	.83			.67	
V6(gp): Efficacy Self	<i>Task Difficulty</i>			.61		.64
V6(gp): Efficacy Self	<i>Strength</i>		.55			.68
V6(gp): Efficacy Self	<i>Innovativeness</i>	.61			.82	

Table C-2

Correlations for vignette subscale items with same subscale means across all vignettes on post teaching practice responses for student teachers and associate teachers

		Student Teachers			Associate Teachers		
		Task Difficulty	Efficacy Strength	Innovat-iveness	Task Difficulty	Efficacy Strength	Innovat-iveness
V1:(ind)	Efficacy Others	.55	.74	.85	.48	.62	.86
V1:(gp)	Efficacy Others	.62	.78	.83	.50	.76	.90
V1:(ind)	Efficacy Self	.55	.72	.81	.62	.40	.82
V1:(gp)	Efficacy Self	.64	.76	.84	.53	.59	.63
V2:(ind)	Efficacy Others	.74	.87	.88	.76	.75	.95
V2:(gp)	Efficacy Others	.68	.76	.82	.73	.83	.93
V2:(ind)	Efficacy Self	.79	.88	.92	.81	.78	.95
V2:(gp)	Efficacy Self	.77	.88	.76	.82	.86	.92
V3:(ind)	Efficacy Others	.75	.84	.79	.69	.79	.84
V3:(gp)	Efficacy Others	.80	.85	.69	.69	.77	.82
V3:(ind)	Efficacy Self	.70	.85	.86	.61	.48	.68
V3:(gp)	Efficacy Self	.68	.81	.66	.72	.82	.77
V4:(ind)	Efficacy Others	.71	.79	.81	.85	.77	.94
V4:(gp)	Efficacy Others	.83	.83	.62	.71	.84	.95
V4:(ind)	Efficacy Self	.76	.84	.85	.86	.51	.96
V4:(gp)	Efficacy Self	.77	.87	.54	.73	.53	.92
V5:(ind)	Efficacy Others	.59	.78	.68	.58	.72	.72
V5:(gp)	Efficacy Others	.67	.76	.74	.83	.82	.71
V5:(ind)	Efficacy Self	.61	.66	.63	.54	.45	.84
V5:(gp)	Efficacy Self	.71	.83	.64	.81	.77	.91
V6:(ind)	Efficacy Others	.75	.79	.87	.76	.82	.89
V6:(gp)	Efficacy Others	.58	.82	.75	.75	.87	.90
V6:(ind)	Efficacy Self	.76	.86	.84	.82	.63	.94
V6:(gp)	Efficacy Self	.64	.82	.58	.78	.70	.95

Table C-3

Minimum and maximum correlations for each set of subscale items with each of the subscales (task difficulty, strength of efficacy, innovativeness) according to efficacy (efficacy about others as teachers, and efficacy of self as a teacher) for student teachers and associate teachers

		Student Teachers		Associate Teachers	
		minimum correlation	maximum correlation	minimum correlation	maximum correlation
<i>Task difficulty</i>	Efficacy Others	.55	.83	.48	.85
<i>Task difficulty</i>	Efficacy Self	.55	.79	.53	.86
<i>Strength</i>	Efficacy Others	.74	.87	.62	.87
<i>Strength</i>	Efficacy Self	.66	.88	.40	.86
<i>Innovativeness</i>	Efficacy Others	.62	.88	.71	.95
<i>Innovativeness</i>	Efficacy Self	.54	.92	.63	.96

Table C-4

Minimum and maximum correlations for each set of subscale items with each of the subscales (task difficulty, strength of efficacy, innovativeness) according to vignettes about individuals and vignettes about groups of children for student teachers and associate teachers

		Student Teachers		Associate Teachers	
		minimum correlation	maximum correlation	minimum correlation	maximum correlation
<i>Task difficulty</i>	Individual	.55	.79	.48	.86
<i>Task difficulty</i>	Group	.58	.83	.50	.83
<i>Strength</i>	Individual	.66	.88	.40	.82
<i>Strength</i>	Group	.76	.88	.51	.87
<i>Innovativeness</i>	Individual	.63	.92	.68	.96
<i>Innovativeness</i>	Group	.54	.84	.63	.95

ORIENTATIONS TOWARD CHILDREN

Scoring, Validity and Internal Consistency

The Orientations Toward Children vignettes are based on the instrument developed by Deci et al. (1981) used to assess adults' orientations toward control versus autonomy with children. In the original study, Deci and his colleagues checked responses from 68 teachers and found that there was a good range of responses produced and that these were internally consistent and temporally stable. They also found that the measure was externally valid in that teachers from grades 4 through to six who were more autonomy-oriented on the measure were rated as such by their pupils. In addition, the children of the autonomy-oriented teachers were more intrinsically motivated and had higher self-esteem than children of the teachers who were more control-oriented.

Responses were recorded as judgements about the appropriateness of each of four solutions on each vignette. Mean scores across the vignettes (all vignettes; vignettes about individuals; vignettes about groups) were calculated for each participant on each of the orientations. Thus, each participant produced a mean appropriateness score for each of the four orientations (high autonomy, moderate autonomy, moderate control, high control) across the vignettes (all vignettes; vignettes about individuals; vignettes about groups).

Validity

The vignettes are the same as those used in the teacher efficacy measures and are based on the most frequently perceived problems of beginning teachers (Veenman, 1984), the majority of which Weinstein (1988) found fell into three categories, namely, instruction, management and organisation, and interpersonal relations. An original pool of over 70 vignettes were produced with parallel versions about individual children and groups of children. After consultation with student teachers, teachers, and several teacher educators the number of vignettes was reduced to twelve. These included six pairs of individual and group scenarios across the three categories of instruction, management and organisation, and interpersonal relations.

The twelve vignettes were piloted with student teachers and associate teachers not involved in the present study. In all, 47 final year student teachers (female=39; male=8) voluntarily participated. All except two were European. Ages ranged between 20 and 39 years ($M=20-24$ years). In addition, 34 teachers drawn from three urban schools-- an 8 and a 13 teacher primary school, and a 27 teacher intermediate school-- voluntarily completed the vignette tasks. Most were female ($n=22$) and with two exceptions, European. Ages ranged between 20 and over 45 years ($M=40-44$ years). Participants included Principals (2), Assistant Principals and Senior Teachers (12), and teachers (20). All were professionally qualified and twelve had completed further qualifications. Teaching experience ranged between 3 and 37 years ($M=15$ years). Class levels included new entrants through to form two, and class size ranged from special needs groups of six children through to one class of 38 children (mean=33). Most ($n=22$) had supervised at least one student teacher on teaching practice.

Participants completed the six pairs of randomised vignette tasks which sought ratings on the appropriateness of four different solutions. These solutions, as outlined in Deci et al's (1981) instrument, are referred to as high autonomy, moderate autonomy, moderate control, and high control orientations toward children. Subsequent group interviews provided insights about these vignettes and their solutions particularly in terms of their utility, apparent authenticity, and wording. As a result, some

modifications in wording were made on some vignettes and their solutions in order to avoid equivocation and to increase clarity.

The construct of orientations toward children was specified in the Deci et al. (1981) validation study. The present orientation solutions closely follow these specifications.

Internal consistency

Internal consistency for the orientation solutions was determined by correlating each subscale item on each vignette with the mean for the subscale (see Table D-1). To illustrate, each of the high autonomy items were correlated with the mean for all high autonomy items. High correlations would be expected between means for items and their parent subscale means.

As is indicated in Table D-1, these data indicate that for both student teachers and associate teachers there is high internal consistency on all four orientation solutions for vignettes about individuals and for vignettes about groups of children.

Table D-1

Correlation of the mean of each of the four orientation solutions on each vignette with its subscale mean for the sample of student teachers and associate teachers

Key:	HA	=	High Autonomy Orientation
	MA	=	Moderate Autonomy Orientation
	MC	=	Moderate Control Orientation
	HC	=	High Control Orientation

			mean HC	mean MC	mean MA	mean HA
vignette 1	individual	HC	0.40	0.23	0.26	0.15
vignette 1	group	HC	0.46	0.24	0.25	0.17
vignette 2	individual	HC	0.41	0.06	0.12	0.28
vignette 2	group	HC	0.42	-0.07	0.14	0.36
vignette 3	individual	HC	0.58	0.23	0.08	-0.14
vignette 3	group	HC	0.60	0.18	-0.05	-0.13
vignette 4	individual	HC	0.68	0.46	0.29	0.02
vignette 4	group	HC	0.61	0.29	0.16	-0.09
vignette 5	individual	HC	0.22	-0.06	0.09	0.43
vignette 5	group	HC	0.21	-0.01	0.24	0.52
vignette 6	individual	HC	0.67	0.26	0.38	0.33
vignette 6	group	HC	0.62	0.35	0.41	0.20
vignette 1	individual	MC	0.20	0.74	0.43	-0.01
vignette 1	group	MC	0.33	0.78	0.54	0.11
vignette 2	individual	MC	0.32	0.74	0.53	0.03
vignette 2	group	MC	0.27	0.76	0.57	-0.02
vignette 3	individual	MC	0.36	0.78	0.57	0.07
vignette 3	group	MC	0.32	0.78	0.60	0.08
vignette 4	individual	MC	0.31	0.59	0.49	0.30
vignette 4	group	MC	0.24	0.65	0.53	0.26
vignette 5	individual	MC	0.27	0.71	0.59	0.33
vignette 5	group	MC	0.27	0.64	0.57	0.19
vignette 6	individual	MC	0.38	0.83	0.60	0.03
vignette 6	group	MC	0.36	0.80	0.61	0.08
vignette 1	individual	MA	0.23	0.60	0.75	0.05
vignette 1	group	MA	0.34	0.65	0.79	0.08
vignette 2	individual	MA	0.21	0.49	0.67	0.32
vignette 2	group	MA	0.30	0.36	0.56	0.29
vignette 3	individual	MA	0.33	0.61	0.80	0.19
vignette 3	group	MA	0.22	0.56	0.77	0.32
vignette 4	individual	MA	0.14	0.53	0.66	0.28
vignette 4	group	MA	0.24	0.47	0.65	0.36
vignette 5	individual	MA	0.25	0.59	0.62	0.21
vignette 5	group	MA	0.22	0.47	0.71	0.24
vignette 6	individual	MA	0.39	0.38	0.57	0.40
vignette 6	group	MA	0.29	0.47	0.71	0.48
vignette 1	individual	HA	0.35	0.27	0.39	0.76
vignette 1	group	HA	0.21	-0.01	0.12	0.62
vignette 2	individual	HA	0.12	0.00	0.16	0.76
vignette 2	group	HA	0.07	-0.03	0.19	0.75
vignette 3	individual	HA	0.06	0.09	0.07	0.49
vignette 3	group	HA	0.07	0.09	0.29	0.70
vignette 4	individual	HA	0.29	0.17	0.39	0.81
vignette 4	group	HA	0.12	0.25	0.31	0.75
vignette 5	individual	HA	0.29	0.23	0.42	0.72
vignette 5	group	HA	0.21	0.08	0.30	0.54
vignette 6	individual	HA	0.10	0.01	0.24	0.66
vignette 6	group	HA	0.22	0.20	0.28	0.82