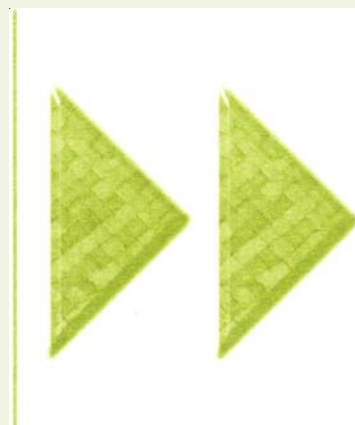# Research on
Initial Teacher Education
in New Zealand:
1993-2004

Literature Review and Annotated Bibliography

by Marie Cameron and Robyn Baker

New Zealand Teachers Council
Te Pouherenga Kaiako o Aotearoa

MINISTRY OF EDUCATION
Te Tāhuhu o te Mātauranga

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Research reports are also available on the Ministry's website: www.minedu.govt.nz *under the Research heading.*

The opinions expressed in this report are those of the authors and do not necessarily reflect those of the Ministry of Education.

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1. Introduction

> The essential feature of teaching is its uncertainty and unpredictability. Teaching cannot be directed by formal theory, lockstep national syllabi or centralised procedural policies yet remain responsive to both student insights and misconceptions. Moreover, as our educational goals increasingly emphasise higher order thinking and reasoning and student collaboration around real problems, the education of teachers must emphasise their development of flexibly powerful pedagogical understanding and judgement. Therefore discourse on teaching must go beyond broad principles and propositions as objects. This set of conditions not only defines the difficult conditions for teaching; it also identifies the reasons why the education of teachers represents a challenge of the first magnitude (Shulman, 2004, p. 444).

In the last five years international research has identified the significant impact of teachers on the learning of children and young people (Hattie, 2002) and as a consequence teacher education is gaining new attention (Goodlad, 1999). While it is reasonable to assume that the quality of initial teacher education has implications for the quality of teaching and learning in New Zealand, there is considerable debate internationally about the importance of initial teacher education. While some writers maintain that teacher education has limited impact on classroom practice (Lampert & Ball, 1999), other writers (Kennedy, 1999) attribute an apparent lack of impact to aspects of ineffective teacher education such as the type and design of pre-service programmes.

There is growing acknowledgement however that initial teacher education programmes make a difference to the teaching skills of teachers. In a large-scale project, Darling-Hammond (2000) reports that measures of teacher preparation and certification are by far the strongest correlates of students' achievement in reading and mathematics. Teacher education provides the professional knowledge base to facilitate the development of an understanding of how students learn, and what and how they need to be taught (Berliner, 2001). There is further evidence that teachers who have a solid foundation both in pedagogy and subject matter are more effective teachers and have a positive influence on their students' achievement (Rice, 2003).

While there has been no shortage of assertions about teacher education,[1] within New Zealand, there has never been a systematic overview of the New Zealand research in this area. Approaches to research on initial teacher education in New Zealand have been characterised as "a lot of small

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[1] *See*, for example, Kerr, R. (1992). Stand and Deliver. *Metro*, March, 111–115, and Education Forum (1993). *Teaching Teachers to Teach*. Wellington: Education Forum; and recently Morris, J. (2004)., supporting direct instruction of boys rather than the "child-centred voyages of discovery so much loved and espoused by the doctrinaire teachers' colleges". *NZ Herald*, 13 July 2004.

scale 'one shot' studies by individuals, some team research and development type work through contracts" (McGee, 1999). Has there been a more focused approach to research in this area since then? The New Zealand Teachers Council and the Ministry of Education have identified the need for a review of the existing research evidence to inform policy and practice and provide a platform for further initiatives, and have commissioned this literature review and annotated bibliography.

2. Research aims and questions

The primary purpose of this project is to analyse New Zealand research about initial teacher education, and present findings in the form of an annotated bibliography and a literature review of initial teacher education in New Zealand from 1993 to the present. It is intended that the findings will inform future policy and practice and identify key areas for further research.

We hold a perspective that defines initial teacher education as different from teacher training although both terms are used in the research and reports that we have reviewed.[2] Initial teacher education includes both pre-service (initial) teacher education and the two years of provisional registration that follow graduation. The Ministry of Education has asked that the annotated bibliography and literature review include:

- New Zealand research undertaken on early childhood, primary, and secondary initial teacher education programmes and induction that lead to eligibility for provisional teacher registration by the New Zealand Teachers Council;
- studies that provide descriptive and evaluative information of different approaches to initial teacher education in terms of their impact on teaching quality;
- studies that tell us about the characteristics of those who become teachers (the student teachers) and those who teach them (the teacher educators);
- literature that examines the socio-political contexts of teacher education in New Zealand; and
- research on beginning teachers in their first two years of teaching (the induction period).

We have been asked to examine how the research contributes to the following areas:

- the themes, trends, and implications of the research and how they relate to government priorities;
- curriculum, assessment, and practica, including links between initial teacher education programmes and classroom practice of beginning teachers;
- how programmes might equip student teachers to teach diverse students more effectively;
- the roles and relationships of teacher educators including associate teachers;
- attributes of student teachers including any research that might examine the quality of intakes over time; and

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[2] Teacher *training* is defined as the learning of a set of skills and management techniques for teaching. Training implies that the skills can be readily acquired and applied.

Teacher *education*, while it may contain some aspects of training, is educative in that teachers are developed as professionals who are equipped to make sound decisions about their practice in the best interests of all students.

- the preparedness of graduates to manage their beginning teacher roles and the role of the school as well as the teacher education provider in making this transition.

3. Methodology

A variety of approaches were taken to search for and select research in New Zealand. We searched for research held on library databases, and that more informally located within tertiary education institutions that offer programmes of initial teacher education. Databases searched included:

- NZCER Library database–Catalog

- Articles in NZ journals–Index New Zealand

- Te Puna–books held by NZ libraries

- Education Resources Index Clearinghouse (ERIC)– a U.S.A. education database

- Australian Education Index (AEI)

- Australian Council for Education Research database of Australian theses (Education Research Theses)

NZCER limited its search to New Zealand research post-1993. The following search phrases and search strategies were used to interrogate the databases:

Teacher education, teacher education programmes, pre service teacher education; student teachers, teacher trainees, college of education students, prospective or potential teachers; beginning teachers, first year teacher effectiveness, teacher induction, first year teachers, professional development, career development; teaching experience, practicum, associate teacher, on section; graduation (exit and entry) standards; programme effectiveness, programme evaluation; review, green paper.

Library staff at NZCER provided us with abstracts of conference reports and theses and followed up our requests for interloans. We reviewed records of research papers presented at local and international conferences, such as Teacher Education Forum of Aotearoa New Zealand (TEFANZ), New Zealand Association for Research in Education (NZARE), Australian Association for Research in Education (AARE), American Educational Research Association (AERA), British Education Research Association (BERA), and Practical Experiences in Professional Education (PEPE). Ministry of Education annual reports were searched to locate reports of relevant commissioned research. The review omits a few articles published in overseas journals that we could not source from New Zealand or retrieve in the time available.

We wrote to the Chief Executives and Heads of School from the largest seven institutions that provide initial teacher education, explained the purpose of the literature review, and asked them to

assist us by forwarding the letter to the person with designated responsibility for the overview of institutional research and to other staff. We used the database from the New Zealand Teachers Council to identify all initial teacher education programme leaders. We wrote to them all (Appendix Two) and asked if they could locate and send us copies of research conducted by their own staff. We also asked them for help in locating unpublished theses, including those nearing completion, and action research papers. In all we sent out 68 letters to people, institutions, or educational associations that we judged as being likely to have knowledge of the focus of the literature review.

Table 1   **Institutions contacted for research on initial teacher education**

Institution
Auckland College of Education
University of Waikato
Wellington College of Education
Massey University College of Education
Christchurch College of Education
Dunedin College of Education
Victoria University
University of Auckland
Anamata Private Training Establishment
Auckland University of Technology
Bethlehem Institute of Education
Eastern Institute of Technology
Manukau Institute of Technology
Masters Institute
New Zealand College of Early Childhood Education
New Zealand Graduate School of Education
New Zealand Tertiary College
Rangi Ruri College of Early Childhood Education
New Zealand Childcare Association
Te Wänanga o Aotearoa
Te Wänanga o Raukawa
Te Wänanga Takiura o Nga Kura Kaupapa Mäori o Aotearoa
Te Whare Wänanga o Awanuiarangi
The Open Polytechnic of New Zealand
UNITEC Institute of Technology
Waiariki Institute of Technology
Whitireia Polytechnic
Educational Assessment Research Unit
New Zealand Educational Institute
Post Primary Teachers Association

One-third of the institutions responded to our requests, and several individuals from some institutions sent us copies of their research or details of where to locate it. Most, but not all respondents sent us references for research papers and abstracts of conference papers (rather than copies of the papers as requested) and thesis titles. We requested theses from the relevant libraries (although not all libraries were prepared to lend us copies of theses), and followed up information on conference presentations by personally contacting the authors and asking if papers were available from these presentations. We frequently found that presenters had not produced papers from their conference presentation. Until recently key national conference proceedings have not been published which further complicated the search process. Further material came to light serendipitously, during conversations with personal acquaintants. In this way we gained access to some recent theses and recently completed and proposed research.

Selection of research

The next stage of the process was to select New Zealand research (since 1993) relating to initial teacher education programmes that led to graduates being qualified for provisional registration by the New Zealand Teachers Council in the early childhood, primary, and secondary sectors.

Our selection has been restricted to work that might be categorised as research as defined by the Tertiary Education Commission (TEC). That is, "original investigation undertaken in order to gain knowledge and understanding and that 'includes contribution to the intellectual infrastructure of subjects and disciplines' (TEC, 2000, p.16). Consequently, with the exception of some reports that have been included to contribute to the discussion of the socio-political context of the past decade, this review has not drawn upon the numerous reports commissioned by the government on aspects of initial teacher education nor commentaries and submissions by the community of interest.

Our research brief was to locate research that:

- examined the socio-political contexts of teacher education in New Zealand, including analysis and the impact of the numerous reviews of teacher education since 1993;
- provided descriptive and evaluative information of different approaches to programme design and curriculum in initial teacher education programmes in New Zealand;
- reported on the characteristics and experiences of student teachers;
- investigated teacher educators, including mentor and associate teachers in schools and early childhood centres; and
- described the experiences of beginning teachers in their first two years of teaching and their perceptions of the quality of their programmes of initial teacher education.

All of the papers received by 24 May 2004 that met the above criteria were read, analysed, and summarised by the authors using a standard format (Appendix Three). In instances where the focus of the research was wider than the scope of the literature review we focused each summary

on information relevant to the review. In summarising each study we paid attention to the features we would expect to find in a good research report such as clarity of purpose, quality of design, methodology, presentation, data analysis, interpretation, implications, and coherence.

The two researchers and "critical friend"[3] met and independently read the summaries on 25 May to provide a shared understanding of the scope and quality of the material. We checked five of the summaries against the submitted articles to ensure that the summaries were accurate. We then examined the research summaries for the characteristics we deemed necessary to justify inclusion in the annotated bibliography. The decision was taken that the research was required to:

1. directly address significant initial teacher education issues in New Zealand;
2. be based on qualitative and/or quantitative primary empirical data from student teachers, teacher educators, principals, associate teachers, and beginning teachers, rather than those that reported secondary material based on opinion or relied on other studies for support;
3. meet adequate quality standards. We did not exclude research that had some weaknesses such as a failure to report response rate to questionnaires. Had we eliminated those that failed to report questionnaire response rate a number of otherwise interesting studies (some of them published) would not have been included. In a few cases we included research that did not meet our standards but which was in a priority area where stronger research was not available; and
4. be dated from 1993 to the present.

We did not require research to be published or peer reviewed as this would have seriously curtailed the number of research projects we could include. All published research that met criteria 1 and 2 was included without judgement as to quality to provide information about the material in the field of initial teacher education that has been accepted for publication.[4] In addition, key non-empirical position papers and conceptual writing were selected for the review.

The process raised questions about what counts as research in teacher education. From the outset of this project, it became apparent that many of the papers submitted or nominated as research reports did not meet the Tertiary Education Commission's definition of research. Since the purpose of this project was to provide an account of research activity within New Zealand over a ten-year period, a decision was made to record all relevant research in the reference list of the report, but to include only projects that met our selection criteria within the annotated bibliography. Although this meant that the references include multiple entries based on the same data, such as a thesis and associated papers, we have only made one entry in the annotations.

Following feedback on the first draft of this report, additional material was reviewed up until the final cut-off date of 23 July. This has been incorporated into the review and annotated bibliography. Empirical research on initial teacher education from the July 2004 Teacher

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[3] The role of "critical friend" was performed by Professor Ruth Kane, from Massey University.

[4] A number of published papers were retrieved after 23 July. These are included in the references but not the annotations.

Education Forum of Aotearoa New Zealand (TEFANZ) conference that was quality assured after being refereed was also included.

Quality assurance

All reports were carefully reviewed, and in three cases writers of the original studies were asked to review our annotations. A longer time-frame for the exercise would have enabled more comprehensive checking of annotations by the original authors. Ruth Kane provided quality assurance to this review. She participated in a half-day analysis of the research summaries and helped develop criteria for inclusion in the annotated bibliography. She also read the first and second drafts of the review and as a result of her feedback and suggestions changes were made to the final report.

The draft report was also reviewed by two reference groups set up by the Ministry of Education and the New Zealand Teachers Council and their suggestions have been taken into account in this report.

Information about research selected for annotated bibliography

We have included 127 research studies in the annotated bibliography. Sixteen of the studies were Masters theses, and four were PhD dissertations. The majority of the studies were presented as conference papers. The published papers (62) were published in journals, professional publications (typically, *set: Research Information for Teachers* or the *Waikato Journal of Education*), conference proceedings, or as institutional, New Zealand Council for Educational Research (NZCER), or Ministry of Education reports. Eleven of the published papers were in peer-reviewed international journals. Of these, four were published in teacher education journals such as the *Asia-Pacific Journal of Teacher Education*.

The empirical studies reviewed all employed a descriptive paradigm, i.e. they had the goal of describing what, how, or why something happened. They included qualitative and/or quantitative data. Researchers typically employed a combination of methods to collect their data; almost 40 percent used more than one data source (*see* details of data methods in Appendix One).

Other sources of data were: document analysis; journals or narratives; lecturer observation; focus or discussion groups; videos; teaching reports; efficacy scales; researcher participation; drawings; and sorting statements. Only five studies included direct observation of classroom teaching by student teachers or beginning teachers.

Some of the material we read and did not include in the review was based only on self-reports elicited from student teachers at the end of particular courses, which could be described as course

evaluations rather than research. While these documents could be very helpful to organisations in providing feedback on particular aspects of teaching and course design, they are unlikely to advance knowledge in a significant way outside of the contexts in which the information was gathered. In addition, it was not stated whether ethics approval had been obtained from student teachers, and during the review process it became apparent that a number of recent studies had not gained ethical approval prior to data collection.

In the preparation of this review we became aware of a sizeable number of papers by teacher educators in a range of important areas that were not the focus of this review. These papers addressed wider educational issues such as curriculum and assessment in schools, Mäori language revival, biculturalism, and subject-specific research in teaching (e.g. the arts, social studies, science). Research of this kind was not included because it did not specifically address initial teacher education, although it clearly has the potential to inform teacher education.

Given the short time-frame available for the review, we cannot be confident that we have located all of the possible literature, although we consider that we have captured most of the key research relating to initial teacher education.

Quantity of research 1993 - 2004

We were interested to find out if there has been a trend for greater research in teacher education since 1993, and grouped the papers in years for this period (Figure 1).

Figure 1 **Research on initial teacher education in New Zealand 1993 – 2004**
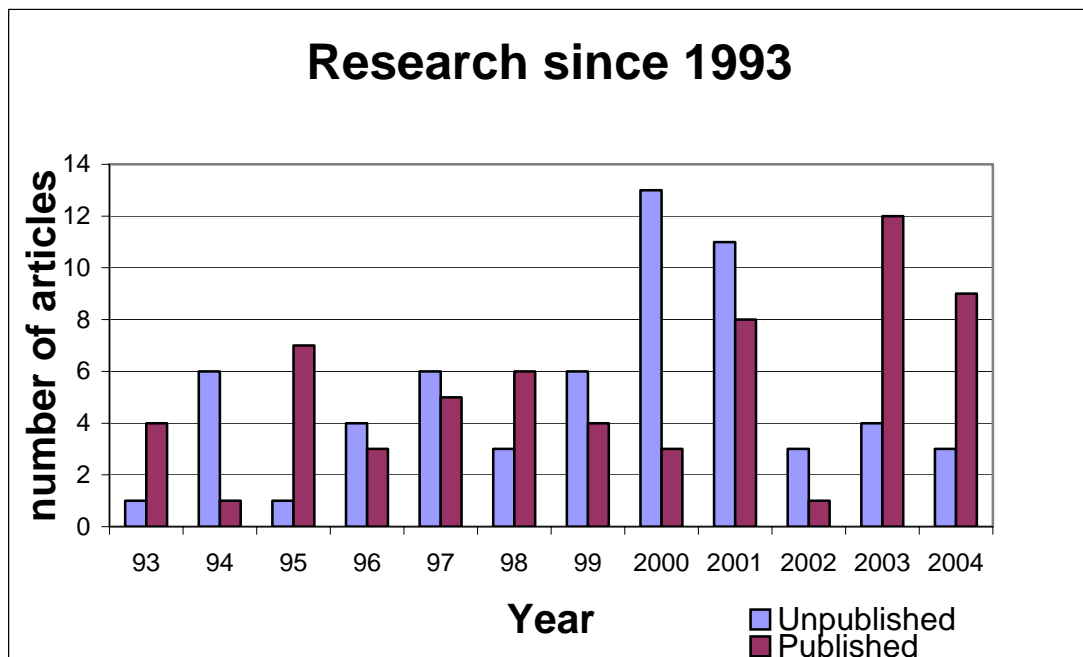
No consistent trend is apparent in the numbers of articles in the last ten years although there has been more research effort since 2000. The number of published papers shows considerable variability although a higher proportion of the papers was published in 2003 and 2004, perhaps reflecting the push for publication because of the introduction of Performance Based Research Funding in 2004.

Focus of the research in initial teacher education

Following examination of the studies we classified them according to their primary focus. From this process six key areas emerged:

1. Student teachers
   - Selection for programmes of initial teacher education
   - Student teacher demographics
   - Student teacher backgrounds and beliefs
2. Teacher educators
3. The impact of particular courses or interventions
4. Associate teachers and the practicum
5. Programme evaluations
   - Evaluations by researchers from institutions
   - External evaluations
6. Beginning teachers

4. Organisation of the literature review

This literature review begins with a summary of key position papers and conceptual writings on the socio-political contexts that have framed initial teacher education during the past ten years. This is Chapter 5 of the review.

Chapter Six addresses research about student teachers. This includes research related to selection for initial teacher education, student teacher backgrounds and views, and research on decisions to remain or leave programmes of initial teacher education or beginning teaching postions.

Chapter Seven includes research about the teacher educators in programmes of initial teacher education.

Chapter Eight reports research conducted mostly by teacher educators on the impact of particular courses, approaches, or innovations within programmes of initial teacher education.

Chapter Nine addresses research about the contribution of the practicum component of teacher preparation. This includes research on associate teachers in schools.

Chapter Ten summarises research that evaluates aspects of the programme of initial teacher education, from the perspectives of graduating and beginning teachers, and those who work with them.

Chapter Eleven addresses beginning teacher research.

Each chapter includes an interpretative commentary about the implications of the research and highlights significant gaps in relation to the international literature. Two large-scale international studies provided a useful frame for the interpretative commentaries and the recommendations made in chapter twelve. These were an American synthesis, *Eight questions on teacher preparation: What does the research say*? (Allen, 2003) and *A critical analysis of the research on learning to teach: Making the case for an ecological perspective on inquiry* (Wideen, M., Mayer-Smith, J., & Moon, B., 1998).

In Chapter Twelve we highlight some of the issues raised by the current research literature in initial teacher education in New Zealand, making some comments about approaches to date, and suggesting some directions for future research.

The annotated bibliography is included as Chapter Thirteen. The annotations related to the six key areas (*see* p. 11) are listed in Appendix one (p. 175).

5. The educational landscape

Unlike preparation programmes for other professions, initial teacher education has suffered from low status and has been an on going target of critique within New Zealand from academics (Snook, 1998), politicians, business leaders (Education Forum, 1993), the public and the media (*Metro*, 1992). As Michael Fullan (1993), a highly regarded Canadian educator and researcher, has pointed out "teacher education still has the honour of being simultaneously the worst problem and the best solution in education."

This section of the review will highlight some of the key issues that impact on the field of initial teacher education. This includes how teacher education/training is conceptualised and talked about, a brief overview of the recent history including the relentless progression of reviews, the role of the New Zealand Teachers Council, and the implications of Performance Based Research Funding.

The discourse on teacher preparation

The terminology employed in discussions about initial teacher education tends to reflect the position taken by the user on the nature of the preparation for teachers. Older literature and writing by those outside the field tends to refer to this preparation period as "training" reflecting a view of teacher education as the technical acquisition and demonstration of a set of skills that can be unproblematically applied to any classroom. The term "teacher training" can imply that a teacher is someone:

> …who works uncritically within whatever contexts are determined for him/her, who strives to achieve targets determined for him/her by others, with resources provided (or not) by others and in ways increasingly prescribed by others (Hodkinson, 1997, reported in Smyth, 2001, p. 158).

According to Smyth (2001) this construction of teachers' work is both limiting and inadequate. A "trained teacher" would be likely to view teaching in narrowly defined ways and not in terms of ensuring that all their students become engaged and successful learners. "Such teachers are unlikely to engage students in the 'big questions' within a broad and balanced curriculum that fires the imagination, the spirit, the feelings and the intellect" (Smyth, p. 158).

The term "teacher education", the terminology now used by the Ministry of Education and in this review, acknowledges that a "training" model is not sufficient to prepare teachers for the complexities of teaching in this century. Adrienne Alton-Lee's best evidence synthesis on quality teaching (2003) has highlighted the in-depth research-based knowledge that teachers now need to

be able to develop powerful learning in their students. In this review we have employed the term teacher education unless the writer uses the term teacher training. We use the term "student teacher" in preference to "trainee" to describe someone who is undertaking a programme of initial or pre-service teacher education, and "beginning teacher" to describe a provisionally registered teacher in the first two years of teaching.

We note that in the public discourse about teacher education there is a tendency for people to denigrate the efforts of teacher educators. Programmes are too long, too short, too theoretical, not theoretical enough, too politically correct, and too reproductive of the status quo and so on. Teacher educators are said to work in "ivory towers" removed from the day-to-day realities of teaching and to be "out of touch" with classrooms. Teachers themselves tend to downplay the complexity of preparing teachers. Harvey McQueen (1996b) has noted "If I had been paid a $1000 for every time I've heard a teacher say, 'we could train them better and more cheaply' I'd be a millionaire" (p. 4). Spokespersons for the profession sometimes add to the public perception of the poor quality and weak preparation of those who become teachers. The "scathing reports of the quality of teacher training" (*Dominion Post*, 27 February 2002) made to the Select Committee on Teacher Education provide good headlines, but are not likely to engender public confidence in teachers.

The knowledge base for teacher education

There is a lack of consensus about what the specialised body of knowledge and skills for initial teacher education should be, who has the right to say what it is, and how it can be recognised and validly assessed. Views of what the knowledge base should be are dependent on perspectives of intended goals of education, and debate about purposes of education will be on going. Tinning (2000) suggests that teacher education finds itself in "new times" where global uncertainties and constant change have created a move to managerialist forms of teacher education that favour definition of competencies and standards. In New Zealand there is a plethora of standards, which, although quite similar, complicate judgements about teaching quality.

In the last 10 years various agencies, for example The New Zealand Qualifications Agency (NZQA), the Teacher Registration Board (TRB), the Ministry of Education, and the Educational Review Office (ERO) have attempted to define sets of criteria or standards for satisfactory teaching. NZQA (Gibbs & Monro, 1993) developed a set of unit standards for initial teacher education, criticised by many as being narrowly technicist, that have never been formally adopted or registered (Alcorn, 1999). The TRB (1997), after a wide consultation process, developed a set of guidelines for the competencies of provisionally registered teachers; ERO (1998) published a list of standards for "the capable teacher"; and in the same year the Ministry of Education introduced professional standards for teachers that

are part of mandatory performance management systems in New Zealand schools (Ministry of Education, 1998).

There is little published description as to how, whether, or which standards are used to guide the knowledge base and exit standards of programmes of initial teacher education.

Similarly, there is little published research about the programme content and approaches in initial teacher education, so it is not possible to compare the range of approaches in New Zealand. While there have been presentations at conferences about different approaches to programmes and programme development few authors have prepared papers describing their work, so this information is not available for critique. Publications such as Teachnz[5] list an extensive range of initial teacher education programmes, but there has been no national research on the composition and course requirements of programmes. As a consequence there is no comparative research linking programme design with outcomes for student teachers.

There are examples of papers that provide a rationale for a particular programme design and that give some indications of programme content. The Auckland College of Education, for example, has described the rationale and course design for its BEd (Teaching) programmes. A number of conference presentations provide a clear description of its early childhood and primary BEd (Teaching) degree, the first three-year teaching degree offered in New Zealand. Papers by Lomas, Windross, and Landman (1996), and McGrath (1999), describe the matrix of outcomes on which the qualification is based, and illustrate how this has been used to inform the content and structure of the qualification. The authors distinguish a general liberal arts degree, in which students select courses of personal interest, from a professionally focused degree (i.e. the BEd [Teaching]) where the institution determines the programme content and progression to meet the requirements of the profession.

The degree developed from research evidence resulting in a structured matrix of key dimensions from which all courses ("modules") and module learning outcomes are derived. Seventeen professional dimensions were developed, with each dimension comprising knowledge, dispositional, and performance elements.

The only other description of a teaching qualification is that provided by Tunoho (1999), which outlines a teacher education programme, the Poumanawa Mätauranga Whakäkoranga, taught at Te Wänanga-o-Raukawa, an indigenous tertiary institution. The aim of this programme is to "produce graduates who can teach people to see the world through Mäori eyes and are competent to teach a range of subjects using the Mäori language" (p. 52). Details of content and approaches to teaching and curriculum are briefly outlined.

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[5] Approved programmes of initial teacher education are listed on the Teachnz website at http://www.teachnz.govt.nz.

Hedges (2004) is critical of programmes of initial teacher education in early childhood, contending that they emphasise child-centred, integrated, and holistic approaches as opposed to developing subject and curriculum knowledge in early childhood teachers. In her view, programmes should emphasise subject-specific content knowledge to enable early childhood teachers to extend young children's knowledge and understanding.

It has proved impossible from the research reviewed to characterise the nature of course content in programmes of initial teacher education, so a clear picture of the explicit curriculum cannot be drawn. There is a need for more research to inform us about how people are currently prepared to teach in New Zealand. Documentation and published description of the approaches, design, course content, and standards underpinning other programmes of teacher education would allow for discussion and critique of the different approaches. This could include: descriptions of the different types of settings (not only institutions) where initial teacher education is undertaken; descriptions of the different approaches; differences in preparation for teaching in different contexts (e.g. early childhood, primary, secondary, Māori, Pasifika, Christian, Steiner); content and duration of courses; details of those who teach teachers and how they are qualified to do so; the length of study; and how formal study and practicum experience are interlinked. Furthermore, how do those working to prepare teachers interact with one another? To what extent does interaction across programme components occur and if so how is it managed? In what ways do programme designers ensure that student teachers experience a coherent programme rather than a collection of courses?

Background to recent initial teacher education issues in New Zealand

This section draws heavily on previous scholarly reviews of initial teacher education since 1990 by Noeline Alcorn (1995, 2000).

Alcorn contends that since the inception of the first formal programme of initial teacher education in 1876, the prevailing political assumptions have been that "it should be practical, as cheap as possible and expendable altogether during difficult economic times"(2000, p. 1). In her view initial teacher education has a long history of "perennial, intractable issues" that cannot be overlooked in seeking to make sense of current issues and concerns in relation to teacher education. Tensions over the aims and control of initial teacher education, the content of programmes, the most appropriate site for learning to be a teacher, resourcing, and governance have been longstanding. Until 1968 local Education Boards determined programme content, student quotas, and carried out student selection. Decisions about funding and academic developments were centrally made until 1990. Trained Teachers Certificates and/or Diplomas in Teaching were awarded by the Department of Education at the end of a "probationary" period of teaching on the advice of school inspectors who observed and "graded" probationary assistants (PAs) on a number of occasions during their first year of teaching.

Prior to 1989 initial teacher education was almost entirely restricted to six colleges of education, offering a three-year primary Diploma of Teaching, a shortened two-year primary Diploma of Teaching for those with degrees, and a one-year post-degree secondary Diploma of Teaching. Most of the colleges were associated with their local universities providing the opportunity for primary teacher education students to graduate with a BEd after a fourth year of study. Student teachers tended to be described as "trainees", a view reinforced by the allocation of a "training allowance" that they were required to repay by teaching for a prescribed period of time following graduation.

Several new crown agencies set up in 1990 also had an interest in the control of initial teacher education. The New Zealand Qualifications Agency was authorised to approve non-university degree and diploma programmes. The Teacher Registration Board (TRB) was also established in 1990, and "was emasculated almost immediately when a new government elected at the end of that year made registration optional for teachers" (Alcorn, 2000, p.12). The TRB, like its replacement, the New Zealand Teachers Council, did not have representation from initial teacher education, a curious omission and atypical of similar professional bodies internationally.

The Education Acts of 1989 and 1990 gave colleges of education access to the same funding as universities, and allowed them to apply to offer teaching degrees, and explore alliances with other institutions. Hamilton Teachers College amalgamated with the University of Waikato in 1991, to become a university School of Education followed by Massey University and the Palmerston North Teachers College in 1996.[6] In 1996 the Auckland College of Education, which had previously offered a conjoint qualification with the University of Auckland became the first institution to offer a three-year teaching degree for primary teachers. Other colleges followed, and three-year preparation is now the norm in New Zealand for those intending to become primary school teachers.

In 1996, because of a teacher shortage and interest from the polytechnic sector wanting to enter the initial teacher education market, the Ministry of Education provided incentives and "persuasion" for potential new "providers" to offer teaching qualifications (Jesson, 1997). Jesson notes that some members of a Ministerial Reference Group were "anti colleges of education" because of a perception that existing approaches to initial teacher education were "too outdated, too trendy, too academic and not pragmatic enough" (p. 349). Extra funding was provided for compressed primary initial teacher education courses for university graduates. Most new funding for tertiary courses was directed to these programmes. The TRB, the agency with responsibility for recognising graduates of programmes of initial teacher education for registration purposes, was put under pressure to approve many new programmes in a very short time frame. In Jesson's view the normal quality assurance processes in tertiary institutions were "dispensed with or subverted in order to meet deadlines". Jesson also claims that those raising professional concerns

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[6] The Auckland College of Education and the University of Auckland are to amalgamate on September 1st 2004.

about the implications of such decisions sometimes "found themselves in situations of employment threat" (p. 350). She is critical of both government and institutions for putting short-term expediencies before the long-term need for a quality teaching profession. She also considers that these decisions undermined Section S164 (4)[b] of the Education Act that set up colleges of education as stand-alone institutions, and predicted that the outcome will be to "hasten the demise of colleges of education as separate institutions and force them towards amalgamations" (p. 356). In addition, she foresaw an increasing concentration on technical skills of management, assessment, and planning in initial teacher education with reduced emphasis on wider professional and academic considerations, and threats to quality of provision.

Initial Teacher Education institutions in 2004

There are currently 31 providers and 156 different programmes of initial teacher education in New Zealand. Around 75 programmes are offered for primary school teaching and 32 for secondary teaching. The most common route into primary teaching is the three-year undergraduate degree. There are 28 degree programmes available for those intending to teach in primary mainstream classrooms and 19 for people wanting to teach in primary bilingual or Mäori medium settings. There are also nine 3-year diploma programmes for those wishing to teach in primary bilingual or Mäori medium settings. Applicants with suitable degree qualifications are able to choose from 13 primary compressed programmes taught face-to-face in seven locations, including four different programmes in Auckland. There are also two options for distance programmes. There are currently three conjoint programmes comprising an undergraduate degree plus a teaching degree.

By far the most common route into secondary teaching is that of the 1-year programme for those with suitable completed degrees. Twenty-four of the 32 programmes are Diplomas of Teaching for graduates. There are 14 towns or cities where this qualification is taught. There are five different programmes available in Auckland. There are two programmes available by distance. The remaining secondary teaching qualifications are specialist, conjoint, or Bachelor's level teaching qualifications.

There are 54 early childhood teacher education qualifications approved by the Teachers Council. Forty-nine of these qualify graduates for early childhood only and four are combined early childhood/primary qualifications. Seventeen institutions currently offer these qualifications. Nine are taught by distance; one on multi-sites; 12 are centre-based; five have a Mäori focus; and four have a Pacific Nations focus. There is one conjoint degree programme, 17 Bachelor's programmes, 31 Diploma of Teaching programmes, three graduate Diploma of Teaching qualifications, and two National Diploma of Teaching qualifications based on unit standards.

Reviews of initial teacher education since 1993

The first Education Review Office review

In 1996, ERO produced a report focusing on the quality of graduates from pre-service tertiary providers. At the time the colleges of education had 6121 of the 7499 funded EFTS for initial teacher education, and ERO considered that there was little likelihood of competition from other providers. ERO noted that since 1987 there had been "no one agency with an interest in, or responsibility for, the effective operation or outcomes of the pre-service teacher training system as a whole" (p. 9). The report noted that selection criteria and procedures were determined by each institution, and reliable or comprehensive selection decisions could not be assumed.

The Partington Review

In 1997 Geoffrey Partington, an English academic, conducted a review of initial teacher education in New Zealand on behalf of the Education Forum.[7] At the time of the review teacher education was still primarily in the hands of the established state providers: four freestanding colleges of education largely dedicated to teacher education, and two university colleges of education. Partington recommended that:

- Institutions should be more genuinely autonomous.
- Student numbers admitted into teacher education should be left to market forces.
- It would be advisable to raise the age at which qualifications of a lower standard are accepted for admission into teacher education, since current policies encourage would-be applicants to wait until they are 20 instead of improving their qualifications.
- Established providers should not have a monopoly and the government should place no obstacles before those who wish to enter the field. Public and private providers should be financed on a common and equitable basis.
- Although the content of courses should not be subject to government control, improvements to teaching reading, mathematics, science, social studies, and other curricular areas could be made if a large part of current ideological baggage were discarded and more time spent on substantive knowledge and the best methods of imparting it.

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[7] The Education Forum had previously released a report in 1992, entitled *Better Teachers for Better Learning*. This was followed by another report entitled *Teaching Teachers to Teach* (1993) by David Trebeck that stated that colleges of education were "generally responding well to the new policy environment" (Codd, 1998). According to Codd (ibid) the report advocated shorter, more practical, pre-service courses.

- It is desirable for teachers to have sound knowledge of philosophy of education, the history of education, educational psychology and learning theory, and comparative education.[8] There are important arguments in favour of retaining tertiary institution-based teacher education in New Zealand.
- Research by teacher educators should be encouraged, but not every teacher educator needs to be engaged in educational research.

The second Education Review Office review

By 1999 the six established providers had been joined by seven polytechnics, four universities, four private providers, and two wänanga. The Education Review Office, the agency with responsibility for school evaluation was asked by the then Minister of Education to "report on whether there is an appropriate match between current standards for graduation from teacher training programmes and the expectations of school employers as well as the broader policy focus of the Crown" (ERO, 1999, p. 1). Clarke (2002) points out that the report "quite explicitly excluded consideration of the following: future teacher supply, overall organisation of teacher training, the capabilities of individual institutions and the link between teacher training and educational research "(p. 79).

The overall focus of the report was on the relationship between school boards of trustees as employers of graduates from initial teacher training (the sources of demand) and the teacher training market. The exercise was conducted by ERO evaluators, at institutions willing to participate. None of the universities were prepared to engage in the exercise because they did not accept the legitimacy of ERO to conduct an investigation within the university sector on the grounds that the ERO staff were not considered competent to undertake this inquiry, and the threat to university autonomy and academic freedom if ERO were given the authority to assess university programmes in addition to schools (Clark, 2002, p. 86). The report *Pre-employment Training for School Teachers* (ERO, 1999) was completed in October that year. The report made the following key recommendations:

- Graduation standards are established for all teacher trainees as a requirement for graduation.
- The definition of the standards be overseen and promulgated by The Secretary for Education (in active consultation with employers and providers).
- Standards should be reviewed at least every three years.
- Teacher training providers should be responsive to legitimate external demands and expectations.
- Teacher training providers should be accountable for training all their graduates so that they are able to meet the approved graduation standards.

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[8] There is a contradiction between the recommendation to study educational philosophy and history and the rejection of "current ideological baggage", given that approaches to the former are likely to be labelled as ideological by some observers.

- Transparent and effective incentives and sanctions for teacher trainers be put into place for all those providing programmes explicitly designed for trainees intending to work with Māori pupils, wanting to learn te reo and teach te reo; and working with Pacific Islands pupils, children from low socio-backgrounds, and both genders.
- Systematic independent and public evaluation into aspects of teacher training including the quality of teaching degrees, outcomes, the impact of competition on quality, and the practicum is conducted.

Clark (2002) criticises the ERO report on conceptual, methodological, and substantive grounds. In his view conceptual problems arise from ERO's location of initial teacher education purely within an economic rationalism model. He describes the report as replete with concepts such as "market", "provider", "supply", "demand" and "incentives" which reduce education to a commodity. He is also critical that the report uses the terms 'teacher education" and "teacher training" as if they were interchangeable when they are not:

> 'Training' implies the acquisition of a set of skills for some particular purpose, as in 'He has been trained to repair electrical circuits', whereas 'education' conveys something broader to include the acquisition of knowledge, values and attitudes which transform our lives in some morally good way. This distinction is recognised in the shift of nomenclature from Teacher Training College to College of Education. To confuse training and education, or to conflate them, in the name of ideological parity, is to do a serious mischief to our language and conceptual understanding, and to reduce the idea of education as a rational, moral endeavour to no more than the gaining of useful vocational skills is to debase a noble human ideal to the lowest instrumental value (Clark, 2002, p. 85).

Clark argues that methodological flaws include the competence of ERO to undertake the review, given their assessors' lack of knowledge and experience in evaluation of the tertiary sector, and the omission of the universities, thereby excluding data from a sector that prepared over a quarter of graduates from initial teacher education. In addition, Clark criticises the composition of the reference group, which contained no representatives from initial teacher education. Overall he considers the methodology to be very weak, "falling well short of what would be expected of an undergraduate research project" (2002, p. 87).

The report's major substantive weakness according to Clark is that it provides solutions of central control to the failures of the market to "deliver" the training that "employers" want. He also questions the assumption that "employers" should have the right to determine standards for the teaching profession. In his view professional bodies are the appropriate body to determine professional standards. While "the report had little impact and quietly disappeared from the scene" (p. 75) it nevertheless provides a telling example of the propensity to subject initial teacher education to poorly conceptualised and inadequate review.

The Te Puni Kokiri Report

In 2001 Te Puni Kokiri (TPK) conducted an audit on "the extent to which pre-service teacher trainers equip their graduates to teach Mäori pupils effectively" (TPK, 2001, p. 7). The audit was conducted because of reported low levels of Mäori students' engagement and achievement in schools and "doubts about the ability of teachers to engage and effectively teach Mäori students" (p. 7). The audit team examined the course content of ten programmes of initial teacher education, and conducted interviews with a large number of stakeholders, comprising 180 trainees (sic), 18 recent graduates, 18 principals, and three meetings with parents. The audit team concluded that some initial teacher education providers "need to do a better job in bridging the cultural and experiential gap between those entering teacher training and the Mäori students they will teach" (p. 7). The audit recommended that the agencies responsible for funding and quality assurance of programmes of initial teacher education "take action to ensure that teacher training providers acknowledge the changing demographics of the New Zealand classroom and equip graduates with the skills to teach Mäori pupils more effectively" (p. 7).

Education and Science Select Committee Inquiry

In 2001 the Education and Science Select Committee announced its own inquiry into teacher education to investigate how teacher education programmes are approved for the purposes of teacher registration. The Select Committee did not publish a report on its deliberations on initial teacher education.

Five reviews in four years appears excessive. Ramsay, (2001) commented on a similar situation in Australia and noted that as a group, teacher education has been reported on and examined "almost beyond belief or reason". Dyson (2003), also in reference to the Australian context, emphasised that continual revisiting of the same issues (supply versus demand; theory versus practice; profession or craft, teacher training versus teacher education) has continued to exert continual pressure on initial teacher education without resolution or achievement of balance. Similarly, in New Zealand, despite the numerous reviews and critique there has been little debate between parties involved, and little progress in addressing issues of concern or in reaching agreement on fundamental principles for initial teacher education.

Performance based research funding (PBRF)

The majority of the authors of the research in this review are lecturers directly involved in the teaching and supervision of student teachers. Most of them are employed at the traditional colleges of education or one of two schools of education that have merged with colleges of education. While academics in university Faculties of Education have a strong history of engagement in the study of education and related matters, Gibbs (1997b p. 3) notes "the traditional dominance of educational disciplines on research in universities does not seem to

always fit comfortably with the field of teacher education as an authoritative and legitimate area of research funding". The notion that research on teacher education equates with low-level research, as well as limited research funding in this area, may have discouraged university researchers from contributing to this developing field.

With regard to lecturers in colleges of education, it is only relatively recently that those in colleges of education, or those primarily responsible for curriculum and pedagogy in pre-service programmes, have been required to produce and publish research. Traditionally, research was not considered to be part of the role of teachers in colleges of education, with both teacher educators and their employers assigning more importance to that of preparing classroom teachers (Gilbert & Cameron, 2002). A study of the importance given to ten different elements of the work of a teachers' college in 1974 saw "research" as an activity ranked at 9th place by both students and staff (Archibald, 1974, reported in Middleton, 2002). Although this study is now 30 years old, the results from the recent PBRF round show that a high proportion of teacher educators was not able to submit sufficient evidence to demonstrate that they were research active. The recent expectation of all teacher educators to demonstrate how their practice is informed by research is related to the requirement that degree and postgraduate courses must be taught mainly by people who are active in research and the advancement of knowledge. The expectation for tertiary institutions is that research is important to advance knowledge and understanding and to ensure that post graduate students especially are educated in institutions characterised by a high-quality research culture. Teacher education institutions that attained higher PBRF scores generally were university colleges of education that over recent years had mentored and provided the supports that are necessary for new and emerging researchers. As a consequence the institutions that did not achieve well will lose access to some funding that they need to build their research profile. There will be a "push" from these institutions for staff to improve their research profiles, but it is unclear how those currently lacking the infrastructure and knowledge of how to build a research culture will achieve this. The question arises, will the reduction in funding further reduce the capacity for initial teacher educators to conduct high quality research? A second question, raised by one of the reference groups, was whether the push for research will have a positive or negative effect on teaching in initial teacher education programmes. While this concern is often raised, there is little evidence that a focus on research has an effect on the quality of teaching in tertiary institutions.[9] There was a view that research focused on informing and improving practice in teacher education would be more likely to enhance teacher preparation than research directed elsewhere.

There is no doubt, however, that research will have a greater profile in initial teacher education. Ruth Kane, in a 2003 address to TEFANZ on Teacher Education, Research, and PBRF made the following statement:

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[9] Hattie and Marsh (1996) noted: "the common myth that research and teaching are inextricably entwined is an enduring myth. At best research and teaching are very loosely coupled."

I suggest that teacher education within New Zealand needs to decide, very quickly and very emphatically, whether we are truly committed to teaching as a graduate profession or is this simply empty rhetoric, a game of smoke and mirrors. If we are committed to teaching as a graduate profession then we have no choice. We need to accept PBRF as a 'wake-up call' and take this opportunity to set about ensuring that our programmes are grounded in research, that our staff are supported properly to be active researchers, and that we work together as a discipline, to raise the status of teacher education in higher education by offering our work for critique of both classroom practitioners and researchers, nationally and internationally and demonstrating the rigour and excellence of our research and scholarship. If we fail to do this, then we should not be kidding ourselves that we are capable of offering quality degree level courses to those who will eventually teach our children.

6. Student teachers

The research brief asks for research on the attributes of student teachers including any research that might examine the quality of students entering teacher education programmes.

Over the past decade there has been negligible research about those selected for initial teacher education programmes that might contribute to debate about the profile of a "quality" intake. While it is obvious that the majority of teacher education students is female, we know little about the characteristics of these females or of the males who decide to become teachers. While there is a general belief that many people entering teaching are academically weak[10] there is little data to confirm or disconfirm this belief. There is also little information about student teachers' possession of other attributes that might contribute to a "quality" student teacher.

Selection

There has been little empirical research on how institutions decide who to accept for teacher education although there is general agreement that: "the quality of people who apply and are selected for training is a significant factor in determining the quality of teachers who graduate from training programmes" (ERO, 1996, p.12).

The ERO report (1996) noted that institutions determine their own criteria for selection, and questioned the consistency of these approaches, noting that quality criteria may be undermined by the need to attract student numbers. A later ERO report (1999, p. 16) commented that "there is only limited evidence to support the view that all providers compete on the basis of quality".

The New Zealand Teachers Council requires initial teacher education providers to demonstrate in their approval documentation how their entry standards and processes support the selection of student teachers who will be able to meet registration requirements[11] to be of good character and fit to be a teacher.

McPherson (2002) describes selection for initial teacher education as "the first gateway to the teaching profession and a key element in developing a quality workforce" (p. 1). The second

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[10] A point made by John Graham, Chancellor, Auckland University on National Radio in interview with Chris Laidlaw, 20/6/04.

[11] New Zealand Teachers Council (2002). *Standards for qualifications that lead to teacher registration: Guidelines for the approval of teacher education programmes.* Available at: http://www.teacherscouncil.govt.nz/pdf/Guidelines_for_Approval_July_2002.pdf

gateway is located at the end of the pre-service period, and depends on the quality of institutions' exit standards, while the third gateway occurs at the decision point for full teacher registration. McPherson (p. 12) considers that the gates are "incrementally more difficult and more expensive to close". He described the selection process as "searching for angels"; that is predicting the likelihood that candidates will have the "passion, knowledge and personal qualities that will help them to become effective professional educators" (p. 1).

McPherson's research on selection for secondary teaching identified a wide range of divergent beliefs about who should be selected to become a teacher, pointing out that the divergence reflects ongoing debate about key elements of initial teacher education: how people become teachers; what an effective beginning teacher is; the "best" ways of preparing effective beginning teachers; how to predict which applicants are likely to learn to be effective teachers; and how to evaluate teaching.

McPherson found that key aspects considered in selection decisions were knowledge of subjects for teaching, and personal qualities, and dispositions. Enthusiasm and passion for the subject student teachers expected to teach were also important criteria for selection. Personal qualities were equally important as providers tended to believe that students who did not appear to possess important personal and dispositional qualities on entry to a programme of teacher education would be unlikely to develop them during a one-year programme. He notes that Renwick and Vize (1990) found that applicants for teaching believed selection panels were most interested in their personal qualities (44 percent of responses) rather than academic attainments (4 percent), and believed that on entry to initial teacher education "they already possessed those qualities and abilities which make a good teacher" (p. 25).

Most providers indicated that they required applicants to bring well-developed content knowledge relevant to the secondary school curriculum to initial teacher education as there was not time to develop gaps in content knowledge in a one-year programme. The author identified "a certain flaccidity in ensuring that students have appropriate, transferable subject knowledge at selection", given that they relied on university transcripts to assess this aspect.

There are arguments about whether interviewing applicants provides greater reliability than selecting on the basis of credible professional referees and academic transcripts. A study by Fletcher (1999/2000) compared the academic and teaching success of two primary first year student teacher groups. This research confirmed that selecting high-achieving school leavers on the basis of academic achievement and personal reports from reliable referees, was the strongest predictor of success. It was concluded that interviews were not required for this group of students, but would be retained for other applicants. This information provided the institution with information about the outcomes of its selection processes, and also allows other institutions access to data about the merits of interviewing candidates for teacher education.

Student teacher demographics

It is well known that males are unevenly distributed in teaching in New Zealand: they are almost non-existent in the early childhood sector, thinly spread in primary schools, and less than half of the workforce in secondary schools. What then does research tell us about the males who enter initial teacher education? Cushman (1998) investigated the withdrawal of 23 percent of the enrolled males of a cohort of first year student teachers in a primary teaching degree and found that their reasons for withdrawal were similar to those of females who withdrew. Corkery (2001) examined factors contributing to the decisions of males to withdraw from initial teacher education, and found that the inability to adjust to the culture of teacher education or primary schools was the major reason for leaving. The aspects of the culture that men found difficult were not identified.

Mäori Teacher Supply initiatives have increased the numbers of Mäori student teachers in bilingual and immersion programmes and a number of Mäori providers now offer a greater diversity of teacher preparation programmes. Anecdotal evidence points to the enormous burdens faced by some Mäori teacher education students, who have to simultaneously develop their personal skills in Te Reo Mäori as well as learn to teach. Empirical data on the experiences and achievements of Mäori in bilingual, immersion, and mainstream programmes would help to illuminate the particular issues faced by this group of student teachers.

A study by Hope (2004) included data on student ethnicity and gender in a university initial teacher education programme. This showed that 80 percent were females; half were over 30 years of age; 56.7 percent were Päkehä; 10.4 percent were Mäori; 14 percent were Pasifika; and 14.6 percent were Asian. The comparatively high number of Asian student teachers has not been reported before and may merit further exploration.

Student teacher prior knowledge and beliefs

Backgrounds

Several studies have looked at the academic and work backgrounds that student teachers bring to teaching. Biddulph (1999) investigated the previous mathematics achievement of primary student teachers at the start of their programme. He found that the majority of student teachers had not studied mathematics beyond the fifth form (Year 11), and those who had passed 7th Form (Year 13) courses reported that they had achieved "really low grades". Their understanding of basic mathematical concepts was of concern, given that there is limited time in a three year qualification to overcome these concerns.

Thomas (1998) also found student teachers' entry knowledge of mathematics to be weak with just 8 percent of the student teachers who passed mathematics in Year 12 receiving a grade of three or

higher. More recently, Grootenboer (2003a) found that half of the entering student teachers in a primary programme had not achieved any mathematics qualifications in secondary school.

Davies and Savell (2000) assessed previous mathematics achievement and basic mathematical competency of student teachers enrolling in an Early Years programme of teacher education focused on teaching children aged zero to eight. Almost a third of the student teachers had not studied mathematics beyond the fourth form (Year 10). None of the student teachers passed all items in a mathematics test, 22 percent passed no items, and a further 24 percent were able to pass only one item. The correlation between mathematics achievement at school and scores on the mathematics competency test was low.

All of these studies point to limited background knowledge of mathematics in the cohorts of early childhood and primary student teachers studied. Although their authors considered that somehow provision must be made in programmes of teacher education to address this issue, Biddulph (1999) considered that enrolment in traditional university mathematics courses would be likely to have detrimental results. Biddulph does not give reasons for this belief, but the work of researchers such as Ball (2004) would suggest that the mathematics knowledge needed for teaching mathematics is different from that needed for other professions where mathematics is used. It is interest to note that the University of Otago primary teaching degree programmes requires all students to complete a specialised university paper as part of their preservice programme.

In response to principals' comments that secondary beginning teachers lacked preparation to teach their subjects, Baker and McNeight (2000) sought information on the connection between the previous subject knowledge study and the senior secondary curriculum of a cohort of secondary student teachers of English and biology. While all seven student teachers had tertiary level biological science qualifications only two entered their teacher education course with formal qualifications that included subject knowledge closely aligned with the school curriculum. All seven, however, demonstrated adequate subject matter knowledge within the context of their classroom teaching. Student characteristics such as broad understandings of their disciplines and personal orientation towards learning for themselves were shown to be as important as having passed courses in specific subject knowledge. There were similar findings for teachers intending to teach English. The study supports McPherson's contention that course-taking is not a good proxy for knowledge and the relationship between course-taking and effective teaching is not clear-cut.

Paterson, Horring, and Barton (1998) provide an interesting insight into the extent to which subject knowledge in mathematics contributes to teaching effectiveness. Four preservice mathematics graduates and three experienced teachers who had previously taught other subjects and were studying mathematics at a university level took part in the study. Both groups were observed on two occasions while teaching mathematics to senior high school students. Participants were interviewed briefly before and after each lesson. The experienced teachers were, at this stage, more effective overall. They had previously developed pedagogical content

knowledge in an area other than mathematics as well as general pedagogical knowledge. Mathematics teaching was being "grafted on" to the general expertise that these teachers had developed, although they were still novices in terms of mathematics teaching. They were observed to make mathematical mistakes. At the time of the first observation they had successfully completed 100 level university mathematics courses. By the time of the second observation their awareness was such that they recognised the problems and were able to use their general teaching skills to address them. The development of mathematical pedagogical content knowledge was seen as central to their effectiveness as mathematics teachers. The authors noted that 200 level mathematics courses appear to be prerequisites for the depth of content knowledge level required to successfully engage secondary school students in mathematical learning.

Ballingall (1994) surveyed 240 first year primary teacher education students to examine their language backgrounds and their knowledge and awareness of other languages. The cohort was enrolled in a combined Diploma of Teaching/BEd qualification. The results indicated that almost all student teachers were monolingual (out of the 12 students who spoke languages in addition to English, four students identified fluency in Mäori). Ten percent had studied Mäori to a senior school level, while only five percent had studied French. Only two percent of the total student teacher group were studying a language as part of their degree. This is an example of an isolated study, there being no further investigation into this area. Should the situation remain unchanged since this research was undertaken there are concerning implications for New Zealand's language strategy.

Another area of strategic importance to the government is ICT. Hope (2004) focused on the knowledge that student teachers bring to their ICT education programmes, showing that they do not reach the "confident user" level in any area, and that they lack the knowledge to use applications such as databases and spreadsheets in their classroom programmes. This research is suggestive of a need for greater investment in ICT knowledge if teachers are to be able to use ICT effectively to support student learning.

Although the studies about student teachers' mathematics, science, and ICT backgrounds are not sufficiently comprehensive to provide conclusive evidence, the implication to be drawn from them is that many student teachers in the research studies reviewed did not enter into initial teacher education with the kinds of subject knowledge that would support effective teaching. Anecdotal evidence suggests that many student teachers also require assistance in developing literacy skills to enable them to engage successfully in tertiary learning and act as effective literacy models for children and young people. A number of institutions offer literacy programmes for student teachers (and other students), but there has been little research identifying their literacy needs.

Beliefs

According to Wideen, Mayer-Smith, and Moon (1998) "the story of how beginning [student] teachers experience programmes of teacher education begins with who they are and what beliefs

they bring to preservice teacher education" (p. 141). Beliefs that student teachers have about different subjects, how students learn, and reasons why they may find learning difficult act as filters which influence their receptiveness to new knowledge. The international literature on learning to teach suggests that the beliefs that individuals bring with them to initial teacher education are strongly held and resistant to change (Wideen, Mayer-Smith, and Moon, 1998).

Five New Zealand studies (Biddulph, 1999; Davies & Savell, 2000; Grootenboer, 2003a, 2003b; Thomas, 1998) have explored primary student teacher attitudes towards mathematics. Biddulph (1999) found that over half of the student teachers from two cohorts reported deep-seated negative attitudes to mathematics. Grootenboer (2003a) also found that student teachers in his doctoral study had negative and apprehensive views about mathematics. The early childhood student teachers in Davies and Savell's study viewed mathematics as difficult, hard, or requiring a great deal of effort with little likelihood of success. These studies all confirm that attitudes of student teachers towards mathematics in the programmes of initial teacher education studied were of concern.

Primary student teachers' knowledge and views in relation to science (Hipkins, 1998; Lewthwaite, 2000; Salter, 2000) have also been in explored in New Zealand. The three studies raise questions about the knowledge, understandings and attitudes that primary student teachers bring to their initial teacher education programmes. The students in these studies were initially rather negative in their attitudes to science, and Hipkins (1998) noted that the 12 primary student teachers she interviewed "did not appear to hold sufficiently coherent understandings about science to be likely to be able to assist their future students to explore ideas about science".

Interpretative commentary

While the research reporting on attributes of students undertaking preservice teacher education is limited it provides important indicators of areas that need to be examined further. A better understanding of the selection processes undertaken by institutions and the ways in which selection criteria are related, if at all, to eventual effectiveness as a beginning teacher are areas that deserve further examination.

The evidence for the importance of subject knowledge has been described as "spotty" and not fine-grained enough (Allen 2003) for definitive policy implications to be made. Furthermore, most of the international and national research on student teachers' subject knowledge has focused on subject knowledge in mathematics and science, and empirical support for the kinds of subject knowledge needed for good teaching remains elusive. On the basis of the research reported in this review, some student teachers appear to lack an understanding about mathematics and/or science, and/or hold beliefs and attitudes about science and mathematics that may prevent them from creating positive learning opportunities for students within these subject areas.

Concerns with respect to the tenacity and pervasive power of student teachers' initial beliefs and preconceptions about teachers and teaching are well documented. An Australian doctoral study reported in Ethell and McMeniman (2002) acknowledges the implicit nature and the tenacity of student teachers' personal beliefs and conceptions of teachers and teaching, and demonstrates that if left unexplored, they would limit the participants' acquisition of new knowledge and understandings. Clearly this is an area that calls for further investigation if we are to ensure that graduating teachers have the confidence and the competence to work positively with students in mathematics and science.

7. Teacher educators

We define teacher educators as all those who teach during initial teacher education courses, including university staff in conjoint programmes, although some may prefer to identify more with their discipline (e.g. psychology, sociology, philosophy) than with teacher education. Unlike many other jurisdictions, the responsibility for teacher preparation in New Zealand is not typically scattered across several faculties that also have responsibilities to students in other degree programmes such as science and arts. In most initial teacher education programmes students are taught within an institution, or faculty/college/department of an institution, that has teacher education as its core mission, although this situation is changing. This has allowed for greater autonomy than in institutions where teacher education has to be accommodated within other programmes, which sometimes leaves practicum experiences to be scheduled at times of the year when university is not in session. However, this practice of separate institutions has also isolated teacher educators from the scholarly culture and intellectual norms of the university.

Teacher educators have traditionally been employed because of their reputation as successful experienced teachers. They have their roots planted firmly in the cultures of their schools. There is little research to provide information on how teachers experience and negotiate the transition from teacher to teacher educator. How well do they transplant to their new culture? How do they conceptualise their roles? How do they learn to make the transition from a teacher of children to a teacher of adults? Are there cultural adjustments that they have to make? How do they learn how to teach others to teach? How do institutions support new teacher educators to develop the skills to engage successfully with adults? How are they supported to learn more about how children learn in different curriculum areas, and to develop the pedagogical content knowledge to assist student teachers to develop curriculum understandings? What are student teacher perspectives on the role of teacher educators?

In spite of the importance of the aforementioned questions Whatman (1997b) is the only study that explores the transition from teacher to teacher educator. This study identified the additional knowledge and skill that teacher educators considered they needed to teach others to teach. This was seen to include knowledge of how adults learn, strategies to link course content with practicum experiences, clearer knowledge of teaching and learning, and increasing engagement in research. The study contrasts with one on polytechnic teachers (Cown, 2003) which found that many did not really regard themselves as teachers and that they viewed the role of teacher with some distain.

Fox (2000) employed semi-structured interviews to elicit the views of nine primary teacher education students on attributes of "good" lecturers' practice. Lecturers in their programme had been recruited from primary classrooms, and had received minimal induction to adult pedagogies.

The student teachers identified ten critical attributes of a "good" lecturer; seven of the attributes related to the lecturer's possession of positive interpersonal qualities and the willingness to build positive interactions within the tertiary classroom. Two criteria related to teaching and learning and one to organisational abilities. The author (a teacher educator) noted that student teacher expectations of their lecturers are high - they expect lecturers to teach in ways that ensure their emotional safety and personal well being, as well as being responsive to their prior knowledge and experience. The author noted that this flexibility might be feasible with class sizes of 25 - 30 and a teaching schedule that allows lecturers to know their student teachers as individuals. The author commented on the tension between a desire to be a "good" lecturer and to meet new expectations for research outputs.

There is little research about how teacher educators see their roles. An exploratory study by Gilbert and Cameron (2002) was initiated by the awareness of the first author, a university teacher, of the differences in institutional culture between her university and a college of education when she co-taught on a teaching degree course for the first time. The authors surveyed university and college teachers on the views of academic work held by the two groups. There were clear differences in how the two groups constructed their identities. The university teachers from a range of disciplines saw their primary role as being a researcher/scholar, while the college teachers were strongly orientated towards supporting the learning of others, through being a good teacher. Their working conditions were very different from the university teachers, and did not support the intellectual values seen as critical in the university. The authors noted that these differences should be explicitly addressed in mergers between universities and colleges of education if these are to be productive. They also suggested the need to move beyond the binary between "research" and "teaching" in ways that might allow the emergence of a legitimate scholarship of teaching.

Donaghy and McGee (2003) conducted seven case studies of teacher educators' experiences in an e- education version of their institution's Bachelor of Teaching degree, showing that they found the e-learning environment had challenged them to rethink their conventional approaches to teaching. They found that the motivation of on-line students was high, which was reinforcing to them as teachers.

As part of a 40-month study on assessment in a college of education in the mid 1990s, Hawe (2001) found that teacher educators teaching a Diploma of Teaching programme were reluctant to award failing grades for unsatisfactory work received well after due dates, and that pressure was put on teacher educators who attempted to follow policy. It was not uncommon for fail grades awarded by lecturers to be overturned by more senior programme staff. Reasons for this reluctance were the assignment of culpability to the lecturer rather than the student for the fail, the need to maintain student numbers, fear of litigation, and other negative consequences (such as additional work). Teacher educators also were influenced by factors such as their personal judgements of the students. It was proposed that this was the result of their previous experience as primary classroom teachers, which has the discourse of facilitating learning, promoting success, and building student self-esteem.

Interpretative commentary

The research leading to a better understanding of those who teach teachers is extremely limited.

There is a need for more research on the different professional communities that teacher educators belong to. There is now a huge diversity, with some situated in well resourced and established learning environments and others with no history of initial teacher education and relatively impoverished resources. What are the experiences of teacher educators in the different types of programmes? In 1986 Lanier and Little commented that in the USA university context there was an "inverse relationship between professorial prestige and the intensity of involvement with the formal education of teachers" (p. 530). Those who "actually supervise prospective or practising teachers in elementary schools are indeed at the bottom of the stratification ladder" (p. 530). Turnbull (2004) found that early childhood teacher educators in one programme considered there to be marginalisation and low status of perceived early childhood perspectives in the teaching of the degree. Issues of power relations within the "learning to teach ecosystem" (Wideen et al, 1998) remain largely unexplored. Power relations are likely to impact on the efficacy and agency of teacher educators and on the programme of initial teacher education experienced by student teachers.

The literature of teacher education both domestically and internationally continues to lack references on the critical examination of teacher educators' underlying beliefs and dispositions or to the professional development of teacher educators. Korthagen (2001) and others (Kane, 2002; Russell, 1999; 2001; Sarason, 1993; 1999) remind us of the need for teacher educators to examine critically their own learning and development if we are to achieve change in teacher education. The research to date tells us little about teacher educators' contribution to the learning of student teachers. We currently lack research evidence about how teacher educators conceptualise the knowledge and understandings that they seek to develop in student teachers. How do they decide what knowledge, skills, and dispositions are critical, and how do they explore the process by which student teachers acquire these attributes? Given new understandings about the sorts of pedagogies that contribute to learning in classrooms, how familiar are teacher educators with this research? To what extent is their teaching informed by research about the process of becoming a teacher or about the ways to foster quality teaching? What opportunities do teacher educators have to keep abreast of new knowledge? Equally important, what opportunities do they have to work together to develop shared insights into ways to uncover and articulate problems of practice?

8.   Impact of innovations, processes, or courses

In this section we examine research on the impact of particular innovations, processes, or courses within teacher education programmes. These studies have been conducted by teacher educators with the intention of improving student teacher learning or to better understand the contribution of particular innovations, processes, or courses.

Fraser and Spiller (1996) describe a programme designed to enhance the thinking and writing skills of student teachers through a collaborative approach to drafting and peer editing their essay writing assignments. This paper is a helpful contribution to the literature on teacher education programmes because it is theoretically well founded, clearly described, and reported. Data on the impact of the intervention on the quality of student teacher writing would have allowed readers interested in improving student teacher writing to assess the potential of this approach for their programmes.

Although we read several papers on developing reflection in student teachers, we found the research needed greater specificity and rigor. Despite efforts from some researchers to measure the accomplishment or non-accomplishment of skills of reflection or "critical" reflection we found much of this work to over-simplify the notion of reflection. Ovens (2004) provides an example of well-theorised investigation into reflective practice, noting that it does not occur in a vacuum and cannot be studied in such a manner. He is critical of the assumption that teaching can be improved by becoming more reflective. His PhD dissertation is an account of the pedagogical work on/for reflection and student teachers' engagement, resistance, and receptivity to that work. The aim is to understand reflection as it is lived, as individuals actively engage in the process of leaning to teach. Data sources are the learning narratives of experiences of learning to teach and student teacher engagement with practices aimed at making them reflective. In his view reflection is not a skill that easily transfers from context to context, but is constructed by, and is integral to, the practices of particular discourse groups.

Assessment of student teachers is an area that has received little attention from researchers. This is somewhat surprising because student teachers' own experiences of assessment are likely to be powerful influences on how they assess children's work in their own classrooms. Biddulph (1998) investigated the use of summative self and peer assessment in a final year curriculum development course on science, mathematics, and technology education. Possibly because of the high stakes nature of summative assessment, and the desire for high marks, student teachers were more generous in assessing their own and peers' work than were the lecturers. A study conducted over the period 1993 - 1996 (Hawe, 2000) provides information about how student teachers

experienced assessment in a Diploma of Teaching programme. The study was undertaken at a time when the documents of the college espoused a commitment to standards-based assessment. Student teachers were found to have expectations regarding the outcomes of assessment, they reacted emotionally to these outcomes, and attributed results mainly to external factors. In their view, assessment practices were subjective, and they sought to maximise their grades using a variety of strategies. This is one of a small number of studies that takes a critical perspective on institutional practices, and highlights the mismatch between policy and practice.

A number of research papers have asked student teachers or beginning teachers to evaluate teacher education courses in specific curriculum areas. These include language and literacy (Brough, Keenan, Limbrick, McCaffery, and Sheehan, 1996), mathematics (Gendall, 2001, Grootenboer, 2003a, 2003b, Thomas, 1998) science education (Baker, 1995, Hipkins, 1998, Lewthwaite, 2000), and interdisciplinary teaching (Whatman, Cosgriff, & Thevenard, 1999).

Brough, Keenan, Limbrick, McCaffery, & Sheehan (ibid) surveyed graduates of a college of education and their tutor teachers on their perceptions of how well their college programme had prepared them in aspects of language teaching and learning. The research showed areas of well preparedness and areas that needed more attention in the initial teacher education programme. Interestingly the tutor teachers in schools were more positive about the teaching of the beginning teachers than were the teachers themselves. This study raises the difficulties the authors found in conducting research and "keeping the project going on top of heavy workloads". Limbrick (pers. comm.) has commented that at the time this research was undertaken, the notion of teacher educators engaging in research was relatively novel. Since then, many teacher educators, including some of these authors, have been involved in completing postgraduate qualifications involving research at an individual level which has meant less involvement in collaborative and larger-scale research in teacher education.

Gendall (2001) found that despite a lack of strong personal content knowledge in mathematics, all student teachers in a primary one-year graduate course felt enthusiastic about using a similar approach with children following a course in the teaching of mathematics where they had active engagement in learning. The author acknowledged that the study was limited because it did not investigate the realities of implementing these approaches in the classrooms.

Thomas (1998) described an approach to mathematics education that attempted to place student teachers in mathematics planning environments similar to those they would engage in as beginning teachers. Specialist input was provided by teacher education lecturers, school support staff, and classroom teachers. This experience was evaluated positively by the student teachers.

An evaluation of a mathematics education course (Grootenboer, 2003a) found that student teachers' previous negative feelings about mathematics became more positive. However about half of the participants regressed to their negative beliefs following practicum, illustrating the fragile nature of new beliefs unless they are reinforced in school settings.

A number of studies in science education (e.g. Baker, 1995; Hipkins, 1998) explore the impact of teacher education courses on student teacher understandings of science. Like the studies in mathematics they acknowledge the need for student teachers to hold sufficiently coherent understandings of science to enable them to assist children to explore their ideas *about* science. Baker's research indicates that while an optional final year course enabled the student teachers to adapt a more coherent and contemporary view of science they found it difficult to translate these ideas into their teaching.

A study by Lewthwaite (2000) suggested that student teachers in an initial teacher education programme considered the number of science education courses to be insufficient preparation for teaching science. Further work in understanding how to prepare teachers who are able to develop scientific ideas is needed.

Whatman, Cosgriff, and Thevenard (1999) looked at the impact of two initial multi-disciplinary teacher education courses on beginning secondary teachers' approaches to their teaching. The beginning teachers considered that they had developed skills and strategies they were able to use in their teaching, including how to make learning fun and memorable. They felt that they had the confidence to take considered risks in their teaching and to learn from reflection on experience.

Our review located a single study on music education in initial teacher education. Bolton (2000) showed how participation in a multidisciplinary performing arts group creative project impacted positively on generalist primary teacher education students' perceptions of their own abilities in music and their ability to teach music. As with other studies there was no exploration of the actual impact of the course on student teacher approaches to teaching music.

What are the beliefs of student teachers about learning and teaching and can they be influenced by initial teacher education? We found only one study that examined changes in student teacher beliefs over time.

A three-year study by Mitchell (2001) of 17 early childhood student teachers examined their beliefs about the role of the teacher and how children learn, the influences on these beliefs, and changes to them over time. The 17 participants completed 5 questionnaires and a sample of 7 were interviewed and observed on teaching practice. The results indicated that the beliefs student teachers construct are powerfully informed by experiences prior to the teacher education programme and that the family is perceived to be particularly influential. While some beliefs appear to be quite stable, particularly those that had their origin in family values and those that contained strong affective elements, it was apparent that all students modified their beliefs in some way during the course of their studies. Four major trends in terms of belief development about the characteristics of a good early childhood teacher were identified: the move from a dyadic to an ecological view of early childhood education; from an emphasis on caring to one of educating; from a focus on homogeneity to heterogeneity; and from a sense of spontaneity to one of predictability. In terms of children's learning, participants in their final year paid increased attention to the role of exploration and play, and learning through social interaction. Increasingly their ideas were informed by socio-cultural theories of learning. The author concluded that teacher

education does impact on student teacher beliefs, the impact being greatest when the beliefs that the student teachers use to construct their teaching identity are recognised and built upon.

There have been a number of policy initiatives in recent years designed to increase the number of Mäori and Pasifika teachers. Research into the impact of these initiatives, or into the ways institutions are supporting such students, is negligible. One study by Dickie, (2000a, 2000b), explored Pasifika student teachers' views of how their college of education could best support them to complete their training. Family and community commitments as well as the need to earn money while studying were seen to inhibit programme completion.

Although institutions generally claim to address bicultural issues, there is little research on the outcomes of courses that attempt to be inclusive of bicultural perspectives. An example is the work of Averill and Te Maro (2003), although this was limited to student teacher understandings of bicultural content in a mathematics education course. The research confirmed that student teachers were able to give working definitions of bicultural approaches to mathematics teaching and identify where they were used in the course, but there was no exploration of whether student teachers intended to use these approaches in their own teaching.

A recent study by Bertanees and Thornley (2004) reports the impact of a component of a degree programme that was intended to challenge student teachers' hegemonic views of schooling, and deficit perspectives on the underachievement of Mäori children in New Zealand schools. The intention of the degree programme was to develop critically reflective student teachers who were able to "see their actions in relation to the historical, social and cultural context in which their teaching is actually embedded" (p. 82). The authors describe three phases of intervention. The first phase consisted of learning te reo Mäori and "explaining to" the student teachers that understanding diversity would increase their ability to cater for individual student learning needs. This phase and the subsequent phase did little to shift perceptions that reasons for Mäori underachievement were inherent in Mäori "difference" and were situated within Mäori culture. The third phase required the formulation of an integrated philosophy throughout the degree as well as equipping the student teachers with the tools to "critique the structures and ideologies that support schooling in New Zealand as a political enterprise and the conduit to privilege and marginalisation" (p. 88). This phase involved analyses of: curriculum development and implementation; representations of Mäori in school texts; and national curriculum and position statements. Student teachers were surveyed for their understandings of the Treaty of Waitangi for school curriculum policy, the ways curriculum policy acknowledged the Treaty, and how Mäori are represented in curriculum and educational policy. The authors reported that after only one semester some students were able to critically theorise the policies and practices of "curriculum that resides within a colonial framework" (p. 91) and develop an appreciation of how Mäori children are marginalised in mainstream schools in New Zealand.

Interpretative commentary

The research that has been undertaken into teacher education courses, and innovations designed to improve outcomes for student teachers, reflects the interest of teacher educators in developing a deeper understanding of ways to improve student teacher learning. The work is characterised by one-off studies that explore useful question(s) but that most commonly signal productive areas for further investigation rather than actually continuing the study. This reflects the constraints on the work of teacher educators as they attempt to balance the need to be an expert teacher as well as a committed researcher.

The work cited in this section again highlights the significant gaps in current knowledge. There is limited knowledge, for example, of the effectiveness of government and institutional initiatives to support Mäori and Pasifika student teachers. Also with the exception of some curriculum areas, there is limited evidence about the contribution of many of the key components of teacher education programmes.

9. Associate teachers and the practicum

Student teachers, teacher educators, and teachers in schools and early childhood centres view the practicum as an essential component of learning to teach. It is not surprising that the practicum has been the focus of considerable investigation. The review includes 27 studies on the practicum. Seventeen focused on the practicum in primary schools, and there were five studies on secondary and three on early childhood practica. Six of the studies focused on associate teachers;[12] there were ten studies on the views and experiences of student teachers; and nine studies involving combinations of participants. The studies investigated: perceptions of the purposes of practicum experience; perceived roles of participants; relationships between participants; practicum experiences usually from the perspectives of student teachers; and analysis of associate teachers' mentoring practices. The majority of the research reported generally positive views and outcomes with regard to the practicum, although there were less positive outcomes reported for student teachers in secondary schools. There was one study only (Meade & Bruce, 1995) that reported data for children.

Perceptions about the practicum

Haigh and Ward (2004) conceptualise the practicum as an opportunity for student teachers to develop creative and thoughtful approaches to teaching within a supportive and knowledgeable collaborative context. They reject the view that the practicum is the site where student teachers "apply" the theoretical approaches to teaching that have been advocated in their coursework. Instead they claim that student teachers should take a critical and reflective approach to their developing practice. Their research (reported later in this section), however, shows that student teachers seldom demonstrate such approaches during practicum. Turnbull (2004) also conceptualises the practicum as a social system rather than as an event and/or opportunity to teach.

Calder, Faire, and Schon (1993) investigated ten male and ten female teacher education lecturers to identify factors that they believed enhanced or inhibited student teacher learning and practice during the practicum in schools. Important factors included the interpersonal and communication skills of both associate teachers and student teachers. The need for better communication between the programme and schools and professional development for associate teachers to develop knowledge and skills required for effective student teacher mentoring was identified. Changes

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[12] Associate teachers are defined as teachers in schools or early childhood centres with major responsibility for the mentoring of student teachers in their own classroom or learning environment.

were made to the practicum component and other courses in the initial teacher education programme, which included better integration of theory and practice, greater specificity of expected practicum outcomes, time allocations to facilitate communication between the university and schools, and professional development opportunities for associate teachers.

Associate teachers

There has been considerable research interest by teacher educators in how their colleagues in schools (associate teachers) view their role in the preparation of teachers. This research appears to be carried out to see how well associate teachers' understandings align with what teacher educators in institutions think the work of associate teachers should be, although this is not stated explicitly. There is an implicit view that an associate should act as a mentor, who in ideal circumstances could be defined as:

> An experienced, successful and knowledgeable professional who willingly accepts the responsibility of facilitating professional growth and support of a colleague through a mutually beneficial relationship (Hutto, Holden, & Hayes (1991) reported in Sinclair, Clarke, Harris & Livermore, 2004).

Much international literature tends to be critical of the contribution of associate teachers to the development of student teachers. For example, Feiman-Nemser (1998) concludes that teachers in the USA do not see themselves as teacher educators, and do not consider they have much to contribute to programmes based on research-based knowledge. She believes that as a consequence student teachers miss out on the richness that a thoughtful teacher can bring to teacher education. In her view typical supervision practices emphasise emotional support, practical advice, and technical proficiency rather than assisting student teachers to think critically about their teaching and their reasons for their teaching decisions. She believes that student teachers cannot be assumed to learn what would help them to be good teachers unless the context provides the right sort of learning opportunities such as "opportunities to explicate one's knowledge of teaching, to develop observation skills, to learn to talk about teaching in productive ways, to clarify what learning to teach means, and to analyse dilemmas of teaching" (ibid, pp, 72-73). This has been demonstrated also in the work of Ethell (1997) and Ethell and McMeniman (2000) who call for associate teachers to make explicit the thinking and intentions underlying their practice in purposeful conversations with student teachers about teaching practice that allow students to "get inside the heads" of expert practitioners.

Several researchers have investigated how associate teachers in this country view their roles. Gendall (1997) sought to determine the degree of "match" between stated programme outcomes and what associate teachers thought their roles were in a regular day-in-school each week programme. She also sought input on how to improve the day-in-school programme. Gendall found that associate teachers supporting student teachers tended to see their role as "hosts" to student teachers as well as demonstrating effective classroom practice for student teachers to learn

from. Some of their views were inconsistent with programme expectations in that they emphasised modelling of craft knowledge rather than communicating reasons for their teaching practices. The study identified: the need for stronger partnership between the teacher education institution and the associate teachers; more opportunities for professional development in mentoring skills; and additional resources to give associates and students the time to meet together to discuss their work.

Cameron and Hawkins (2000) found that primary associate teachers in their large sample had altruistic reasons for being associate teachers. They most strongly agreed with the statement "commitmet to ensuring beginning teachers are well prepared" as well as wishing to share their knowledge about teaching, and enjoyment and satisfaction derived from working with student teachers. Almost half of the associates agreed that a reason for being an associate was to develop their supervision and management skills, although a third were neutral and the remainder disagreed. From their comments it appeared that those who were neutral or disagreed considered that they already had those skills.

The aforementioned research (Cameron & Hawkins, 2000; Gendall, 1997) and Fraser (1995) shows that associate teachers in primary schools appear to be generally supportive of the work of their colleagues in institutions. Associate teachers in these studies consider that they have a key role to play in the preparation of the next generation of teachers. Associate teachers emphasised their role in practical guidance and emotional support, and showed a preference for student teachers who displayed pleasant and conformist interpersonal characteristics, such as being well prepared, punctual, and tidy. The researchers in these studies advocated a wider role for associate teachers that included a greater emphasis on providing a theoretical rationale for their work, and skill in helping student teachers judge whether their teaching intentions were reflected in student learning.

Several studies have explored the relationships between associate teachers and student teachers from the perspectives of the latter. McGee, Oliver, and Carstenson (1994) found in a survey of graduating student teachers that while they were generally positive about working with associate teachers, they were well aware of the implications of maintaining a positive relationship with their associate teacher for their future employment. This meant that half of them had made compromises about their teaching approaches and management techniques. Ferrier-Kerr (2003) focused her research on the relationship that developed between four associate teachers and their student teachers during a block practicum and identified personal connectedness and collaboration as the most critical principles.

Links and alignment between programme components

Good communication between staff in initial teacher education programmes and their colleagues in schools and centres and a collaborative approach to practicum outcomes and processes increase the likelihood that student teachers will learn from these experiences. The research reviewed

suggests that there are practical and theoretical reasons why student learning during practica can be compromised. A study by Julian (1998) of five new providers of teacher education and their associated practicum schools highlighted the practical effort required for practicum placements to work for student teachers and the difficulties for schools that worked with a number of providers with different expectations.

Haigh and Ward (2004) believe that initial teacher education is intended to foster the knowledge, dispositions, and skills required for student teachers to "look beyond the immediate, to search for meaning and to challenge the norm". Since 1997 the authors have explored the nature of practicum relationships, and the degree of shared professional understandings within these relationships. The studies have all been located within New Zealand secondary schools. They have found that despite good intentions within the practicum, their definition of the practicum has yet to be achieved in practice. It was evident from their studies that student teachers were not given the freedom to develop professional agency to any great extent, which limited their opportunities for creative approaches, innovation, and risk-taking. Student teachers did not demonstrate either the skills or the inclination to exercise such professional agency. The authors conclude that shared understandings of the roles of participants in the practicum need to be developed, so that the practicum can operate as a rich educative experience as opposed to a site for practising teaching. They consider that the culture of the secondary practicum has proved resistant to change, suggesting that the currently the contribution of the practicum to the preparation of future teachers is limited.

Turnbull (2004) focused on the extent to which the student teachers were able to demonstrate professional agency in their early childhood practicum. The capacity of the student teachers to demonstrate professional agency related to the degree of alignment between programme components and the practicum settings. Student teachers appeared to have had different learning experiences in their college programme in relation to the skills of critical reflection, and they also experienced inconsistencies in practicum supervision and the triadic assessment process. In this paper the author considers ways to strengthen the congruence between the two sites for student teacher learning. The following recommendations were made: greater consideration of the integration of theory and practice in the early childhood courses; development of a specific module for practicum preparation for early childhood student teachers; on going professional development to enhance supervisory practice for early childhood visiting lecturers; development of moderation processes to ensure reliability in practicum assessment; and on going professional development to enhance supervisory practice in early childhood associate teachers.

Russell and Chapman (2001) demonstrated how working on short-term contracts in an initial teacher education programme was shown to strengthen partnerships between 25 early childhood, primary, and secondary associate teachers and a college of education. Most teachers felt that the time at college as teacher educators had allowed opportunities for reflection that were not possible in the normal day-to-day activities of a teacher. They reported that they had been able to re-examine their teaching and the relevance of theory in informing practice. The opportunity to visit classrooms and centres other than their own was seen to be professionally valuable. Other aspects

that were valued were collegial interaction, feeling that their input was relevant and valued, working with student teachers, and the professional renewal generated from increasing their professional knowledge (the opportunity to access recent research literature and attend conferences). Most of the teachers considered they had made changes in the way that they taught resulting from their employment in initial teacher education. These were identified as a greater focus on sound pedagogical practices, an increased awareness of equitable practices, and a willingness to experiment and be innovative. They now felt better able to support the professional learning of student teachers in their classrooms and centres, given that they had a better understanding of college courses, programmes, and expectations.

The research points to a continuing need for partnerships, dialogue, and two-way professional development to enhance the learning of all of the contributors to the professional learning of student teachers.

Finally, an example of an intervention in early childhood teacher education (Meade &Bruce 1995) describes an action research project about student teacher, lecturer, and children's experiences in a model in-college practice setting. This study used a range of data gathering approaches including videos of practice, observation, questionnaires to all participants (including oral versions for the children). Analysis of the data generated rich insights into strengths of this approach, and where teaching could be improved so that student teachers were better able to extend the learning of the children.

The experience of practica

Not all experiences on practicum are desirable or produce positive outcomes for student teachers. Gibbs (1995) and Ovens (1996) explored concerns expressed by student teachers about practicum. Gibbs's study asked first year primary teacher education students to record their concerns after their second practicum, while Ovens focused on problems experienced by student teachers during their practicum placements for a secondary degree course in physical education teaching. Gibbs's study found that the large majority of students found their associates and schools to be welcoming and supportive, but that they may have been expected to assume too much classroom responsibility too early, with the risk that they would emphasise classroom control rather than student learning. Ovens' study found that student teachers held strong established conceptions about teaching which influenced how they interpreted their experiences and what they were able to learn from the experience, including what advice they listened to and acted upon. Like the student teachers described earlier they conformed on the surface to the expectations of their associates to ensure positive evaluations, but did not necessarily learn from them. Ovens identified several problems with practicum experienced by his group of student teachers:

- little purpose and direction of the practicum;
- poor supervision and feedback;
- little autonomy to make their own decisions;

- pressure to conform to the associate's teaching style;
- working in poor quality programmes;
- increases in workload and time commitment; and
- the experience is too short.

Ovens concluded that practicum experiences provide a "unique and precise" opportunity for student teachers to learn about teaching, but that these experiences need to be appropriately structured. He stressed the need for associate teachers to have skills in facilitating student teacher learning by testing and challenging their beliefs and practices in a supportive, understanding, and collegial supervision environment.

A small study by Dunmill (undated) showed how nine specialist secondary music student teachers changed over their one-year programme from having idealistic views of the kinds of teachers they would be to deciding not to apply for teaching positions. While one of their reasons related to gaps in their knowledge and skills for teaching general music in secondary schools, the quality of student teacher supervision and general lack of school support for music education influenced their decisions to seek careers outside secondary schools.

Insley (2004) reports the concerns of secondary ESOL student teachers at several points in their one-year initial teacher education programmes. Initially prospective teacher education students identified highly idealistic dimensions of teaching such as "passion", "enthusiasm" and were dismayed at the mismatch between these characteristics and the teachers they observed early in their programme. They were catapulted into "survival mode" when confronted with the reality of classroom life, and by the end of their second practicum the majority of the student teachers became preoccupied with class control, and many were dealing with self doubt about their choice of career and personal adequacy for teaching. Perceived inadequacies in personal content knowledge for teaching were also identified.

A recent study by Ferry and Brunton (2004) investigated primary student teachers' use of on-line resources in their final practicum. The study found that student teachers were actively using the Internet to assist them with their planning and assessment, along with more traditional sources of information. The most frequently assessed site was Te Kete Ipurangi (TKI)[13] which had become a central tool for these graduating student teachers. This was particularly valued for its information and links to other sites. NZ Maths[14], the Assessment Resource Banks[15] and the New Zealand Curriculum Exemplars (available on TKI) were also used by student teachers.

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[13] The TKI site can be accessed at www.tki.org.nz.

[14] The NZ Maths site can be accessed at : www.nzmaths.co.nz.

[15] Assessment Resource Banks can be accessed at http://www.arb.nzcer.org.nz

Analysis of student teacher practice

There is no research on what teacher education lecturers focus on when they provide feedback to student teachers about their teaching during practicum. Although there is research on what associate teachers *say* they do when working with student teachers there is very little data on what they actually do. Sanders, Dowson and Sinclair (in press) used case study methodology to observe interactions between four primary level associate teachers and four student teachers. Seven roles emerged from the data, although two main roles predominated. Forty percent of all interactions were identified as "planning", where associate teachers discussed their planning in practical "nuts and bolts" terms. They did not provide rationales for their teaching decisions, and there was only one reference out of 144 interactions to New Zealand curriculum documents. The teachers later confirmed that they did not feel they had a strong understanding of these documents or a clear idea of what they should be focusing on in their work with student teachers. A quarter of interactions were classified as "teacher modelling", and 14 percent as "evaluative". The evaluative interaction tended to be short, on the run, and related to management and classroom organisation rather than children's learning. Only one percent of the interactions were focused on pedagogical talk. It was noted that associate teachers gathered minimal data on which to focus their discussions with student teachers. The authors identified three necessary conditions for more educative interaction: time; associate teacher knowledge of the content and approaches of programmes of teacher education; and "a significant degree of cognitive organisation" on the part of the teacher. The research also identified the difficulties that associate teachers have in juggling their multiple roles and recommended the need for explicit opportunities for associate teachers to perform their roles more effectively.

Timperley, Black, Rubie, Stavert, and Taylor-Patel (1999) gathered direct evidence of conversations between mentors and student teachers. Three of the mentors who had been trained to probe student thinking and decision making were described as performing their roles in an educative manner. They were better at eliciting student teacher theories than they were at articulating theory-practice links. The fourth mentor and most of the associate teachers' activities resembled a "teacher training" model in which practical teaching guidance predominated. The authors concluded that the skills necessary to promote reflective practice in student teachers are "a matter of training and reasonably attainable under certain conditions".

A subsequent study by Timperley (2001) reported that teachers were able to shift their conversation with student teachers from unsupported judgements about student teacher performance to data-based exploration and joint development of future teaching approaches. There is, however, no evidence that such conversations result in better student teaching. Given the unequal power relations that student teachers have identified, could student teachers engage in these conversations to comply with associate teacher expectations as other studies suggest? In addition, while the four teachers demonstrated the conversational skills favoured by the researchers, the work of researchers such as Berliner (2001) would suggest that teachers need to have acquired a level of professional expertise to be able to represent teaching dilemmas in ways that go beyond personal characteristics of teachers, children's apparent engagement in lessons,

and affective features of classroom interaction. Schools may not be able to choose associate teachers with this level of expertise.

Interpretative commentary

The research reviewed on the practicum highlights the complexity of learning to teach in classrooms and centres. It confirms other research into the practicum which has identified that a number of factors, some outside the control of institutions, need to be in alignment to maximise the opportunities for student learning.

What is apparent from the New Zealand research reviewed is that the practicum as an opportunity for "real" learning for student teachers remains somewhat contestable. The studies reviewed, although typically of a small scale, do identify some concerns about the ways in which practicum is experienced by the student teachers, the associate teachers, and the teacher educators. They point to the need for further, focused research that will provide teacher educators and schools with evidence upon which future teacher education practice can be enhanced.

The research shows that there is often a lack of alignment between the goals of the practicum (as espoused by teacher educators or in programme documents) and the actual experience of the practicum. In some cases this lack of alignment is evident in the practices of the student teachers but it is evident also in the ways in which the associate teachers or teacher educators undertake their roles as mentors. This research demonstrates a need within New Zealand for more in-depth evidence-based research on the complex triadic relationship of the student teacher, the associate teacher, and the teacher educator. Such research could examine how this relationship could be best developed to ensure that the practicum is indeed an effective context within which student teachers can further develop their personal professional knowledge as emerging teachers.

10. Programme evaluation

This section focuses on efforts to evaluate programmes of education rather than the particular courses reviewed in Chapter Eight. It is reviewed under two headings: research carried out within programmes of education and external research such as that commissioned by the Ministry of Education.

Research by institutions

The most common approach to programme evaluation has been surveys of, or interviews with, beginning teachers and those who work with them, which seek their perceptions on whether initial teacher education has equipped graduates with the knowledge and skills to function in a satisfactory manner in the classroom. Some research, for example, Cameron and Grudnoff (1993), surveyed employer satisfaction with graduates; while other research (Brooker & Millar, 1997; Kana, 1999; Laing, 2000) surveyed graduates. Some studies (Grudnoff & Tuck, 2002) seek feedback on programme effectiveness from student teachers and their tutor teachers.

The introduction of compressed programmes generated research from their onset (Brooker and Millar, 1997; McGee & Penlington, 2000a, 2000b). While these authors found considerable resistance from teacher education lecturers, associate teachers, and principals about the adequacy of compressed courses for preparation to teach in primary schools, graduates from these programmes were perceived to be "managing well" once they had been teaching for six months or more. Both studies found that considerably more support was required from their employing schools in the early months.

There are several examples of research looking at programmes taught in distance, flexible, or mixed methods. Delany and Smith's (2001) analysis of academic results for students enrolled in Christchurch College of Education pre-service programmes showed that students studying by distance, particularly in isolated and economically disadvantaged areas, have a lower success rate than those on campus. The author notes that while flexible learning options may increase access to teacher education, institutions need to understand the barriers to successful learning and be more responsive to them.

Donaghy and McGee (2003) and Donaghy, McGee, Ussher, and Yates (2003) examined university teachers' and student teachers' experiences in an e-education version of the Bachelor of Teaching degree. All of the lecturers found that the e-learning environment had challenged them to re-work their conventional approaches, and regarded this as valuable professional learning. While they enjoyed the flexibility of teaching on-line, they found that there needed to be

institutional acknowledgement of the additional demands that this approach required. The lecturers all commented on the motivation of on-line student teachers and how this was reinforcing to them as teachers. Technical issues with software, copyright restrictions, inadequate telephone lines in rural areas, and incompatibility with different users' computers were all challenges faced by lecturers. The quality of teaching models in practicum and placement schools was highlighted as a concern, as there is currently no quality assurance in this area. Given the numbers of institutions offering teacher education by distance there is a shortage of information on how teacher educators work and how students fare in these programmes (and ultimately as teachers).

All of the student teachers generally had positive evaluations of their on-line programme. They identified some problems, most of which related to inconsistency in lectures and courses. Regular interaction and feedback, combined with user-friendly on-line environments contributed to what they considered to be a good course. The findings in this study show that there is an ongoing need to investigate, in detail, a number of aspects of on-line teaching and learning.

In 1998 Auckland College of Education began a longitudinal research project focused on perceptions of the performance of the college's primary graduates in their first years of teaching. This research is based on the belief that the quality of the beginning teachers' classroom practice is a key indicator in any evaluation of the quality of pre-service teacher education. Grudnoff and Tuck (2002) have sent questionnaires annually to all beginning teachers and their tutor teachers and have interviewed a sample of beginning teachers and tutor teachers at the end of each year, following them through their first and second year of teaching to the point of full teacher registration. They reported on interviews with 16 primary beginning teachers and their tutors as they were completing their second year of teaching. All had been recommended for full registration by their principals and were regarded as competent (and in some cases, excellent) colleagues by their tutor teachers. They had got on top of the "steep learning curve" identified in their first year, were enjoying their work, and were now described as "savvy" teachers.

Langdon (2000) sought principals' perceptions of how initial teacher education programmes can contribute to the development of the dispositional, personal, and professional qualities principals identified as important attributes for beginning teachers. All of the principals proposed a closer collaboration between schools and providers of programmes of initial teacher education. While none wanted to move to a model of school-based teacher education they identified benefits for student teachers, practising teachers, children, and schools in building and developing collaborative approaches to initial teacher education. They also emphasised the importance of all contributors to initial teacher education subscribing to a coherent model and practices that provided student teachers with consistent role models and shared theoretical understandings.

An area of strategic importance to the government is the achievement of Māori and Pasifika students. There is little empirical research examining ways teacher education programmes have contributed to ensuring that their graduates have the commitment and knowledge to teach in ways that maximise the likelihood of success of these students. A paper that touched on this was an

investigation by Averill and Te Maro (2003), although this was limited to student teacher understandings of bicultural content in a mathematics education course. The research confirmed that student teachers were able to give working definitions of bicultural approaches to mathematics teaching and identify where they were used in the course, but there was no exploration of whether student teachers intended to use these approaches in their own teaching. A small-scale study by Ritchie (1994) indicated that graduating student teachers believed that they had developed greater bicultural awareness and commitment as a result of their initial teacher education programme, but that they had not sufficiently developed skills in this area.

A more recent study by Ritchie (2003) describes processes within an early childhood teacher education programme that were designed to support its stated commitment to Te Tiriti o Waitangi/the Treaty of Waitangi. The study describes the processes from the perspectives of participants. The lecturers described the strategies they employed to generate a "heartfelt commitment" to biculturalism in teacher education student teachers, pointing to the need for teacher education to go deeper than technical competency. Pedagogical approaches that were implemented included study of colonisation, cultural and racism awareness, interactive teaching, exploring own cultural paradigms, and validating emotions. The positioning of Mäori knowledge as central in programme content, and partnership between Mäori and Päkehä lecturers to ensure that Mäori content is taught appropriately, were other features of the institution's approach.

The shortage of research in this area provides little evidence that initial teacher education programmes are exploring ways to develop pedagogies that are inclusive of Mäori and Pasifika students, or that they have any impact on student teacher understanding and use of these pedagogies.

Kana (1999) evaluated the effectiveness of a three-year Mäori immersion primary teacher education programme and found that all graduates were teaching in Mäori medium classrooms with the majority considering that they had been well prepared for teaching.

There are several studies that focus on how well ICT knowledge was developed in teacher education programmes. Hunt (2000a, 200b) reports a survey of lecturers, and graduating early childhood, primary, and secondary teacher education students in a college of education, about their knowledge, access to, and use of, information technology during their initial teacher education programme. This study showed that while access to ICT was high, there was little use of ICTs in their college programme or in schools. The study provided evidence of the need for the college to embed the use of ICTs into student teacher work across the curriculum, and for it to work alongside teachers to try to provide experience in using ICTs in classrooms. A further study of graduating student teachers by Elliot (2002) generated the same conclusions. The results may signal a need for further attention and research into the teaching of ICTs in initial teacher education.

As with the international literature there is a shortage of research on the extent to which particular approaches to teacher education contribute to teacher effectiveness. There are many questions that have not been systematically investigated. A major question is the extent to which the broad

intentions of the qualifications as described in programmes' accreditation documentation are reflected in programme approaches. What evidence is there that particular programmes' espoused curriculum, pedagogical, and assessment approaches are reflected in the curriculum, pedagogy, and assessment experienced by student teachers? And, of equal importance, what is the evidence that these approaches are likely to prepare student teachers who can teach in critical and powerful ways that engage all learners?

While the pedagogy of some initial teacher education programmes appears to advocate small-group instruction as opposed to lecture format, there is no research that provides insight into the benefits of either approach. What are the differential outcomes of teacher-centred paradigms (lectures, study of single disciplines, acquisition of knowledge outside the context in which it will be used, assessment primarily summative) and learner-centred paradigms (student gathering and synthesis of information, integration with skills of inquiry, communication, critical thinking, problem solving, active engagement, interdisciplinary learning, communication of learning with others, learning from errors)? Is there any evidence that the pedagogy used in small groups reflects a learner-centred paradigm? There has been no exploration of the costs and benefits of different approaches to teacher educators and the institutions. There is evidence from international studies that in traditional forms of university instruction students often acquire inert knowledge that can be used in institutional settings but cannot be transferred into problem-solving in real life contexts (Mandl, Gruber, & Renkl, 1996). Large group lecture formats may therefore contribute to institutional efficiencies, but may or may not inhibit student teacher understanding, while an adherence to small group teaching may or may not enhance student teacher learning but be costly in terms of teacher time, and contribute to job conditions that limit involvement in research and scholarship. The recent PBRF exercise has highlighted the limited "research outputs" of teacher educators, which is likely to result, at least in part, from their high teaching loads often associated with their commitment to pedagogical approaches that involve small group teaching.

External research

There is a shortage of longitudinal studies evaluating the nature and effectiveness of initial teacher education. The exception is the larger-scale New Zealand Council for Educational Research longitudinal research of Renwick and Vize (1993a, 1993b) that analysed information on student teachers' progress through colleges of education and their first year of teaching.

In contrast with typical findings in other jurisdictions, particularly the United States, most of the studies reviewed here have generally found moderate to high levels of satisfaction with programmes of teacher education. On the whole New Zealand's teacher preparation programmes are shorter than the OECD average, yet Gray and Renwick (1998) found that a majority of surveyed primary beginning teachers felt well prepared to plan in all essential learning areas other than technology, although they felt less prepared to assess children's learning (a critical component of effective teaching). Those who had completed four-year programmes appeared to

be better able to plan, teach, and assess in a number of areas (according to self-report and their supervising teachers). Secondary teachers felt well or adequately prepared to teach in their curriculum area although assessment was also an area of concern.

Renwick (2001b) interviewed graduating student teachers from a primary BEd (Teaching) programme to assess its effectiveness. There were two phases to the study: Phase One involved a questionnaire and focus group interviews with graduating students about their views of their preparation to teach, and Phase Two involved face-to-face interviews with a representative sample of provisionally registered graduates and their principals and tutor teachers.

She found that virtually all the graduating student teachers indicated that they considered themselves ready to teach. A high proportion of student teachers were confident or very confident in most aspects of the New Zealand curriculum as surveyed through the questionnaire. Students who had achieved well academically in the programme were the most confident and positive about their abilities as teachers and about their initial teacher education programme. Areas for development of the programme were identified. These included assessment practices, practicum timing and design, teaching students with diverse learning needs, and greater curriculum emphasis on technology, te reo, and possibly science.

Phase Two was essentially 20 case studies of provisionally registered teachers in their first year of teaching. While most beginning teachers were positive about their initial teacher education programme, three were critical of their experience, and most had suggestions for improvement. The author suggested that factors such as choice of courses, and teacher educator quality, influenced their experiences of the programme. Beginning teachers believed that their class programmes reflected the key values of the BEd (Teaching) programme. These included an emphasis on: developing a programme appropriate for all of the children in the class; critical thinking and reflective practice; systematic and regular planning; classroom practice with a sound theoretical basis; appropriate assessment practices; and the need to use a wide range of teaching strategies.

The introduction of new programmes of teacher education, such as the compressed courses for primary teachers and on-line learning, prompted external research into these approaches. Research was commissioned in 1997 by the then Teacher Registration Board, to "conduct an external audit" of the recently introduced compressed programmes of initial teacher education. (Renwick & Gray, 1997). The authors concluded that it was too early to judge whether compressed programmes of initial teacher education were an effective way of providing teachers in a shortage, but noted that the providers (all of whom were experienced teacher educators) had considered innovative ways to teach their programmes, particularly in their relationships with schools. The authors recommended on going monitoring of these programmes. While this has sometimes occurred in individual institutions as part of monitoring for the New Zealand Teachers Council, there has been no published evaluation of these programmes since 1997. Since that time large numbers of providers have been able to offer teacher education and there is no research on these programmes or any comparative studies.

Interpretative commentary

The research into teacher education programmes includes systematic review of perceived programme effectiveness and studies that reflect emerging areas of importance.

The former includes employer satisfaction surveys and studies that have investigated beginning teachers' views of their pre-service experiences. The latter includes research into the impact of the compressed primary programme as well as the examination of new delivery modes such as by distance and e-learning. A few studies have investigated the way a key element or principle of a programme has been realised in practice. For example: how a programme has translated into practice its commitment to Te Tiriti o Waitangi (Ritchie, 2003); and the opportunities student teachers have to develop the ICT skills they will need to support student learning in their classrooms (Hunt, 2002a, 2000b).

While there is considerable scope for more comprehensive work at the programme level it is in this area where there are examples of longitudinal and commissioned research. The only other area where research has been generated from outside teacher education itself is three studies on beginning teachers. The importance of longer-term, in-depth studies is demonstrated by a series of investigations by Renwick and her colleagues. Renwick's significant contribution to our current knowledge of teacher education in New Zealand is acknowledged.

11. Beginning teachers

This section reports research studies that are about beginning teachers in their first two years of teaching. We define a beginning teacher as a teacher with provisional teacher registration status who is employed in a school or early childhood centre.

The focus is on beginning teachers and their working environments, rather than their initial preparation for teaching, although sometimes studies include both foci. This section focuses on aspects of teaching they find rewarding, and the supports and resources available to them, as well as what works against their enjoyment of their work, their professional learning, and their motivation to remain in teaching.

National data

Fursman and Visser published the most recent national survey of new graduates from initial teacher education programmes in 2001. Data was obtained from a postal survey of new primary and secondary teacher education graduates in 1997, which asked them about their teaching intentions for 1998 and beyond. Further surveys were sent to beginning teachers who could be located eight months later. At the end of 1997, 13 percent of new graduates did not intend to teach in 1998. The main reasons were overseas travel and further education. A small number planned to seek employment outside teaching because of perceived low salaries, the stress and long hours they associated with teaching, and the greater opportunities they felt were provided by other occupations. In mid 1998, 41 percent of new graduates were employed in permanent teaching positions, 29 percent in long-term relieving positions of 10 weeks or more, and 15 percent were in short-term positions including day-to-day relieving. Females were more successful than males in obtaining permanent positions. Those with qualifications in mathematics and science (particularly physics and chemistry) were less successful in obtaining employment. Nine percent had not taught since graduating and 28 percent were looking for a teaching position. Eight months after graduation 13 percent of the sample were not teaching.

Principals' perspectives

Given that it is the school principal who employs beginning teachers Langdon (2001) sought information on the factors that influence their hiring decisions. Fifteen urban primary school principals from a range of school deciles participated in either a focus group interview, a one-to-one interview, and/or a written questionnaire which sought their perceptions of effective

beginning teachers, including the knowledge dispositions, skills, and practices required by beginning teachers. Six common perceptions of effective beginning teachers emerged. An effective teacher was described as having: (1) the child at the centre of their practice; (2) positive dispositions and commitment to teaching; (3) a teaching philosophy and commitment to learning; (4) curriculum content and pedagogical knowledge; (5) ability to manage a classroom to support learning; (6) ability to reflect on and respond to their particular working context. In the view of the author, principals' expectations went beyond technical competency; they expected their beginning teachers to exhibit moral purpose and intellectual approaches to their work.

In contrast with the earlier Cameron and Grudnoff (1993) study this group of principals did not emphasise employing beginning teachers who fitted in to the school culture although it could be hypothesised that they would seek to employ beginning teachers who appeared likely to match their perceptions of effective beginning teachers. Broadley and Broadley's (2003) study indicated that principals seek beginning teachers who are likely to be compatible with their particular school mission. The researchers asked principals to sort and return packs of cards containing statements about beginning teachers. The responses were used to develop a four dimensional map that enabled the researchers to determine principal "styles" in relation to their employment preferences. Eight styles emerged for eight dimensions (management, school ethos, community, commitment, teamwork, child focus, maturity, and enthusiasm) with principals emphasising particular "mixes" of beginning teacher attributes. What appeared to be most important to principals as employers of beginning teachers was the degree to which the applicant was compatible with their views and values.

Renwick (2001b) found that all primary school principals in her sample were pleased with the performance of the 20 beginning teachers she had tracked into the classroom. In all cases they considered that their beginning teachers had either met or exceeded their expectations with some considering that they had met registration standards after two terms in the classroom.

Induction

The term induction is taken to mean the support provided to provisionally registered teachers until they are judged to meet requirements for full registration. New Zealand is unique in its provision of a 0.2 component of additional salary in the first year of provisional registration for the provision of advice and guidance programmes to support the on going professional learning of beginning teachers. At the end of the two- year induction period, the principal (or employer in an early childhood centre) attests that the beginning teacher has met standards for full teacher registration.

There have been two national research projects on the professional support provided to beginning teachers in New Zealand. The first, (Mansell, 1996), surveyed first and second year primary and secondary beginning teachers about their advice and guidance programmes and their use of the 0.2 time. While the response rate for the first year beginning teachers was just 41 percent (and

unknown for the second years as there is no national information on this group) all respondents were positive about their advice and guidance programmes, although primary teachers were more positive. Most beginning teachers had an identified supervisor with whom they set up regular meetings and support from other teachers. The 0.2 time was used differently in primary and secondary schools, with primary beginning teachers twice as likely to work directly with school students on monitoring and assessing their learning, or observe teachers in other classes. Primary beginning teachers were four times as likely as their secondary colleagues to spend some of the 0.2 time observing or working with groups of students. Twenty-two percent of this cohort did not expect to be teaching in ten years' time.

The second national study by Renwick (2001a) also investigated the experiences of primary and secondary beginning teachers and their perceptions of the effectiveness of their advice and guidance programmes. A random sample was drawn of beginning teachers who were entitled to the 0.2 allowance for beginning teachers. There was a response rate of 79 percent from primary beginning teachers and 86 percent of secondary beginning teachers. This study supported the findings of Mansell (1996), and recommended the need for greater understanding of the personal and professional skills required to support beginning teachers effectively in the classroom. It also suggested that there is scope for providers of initial teacher education and schools to develop a shared understanding of their roles, given that the provisional registration period is a continuation of teacher preparation.

As part of a wider study, Dewar et al. (2003) interviewed staff in 20 secondary schools. Beginning teachers in those schools reported that apart from an initial orientation to the school, their advice and guidance programmes appeared to provide an ad hoc rather than implemented in a formally scheduled basis. Many of the beginning teachers expressed their desire to have regularly timetabled supervision as well as opportunities to observe the teaching of their colleagues, as part of their advice and guidance programme. While school personnel acknowledged the importance of mentoring beginning teachers, they acknowledged that they were seldom able to provide the support they felt beginning teachers were entitled to.

The information we have on induction, while identifying its importance, provides no knowledge about the goals, content and processes, or outcomes of induction programmes. Given that a recent international review of the literature on induction (EPPI-Centre, 2004) emphasises the time and knowledge required to develop effective programmes based on sound research, high standards of performance and ethical conduct (as well as a lengthy process of piloting, evaluating, and refining induction programmes), systematic research into teacher induction in New Zealand is required. It would appear unlikely that school personnel have the knowledge, time, and skills to develop effective programmes on their own.

Beginning teachers' views of their first year in the classroom

Beginning teachers in primary schools

In a small-scale study Lang (2001) found that it took six months for a group of seven primary beginning teachers to move beyond the "survival stage" and feel that they were succeeding as a teacher. These teachers were supported by planning collectively with other teachers, through individual guidance from their tutor, and by a range of personal management strategies. To some extent their learning needs reflected the nature of their programme of initial teacher education, with some "gaps" identified by some graduates from a shortened programme.

Grudnoff and Tuck (2004) reported on patterns of stress experienced by 20 beginning teachers during their first two years of teaching. Beginning teachers were asked to draw a continuous line on a graph indicating their stress levels across each year. There were significant differences in the levels of stress depicted at the start of their first year compared with the beginning of their second year. Patterns of stress across the rest of the years were similar, although stress appeared to be part of teaching. The peaks in stress levels were associated with mandated assessment and reporting activities for accountability purposes that teachers did not see as contributing to children's learning and development in the classroom.

Smales (2002) explored the images of "self as teacher" held by 30 first year beginning teachers in primary schools, the factors that influence these images, and how they are reflected in professional development, teaching practices, and personal school-based interactions. It was found that "self as teacher" images held are shaped by experience and inform the way the teaching role is perceived. The images held tend towards optimism, emphasising nurturing, caring, and facilitating and are not usually viewed in scholarly terms. Events and situations experienced during the first year can enhance, challenge, or shatter "self as teacher" image. Beginning teachers who had not moved beyond a focus on themselves to concern for student learning, appeared to consider themselves to be inadequate. Adequate and appropriate support within their working context appeared to be the key factor in enabling teachers to evolve their image as teacher and develop effective and satisfying teaching practices.

Averill, Anderson, Easton, and Hynds (2004) interviewed three beginning teachers whom they believed would be likely to include bicultural perspectives in their mathematics teaching, at the end of their first year of teaching. The interview sample consisted of one female teacher of Mäori descent (teaching at a low socio-economic kura kaupapa Mäori school), one male teacher of European descent (teaching at a high socio-economic state primary school with less than ten percent Mäori students), and a female teacher of European descent teaching in a similar school to the male teacher. The three teachers initially had high expectations that they would successfully incorporate bicultural perspectives into their mathematics programmes. The teacher in the kura kaupapa Mäori school was working in a context where Mäori perspectives were integral to the philosophy of the school, while the teachers in mainstream schools found their school contexts less supportive of their efforts. They hoped to become more assertive in communicating their wish

for open and honest debate about implications of the Treaty for their school and for more community consultation.

Most of the research on beginning teachers attempts to assess, in indirect ways, the preparedness of beginning teachers. An exception to the indirect approach is a thesis by Haynes (1996), which followed six beginning teachers into their classrooms during their first year of teaching. The study sought to explore "what life is really like" for beginning teachers, particularly in relation to their teaching of mathematics. The majority of the international research would predict that they would abandon their constructivist views on mathematics teaching when faced with classroom challenges and school expectations, yet this did not occur. They were confident in their beliefs about and approaches to mathematics teaching and classroom observations confirmed they were teaching in ways advocated by their initial teacher education programme. The beginning teachers were critical of the "tick off" approach to assessment of student learning in their schools, and while they complied with their schools' approaches they all sought more valid ways to understand what their children were learning. The study could not identify reasons for their accomplished practice, although all of the participants were of mature years and had developed a passion for mathematics teaching during their teacher education programmes.

We located one account by a first year primary school teacher of her experiences as a beginning teacher (Turinui, 2003) in a bilingual classroom. At the end of her first year, while she believed that she had grown and developed considerably, she was "left quite shattered in terms of being drained of energy, ideas and motivation", and made the decision to teach part-time in her second year.

Renwick's (2001a) study, conducted after beginning teachers in primary schools had been in the classroom for two terms, found that they were more likely to make positive rather than negative comments about their classroom experiences, with a third saying that there was "nothing" that was not going well, and a number of the others accepting that any problems were to be expected at this stage in their development and would be addressed.

While the contribution of initial teacher education was "clearly crucial" to performance of beginning teachers, it was not the only factor. Two other factors were identified: the qualities, abilities, skills, and life experiences of the beginning teachers themselves; and school-related aspects such as the nature of their schools, levels and class composition, and the quality of their advice and guidance programmes. The author noted that beginning teachers interviewed had been appointed to schools at all decile levels and that some had specifically sought employment in low decile schools. They taught across the full range of class levels including new entrants. In general schools did not adjust the composition of the class assigned to beginning teachers. As in other studies the quality of the support provided by tutor teachers was found to be very important. Although this was a small sample of beginning teachers from a small sample of schools, most found that the general practice and philosophy of their schools aligned well with the approaches advocated in their programme of initial teacher education.

Beginning teachers in secondary schools

Curham (1996) followed up secondary beginning teachers from several graduating classes over a three-year period. The factors that they identified as assisting them in their transition to teaching were ranked in order as: professional confidence; knowledge of the curriculum; ability to manage the classroom; the ability to prepare resources; and ability to relate to students. As was the case with the primary beginning teachers, the degree to which the professional culture supported their learning was critical and in some cases the perceived lack of collegiality was seen as a problem.

In 1998, McConnell (2001) sent a postal survey to secondary teachers who had participated in optional environmental education courses he had taught in 1996 and 1997 to determine whether they were teaching environmental education. He was able to locate only 18 teachers (possible total not reported) illustrating the difficulties inherent in tracking beginning teachers after graduation. Three of this group were no longer teaching, two did not plan to stay in teaching, and three were "dubious" about the long-term future as teachers. Some of the group were teaching environmental education although few felt supported by their schools to do so.

Insley (2004), in a study of 12 secondary beginning teachers appointed to ESOL positions, found that half were disappointed their ideals had not been realised in practice. One teacher said, "I would like to say that I extend students' minds and bring out latent talent, but the reality is that I deliver the curriculum and make sure that the students know how to do what they need to be able to do for assessment". Classroom management and inadequate school-wide approaches to student discipline made their teaching more difficult.

Dewar et al. (2003) identified some of the factors that reduced the professional satisfaction of beginning teachers in secondary schools. Participants in their study offered suggestions to encourage new secondary teachers to stay in teaching: reduction of administrative tasks unrelated to teaching; allocating smaller/fewer/handpicked classes to beginning teachers; rationalising workload and expectations for individual teachers and for teachers in general so that teachers feel able to "have a life outside school, and not work most evenings and weekends"; more leadership and support from senior staff and a culture that supports seeking help and sharing of professional ideas; more resources and materials in subject areas; less pressure to do extra-curricular activities while still adjusting to teaching or adjusting workload in recognition of the extra effort; and a salary that reflects workload and responsibilities and is "more in line with other professions".

Beginning teachers in early childhood centres

No research that was specifically related to early childhood beginning teachers was located. Given the government's focus on improving the quality of practices in early childhood services[16] research in this area is clearly indicated.

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[16] Ministry of Education (2002). *Pathways to the Future: Nga Haurahi Arataki. A 10-year strategic plan for Early Childhood Education* Wellington: Ministry of Education.

Interpretative commentary

The key message from the research on beginning teachers is that they generally begin their professional careers feeling confident about their capabilities. Most of the research has been reported on beginning teachers in primary schools who graduated from either colleges of education or from two university programmes so it cannot be assumed that all beginning teachers feel well prepared. There is no direct evidence that this confidence is well founded although principals and tutor teachers also report satisfaction with whom they employ.

There is no research on beginning teachers in the early childhood sector, and limited information on secondary beginning teachers. Patrick (2003) contends that an exploration of how secondary teachers shape their professional knowledge and practice in the socially and culturally diverse contexts of their classrooms is required if we are to understand how teachers can remain committed to improving the learning of all students.

There is a strong message that the quality of the school learning communities in which beginning teachers work is central to their professional satisfaction and on going learning. Programmes of initial teacher education are the first step in a professional journey that requires the right conditions to support teacher development. As the quote by Shulman (2004) at the beginning of this report indicates, teaching, by its very nature, is unpredictable work. The working environments of beginning teachers can reduce the inherent uncertainty and unpredictability of their work, or add to its complexity by failing to provide the conditions that matter for good teaching. A match between beliefs and values, and commitment on the part of the school to ensure the success of "their" beginning teacher/s appear to be critical success factors.

12. Improving the research on initial teacher education

The efforts of several institutions to fund and support their staff to gain masters and doctoral qualifications should be acknowledged. While many teacher educators did not pursue their studies in the area of initial teacher education the collective work has made a useful and important contribution to our knowledge and understanding about learning to teach in New Zealand. The pursuit of qualifications has meant that much of the work has been undertaken by individuals, rather than by collaborative teams, which has limited the scope of the work and, in many cases, the opportunities to build upon the initial findings.

It also needs to be acknowledged that much of the research undertaken by the teacher education sector was designed to inform practice, the primary audience being those interested in the scholarship and practice of teacher education. The main purpose of the research was not to inform policy, although many studies have provided useful insights as is evident in this review. There is a growing interest, however, in evidence-based policy and for policymakers to be seeking research-based knowledge (Nutley, Davies, & Walter, 2003). The commissioning of this review is one such example. Policymakers have different questions, ones that teacher educators interested in building knowledge and developing new understandings, are likely to have an interest in, but have not been able to pursue, particularly given the limited research funding available.

While the problems in the teacher education research, outlined further in the following section are of concern, they are by no means unique to research on initial teacher education in New Zealand. A recent synthesis of two scholarly reviews on teacher preparation research in the USA (Allen, 2003), accepted only 92 out of a total of 500 published research studies. Allen does not conclude that this means teacher education research is bad or can be ignored, but that "the research enterprise is fairly young and underdeveloped in comparison to that in many other fields and is relatively poorly funded" (p. 123). He considers that lack of funding limits the number of research studies that can be undertaken, as well as the scope and kind of studies that are possible. This is reflected in the New Zealand research with its predominance of small sample sizes and lack of longitudinal studies.

General problems

The criticism that research in initial teacher education consists of "a lot of small scale 'one shot' studies by individuals, some team research and development type work through contracts" (McGee, 1999) still holds. The area remains fragmented, and lacks purpose and direction, largely

because of the constraints noted by Allen (ibid). We identified the following general problems in the research:

- Too much research is unpublished and therefore is not available to others researching in the same area. This means that when research is reviewed researchers tend to be unaware of New Zealand studies and report only international literature, which, particularly in the field of teacher education derives from contexts that are very different from those in New Zealand.

- There is little research that follows a theme and which progressively builds upon this to create and advance new knowledge. There are numerous examples of a preliminary investigation into a "useful" question but few examples of subsequent work.

- The research is overly reliant on surveys and questionnaires. Unless the research is a thesis the details of questionnaires are rarely reported, so it is not possible to evaluate the quality of the questions or analysis, or build on them in other work. There is little evidence that questionnaires or surveys have been subject to any rigorous process of internal or external validation.

- Methodologies are frequently weak, and inadequately described. Given that all of the studies rely on qualitative data it is rare to find descriptions of how the data were coded, and analysed, and whether any procedures were used to verify that the researcher had accurately represented the data.

- Conclusions are often drawn without exploring alternative explanations for the findings or comparison with other studies. Research frequently includes commentary not justified by the data.

- The possibility of bias is rarely addressed.

- There are few accounts of how research was peer reviewed and this reflects on the degree to which research is quality assured.

- Of concern is the tendency to "use" groups of students because they are readily accessible. It was not apparent from the information provided how ethical issues related to undertaking study of one's own students are addressed.

Standards of work

Most of the work that we reviewed did not meet the standard expected in international scholarly journals, or even in national peer reviewed academic or professional journals. There are questions that could be raised also, as to whether some of the work we reviewed actually meets accepted definitions of research. Definitions of research are typically variations on a form of systematic enquiry that can be multivariate in its methods or forms of data collection, intellectually honest, evidence-based, rigorous, systematic and pre-planned in the quality of its analysis and synthesis, and alternatively exploratory, descriptive, explanatory, predictive, evaluative or emancipatory in its purpose (Ham & Kane, 2004). Research has been defined most simply as "a way of going about finding answers to questions ... a collection of methods people use systematically to produce knowledge" (Neuman 1997 pp. 1-2), or "systematic enquiry made public" (Stenhouse

1981, p.104). In essence, what is critical to accepted definitions of research, be they inclusive of more pragmatic social applications of knowledge or have a focus primarily of knowledge generation, is that there is "no point to research without reporting" (Wolcott, 2001).

Research is typically understood to result in an outcome that, although not necessarily published, should be available for peer critique. What becomes apparent when reviewing the work available is that much has not been subject to peer scrutiny. The predominant form of disseminating this work has been through conference presentations that provide limited and widely varied quality assurance procedures and could not be considered rigorous sites of peer critique since often, once presented, critique is limited to a question or discussion period. Teacher educators within New Zealand need to move beyond presenting at conferences to submitting the findings of their research to the scrutiny of peer reviewed publications.

While there is quite a lot of research activity there appears to be insufficient mentoring and systematic induction into a research community. There is some evidence that this is symptomatic of educational research in general within New Zealand as reflected in the findings of the Findsen Report (2002). The report, *Mapping the building of capacity and capability within the educational research community* commissioned in 2001 by the Ministry of Education involved interviews with staff at 15 higher education institutions (universities, polytechnics, whare wananga and colleges of education) that offered postgraduate programmes of study. The Findsen report found, amongst other things, that there is a poverty of research preparation in educational research methods within New Zealand, and the key challenge is to establish a critical mass of researchers who can generate a research culture where staff and graduate students can work collaboratively (Findsen, 2002). The recent PBRF results, however, which see research in teacher education as the lowest performing area of educational research, signals that the mentoring of teacher educators into a research community is a priority.

People have to learn to be researchers; the process is costly in terms of time and resources, and requires scaffolding by others who are experienced researchers and who have a commitment to growing expertise in others. It appears that while many institutions have improved the external resources such as library supports, study leave and so forth, the day-to-day pressure that is part of preparing teachers, including ever increasing workloads, impacts on the personal energies and opportunity to take advantage of these supports. Consequently teacher educators tend to engage in small-scale research projects that draw predominantly on the students within their own institutions.

Until recently much of the work undertaken was presented at conferences but not submitted for publication. Researchers working in institutions that provide internal publishing opportunities have been supported to begin this journey, similarly those who have been encouraged by thesis supervisors to publish. Not all research, however, needs to be prepared for publication. A lot of the research that we reviewed had the potential to be very helpful to institutions in developing their programmes.

The low level of external funding has also impacted on the character of research in initial teacher education. The research will not extend beyond small-scale studies in individual institutions

unless there is funding to support this. Considerable funding is required for the in-depth fine-grained research that looks at the *impact* of various approaches on outcomes for student teachers. Funding is required to provide the statistical support that such studies require, and such support appears absent from most initial teacher education institutions.

A question remains about whether all teacher educators should be required to be researchers. The goal posts have changed for experienced teacher educators whose passions might well remain with teacher preparation. Should they be pressured into becoming "researchers" which would encourage the proliferation of research conducted for the sake of research, and the almost inevitable disappointment in receiving an "R" rating in PBRF?

There is a need, however, to ensure that teaching within degree programmes is indeed research-informed and that emerging researchers are adequately supported to engage in research relevant to teacher education. Indeed there is much scope for teacher educators to contribute to research and scholarship in the important areas of teaching and teacher education.

Gaps in the research

There is a clear need for more research on initial teacher education. There is a need for research that contributes to an understanding of the critical components of effective teacher education programmes and that sheds light on how we might conceptualise and define the outcomes of teacher education. There is also a need for comprehensive research about teacher educators and their work, about student teachers and their learning, and research into the impact of initial teacher education on those beginning their careers as teachers. Further, as suggested by Nutley, Davies and Walter (2003) if research is to have greater impact a more strategic approach needs to be taken to the creation of knowledge in priority areas given that research-based evidence is just one source amongst many that might be used to inform policy and practice.

Teacher education programmes

The content, progression, and approaches to initial teacher education in New Zealand have not been studied systematically. There have been numerous new approaches to becoming a teacher in the review period, but in most cases little is known about the rationale and detail for these approaches. We lack basic description of the curriculum or understanding of the pedagogy of initial teacher education and of the core knowledge and skills that student teachers are expected to develop before they graduate. It is not known to what degree, if any, student teachers engage in the study of educational foundations courses in philosophy, psychology, sociology, and it may be that study in these disciplines has been eliminated in the many three-year degree programmes as Snook (2000) has suggested. Where this study has been retained there is no evidence that teachers from these programmes approach their work in qualitatively different ways from teachers who have been more narrowly prepared in the learning areas they will teach.

An analysis of the strengths and weaknesses of the different approaches to teacher education programmes would be instructive. Some programmes are heavily school-based. Some programmes are external, web-based and/or based on satellite campuses with minimal teacher educator visits. Some are predominantly school or centre-based. What are the strengths and drawbacks of these approaches? More research is also needed on Mäori medium teacher education, and the outcomes of these programmes.

More research is needed for example on the contribution of subject knowledge to effective teaching. How much course work in, say, language and literacy and mathematics, is required for graduating student teachers to begin their teaching careers with enough knowledge to teach these learning areas effectively? And what should be the nature of this course work? How can this initial knowledge be further developed during the provisional registration period? What mathematical knowledge, for example, is involved in the teaching of secondary school mathematics? What knowledge do secondary teacher education students have about addressing student literacy needs across particular subject areas?

The research is very modest on *what* and *how* student teachers learn about equitable and engaging approaches to teaching. What preparation do New Zealand teacher education programmes offer in productive pedagogies that engage all school students in learning? What are student teachers' experiences when they attempt to use these pedagogies in someone else's classroom as a student teacher? To what degree are New Zealand student teachers cognisant of goals of social justice and inclusion in education and their responsibilities as teachers for purposeful social action at addressing and removing barriers to learning?

The research on the practicum suggests that student teachers do not necessarily learn to teach in ways that research would define as quality teaching. The pressure of managing large numbers of students may push student teachers into classroom practices that conform to their associate's practices, and that focus on the maintenance of order and the belief that children are learning because they appear to be engaged. While the research has identified this dilemma, most reports conclude with the recommendation that more research is needed to build better links between institutions and the schools. This has occurred only in a very limited way and there is scope for professional development and research into how all participants can work together in ways that help them all to learn how to improve children's learning.

The "outcomes question"

Cochran-Smith (2001) has noted that:

> ....the outcomes, consequences, and results of teacher education have become critical topics in nearly all of the state and national policy debates about teacher preparation and licensure as well as in the development of many of the privately and publicly funded research agendas related to teacher and student learning. (p. 1)

Cochran-Smith describes this as "the outcomes question". This question:

> …asks how we should conceptualise and define the outcomes of teacher education for teacher learning, professional practice, and student learning, as well as how, by whom, and for what purposes these outcomes should be documented, demonstrated, and/or measured (p. 1).

Cochran-Smith suggests that the way the outcomes question is asked in initial teacher education depends on the policy, research, and practice contexts in which the question is posed as well as the political and professional motives of the posers. The research on "outcomes" is inconclusive internationally and virtually non-existent in this country. Although further consideration of this question is beyond the scope of this review, it is clear that the "outcomes question" is not one that can be easily conceptualised or addressed. The implications of asking this question require debate in New Zealand so that underlying assumptions about the purposes of schooling, the evidence sought, and approaches to analysis are explicit.

Teacher educators

The body of research about institution-based teacher educators is inadequate. A deeper understanding about this group in terms of the backgrounds, beliefs, understandings and dispositions they bring to their roles is important because the perspectives they bring to their work are likely to influence their expectations and interactions with student teachers.

In addition, research on how teacher educators do their work would be helpful. What is the nature of the feedback they provide to student teachers when assessing their teaching during practicum? How do they help student teachers to analyse children's work, and learn from this how to plan future teaching? What characterises the pedagogy they use in their teaching?

Student teachers

There is a need for more information on student teachers at the basic demographic level. Research on their prior academic achievements and approaches to learning would be valuable and may counter public perceptions that applicants for teacher education are less "academic" than those who choose other courses of study. Research on high-achieving applicants and why they are attracted to teaching would be illuminating, as would related investigation of how effective they are ultimately as beginning teachers.

Longitudinal studies of the type pioneered by Renwick and Vize (1993) could be considered, alongside case studies of student teachers in different types of initial teacher education programmes to better understand the professional performances that student teachers are expected to demonstrate, and how these are documented, analysed, evaluated, and experienced by the student teachers.

Fine-grained studies on *how* student teachers learn to teach would help to identify ways to enhance their preparation.

Beginning teachers

This is the area where most of the stronger research has been carried out because it has received the majority of funding. In-depth fine-grained research that looks at the *impact* of various approaches on outcomes for students will require significant funding beyond the scope of the institutions.

Recommendations for the future

These recommendations have been informed both by this New Zealand-based review and by a review on teacher preparation in the United States, *Eight questions on teacher preparation: What does the research say?* (Allen, 2003).

Institutions

1. Ensure that there is professional development for initial teacher educators that strengthens their basic understanding of research and research methods and their commitment to evidence-based practice (Allen, 2003).
2. Promote co-ordinated studies with teacher educators working together within and between institutions on parallel investigations or in ways that systematically build new knowledge.
3. Establish research teams that will both mentor emerging researchers and create platforms for research programmes to which both experienced and novice researchers can contribute.
4. Make a systematic and concerted effort to disseminate research findings so that they are accessible to others within and outside the institution. For example, consider establishing a research journal, targeted at education professionals, accessible to the broader community, and featuring high-quality research studies addressing issues of particular interest and importance (Allen, 2003).
5. Work towards strengthening the quality of research in initial teacher education. This may require more robust approval systems to avoid the waste of effort on inferior studies. It may include including novice researchers as part of more experienced teams so that they learn the process of good research.
6. Develop policies for research intended primarily to improve programme development and that intended for wider dissemination.
7. Institute peer review processes for all research with an intended audience outside the institution.
8. Help to build capacity in the wider community of teacher educators by working across institutions, and contributing to the dissemination of important research findings.
9. Work to align some research efforts with key government priorities.

Ministry of Education

10. Provide access for researchers to high-quality data on areas such as student teacher demographics.
11. Support high-quality evaluation studies of initial teacher education programmes and provide adequate funding to carry these out (Allen, 2003)

Teachers Council and/or the Ministry of Education

12. Develop a research agenda with representatives of initial teacher education institutions.
13. Identify critical areas where information is needed and co-ordinate national data gathered locally by researchers in initial teacher education. This would enable aggregation of data on areas where data is readily gathered, for example: demographics of entering student teachers; prior achievement of candidates for initial teacher education; selection processes including number of applicants and number of students selected broken down by subject major for secondary; programme structure and content; assessment approaches; criteria for graduation; regular surveys of school views of graduates and graduates' views of their preparation. Less easily obtained data would include analysis of employment patterns of graduates.
14. Build capacity in the initial teacher education community by commissioning a few large-scale studies that can provide a broader and more detailed picture of current teacher preparation practices.[17]
15. Regularly bring together leading education researchers, practitioners, policy makers, and others to review the status of knowledge about key issues facing initial (and continuing) teacher education and identify research that is needed to further illuminate the issues (Allen, 2003).

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[17] This suggestion is from Wilson, S.M., Floden, R.E., and Ferrini-Mundy, J. (2001) *Teacher preparation research: Current knowledge, gaps and recommendations*. Seattle, WA: Centre for the Study of Teaching and Policy.

13. Annotated bibliography

Alcorn, N. (1995). Teacher education and the universities in New Zealand: Dilemmas and directions. *Waikato Journal of Education, 1,*19–28.

> This paper explores some of the tensions inherent in university-based teacher education. These include: combining research imperatives with the demands of professional involvement in schools; contesting narrow views within the university over what constitutes appropriate and rigorous research; maintaining the crucial importance of teaching in an institution which does not require its staff to be professionally trained for this role; providing students with an adequate theoretical base; preparing teachers to be effective and critically reflective school practitioners; maintaining professional concern for student teachers while developing their professional independence; maintaining the quality of programmes in the face of demands for local delivery and shrinking financial resources; maintaining genuine partnerships with schools in an increasingly market-driven education system; and maintaining a balance between involvement in and critique of national policy developments.

Aldridge, L. (2000). *There's more to sexuality than sex: Sexuality education for student teachers*. Unpublished Master of Education thesis, University of Otago.

> This study evaluated the effectiveness of an optional second year sexuality education programme for primary student teachers. The focus of the research was knowledge gained by the student teachers and changes in their attitudes to course topics (these included self-esteem, love, sexuality and Mäori culture, homosexuality, and sexually transmitted infections). Nineteen students (18 females and one male) completed the course. Data were collected through a questionnaire completed before and after the course, and an interview held at course completion. It was found that all involved supported the need for a course such as this because it gave them: the knowledge and personal understanding needed to teach the subject; increased self-confidence; exposure to a range of theories that challenged their personal perspectives; and strategies for effective classroom implementation. The author concluded that, in general, the participating students gained knowledge and attitudes appropriate for them to teach sexuality education in New Zealand schools.

Anderson, J. (1999). *The needs of beginning teachers of mathematics.* A research study submitted in partial fulfilment of the requirements for Post Graduate Diploma of Arts, University of Otago.

Four first year secondary mathematics beginning teachers participated in a six-month short-term study that traced their perceptions of themselves as teachers and the issues they faced as they embarked on their teaching career. Semi-structured personal interviews and group discussions were the two methods of data collection. The participants were interviewed in the week before school started, to identify their beliefs about mathematics teaching and learning, and after one month, and six months.

They also participated in a group discussion at the end of their first term of teaching. The study identified that these beginning teachers needed: encouragement and guidance; discussions that challenged them to identify teaching concerns; and support to devise and test solutions.

Averill, R., & Te Maro, P. (2003). Bicultural perspectives in a pre-service mathematics education course. In L. Bragg, C. Campbell, G. Herbert & J. Mousley (Eds.), *Mathematics education research: Innovation, networking, opportunity.* Proceedings of the 26th annual conference of the Mathematics Education Research Group of Australasia. Geelong, Melbourne: Deakin University, pp. 88–95.

This study investigates student teacher understandings of bicultural content in a primary pre-service mathematics education course. Course lecturers had designed the 11-week course to demonstrate the inclusion of bicultural perspectives such as active partnerships, Mäori language, pedagogies, contexts, beliefs, protocols, and values.

A questionnaire was used in class time to gather student-teacher impressions and what they remembered about the bicultural perspective of the courses. Questions asked student teachers to: provide their definition of a bicultural perspective in mathematics; identify lecturer modelling of bicultural perspectives; rate the amount of bicultural content (from "not enough" to "too much"); and suggest ways to further enhance the bicultural perspective.

The research questions were:

1. What do student teachers perceive to be the bicultural content of the Year 3 mathematics education course?

2. How does this compare with the perceptions of lecturers?

3. How well does the course emphasis on bicultural perspectives match college requirements?

Results indicated that student teachers were able to give working definitions of bicultural perspectives and identify their use in the course. In most cases student teachers affirmed

the proportion of bicultural course content they perceived to be in the course. Student teachers suggested ways to enhance the inclusion of bicultural perspectives.

Averill, R., Anderson, D., Easton, H., & Hynds, A. (2004). Understandings of the Treaty of Waitangi in mathematics programmes. In L. Bragg, C. Campbell, G. Herbert & J. Mousley (Eds.), *Proceedings of the 27th annual conference of the Mathematics Education Research Group of Australasia*. Melbourne: Deakin University.

This research builds on Averill and Te Maro's (2003) findings on student teachers' perceptions of lecturer modelling of bicultural perspectives in a final year mathematics education course. Lecturers approached four beginning teachers whom they believed would be likely to include bicultural perspectives in their mathematics teaching. They agreed to be interviewed in the last month of their first year of teaching. The interview sample consisted of one female teacher of Māori descent (teaching at a low socio-economic kura kaupapa Māori school), one male teacher of European descent (teaching at a high socio-economic state primary school with less than ten percent Māori students), and a female teacher of European descent teaching in a similar school to the male teacher.

The research questions of the study were:

1. How do first-year primary school teachers demonstrate their understandings of the Treaty of Waitangi and te reo me öna tikanga in their mathematics programmes?

2. What were initial expectations of the three teachers in their first year of teaching and their hopes for their second year regarding the implications of the Treaty for their mathematics programmes?

3. What supports, challenges, and dilemmas were encountered as they attempted to fulfil their obligations/responsibilities towards the Treaty in their mathematics programmes?

The three teachers initially had high expectations that they would successfully incorporate bicultural perspectives into their mathematics programmes. The teacher in the kura kaupapa Māori was working in a context where Māori perspectives were integral to the philosophy of the school, while the teachers in mainstream schools found their school contexts less supportive of their efforts. They hoped to be more assertive in communicating their wish for open and honest debate about implications of the Treaty for their school and for more community consultation.

Baker, R. (1995). *A case study: Science-technology-society as a context and conceptual framework for identifying and developing content knowledge for teaching primary science.* Unpublished Master of Education Thesis, Victoria University, Wellington.

This research investigated the use of a science-technology-society (S-T-S) perspective as a context and conceptual framework for developing the science content knowledge of pre-service students involved in an optional final year course. Drawing on Shulman (1986),

content knowledge was examined as subject matter, curriculum, and pedagogical content knowledge. Twenty-three students completed questionnaires designed to elicit S-T-S related views and perceptions of what they thought they needed to know to be an effective teacher of science. The views and understandings of four students were investigated in more depth through semi-structured interviews.

It was found that an S-T-S approach enabled the student teachers to adopt a more coherent and contemporary view of science and there was an increased appreciation of the need for them, as teachers, to have an understanding of scientific concepts. The interviews revealed difficulties in translating these ideas into classroom practice. The role of the teacher in integrating practical hands-on activities with assisting students to develop conceptual knowledge and knowledge of the nature of science proved somewhat problematic.

Baker, R., & McNeight, C. (2000). *Secondary teacher education — issues of "subject knowledge" and teacher supply.* Paper presented at Teacher Education Forum of Aotearoa New Zealand conference, Christchurch, 30 August – 1 September 2000.

This study investigated the connection between the courses offered in English and biology in one university and requirements of the senior secondary school curriculum. It also assessed the "match" between the courses of previous university study completed by student teachers enrolled in a secondary one-year graduate Diploma of Teaching and the secondary school curriculum. On the surface, just two of the seven student teachers wishing to teach biology had content knowledge (as gauged by course credits) in all areas required in the secondary school curriculum. However, their lecturers considered that their broad understandings of underlying organising principles of their disciplines, and their orientations towards learning for themselves and their students was of less importance than acquisition of "factual" knowledge.

The 27 student teachers intending to teach English also had a broad mix of previous academic study in English, although none had English language papers such as linguistics. Teacher education lecturers considered that a grasp of the range, nature, and possibilities of "English" were more desirable in beginning English teachers than in-depth knowledge of actual secondary school curriculum.

Baker, R., and Whatman, J. (1999). *Tomorrow's secondary teachers — enriching our environment*. Unpublished paper. Wellington: Wellington College of Education.

This paper uses the Wellington College of Education one-year secondary teacher education programme as a case study to highlight the differing profiles of student teachers now entering teacher education. Of the 120 student teachers in the programme, 40 percent were male; the average age was 31, with the majority (36 percent) under 25, and a quarter over 35. Eight people had an MSc or higher, three had an MA, 10 had an honours degree, and 12 had a double degree. Of the rest, who had a bachelor's degree, 17 had a BSc and

28 a BA. Many of the student teachers had chosen alternatives to the traditional mathematics/science or English/history paths in their university study. They therefore brought a diversity of disciplines that ranged across a number of curriculum areas. Only 15 percent had entered initial teacher education straight from their tertiary study. Their previous work experiences were extremely broad, including work in government departments, radio, film and television, hospitality, museum curators, researchers, chefs and café managers, bus drivers, lawyers, and self-employment. The authors suggest that the changing nature of entry qualifications may mean that there are fewer new teachers with a depth of knowledge in the content area of the subject as described by the school curriculum. However, many of the student teachers have the knowledge to teach a range of subjects. They also note that people applying to be secondary teachers may not cover the national need in all curriculum areas, traditionally mathematics and physical sciences, and emerging areas such as technology.

Ballingall, P. (1994). *Language awareness in teacher training: A New Zealand example*. Paper presented at the Annual International Conference of the Institute of Language in Education, Hong Kong, December.

A survey of 240 first-year primary teacher education students was undertaken to examine their language backgrounds and their knowledge and awareness of other languages. The cohort was enrolled in a combined Diploma of Teaching/BEd qualification.

The results indicated that almost all student teachers were monolingual (4 students out of the 12 students who spoke languages in addition to English identified fluency in Mäori). Ten percent had studied Mäori to a senior school level, while only 5 percent had studied French. Only 2 percent of the total student-teacher group were studying a language as part of their degree.

Barr, H. (1995). *International teaching experience and student teacher perspectives of education*. Paper presented at Annual Meeting of the American Research Association. San Francisco, 18–22 April.

This study evaluated the extent to which experience in the schools of another country affected the educational philosophies and attitudes of University of Waikato students taking part in an international student exchange programme in the United States. The project asked student teachers to: reflect on their experience in working in another education system; consider the aspects of the system they most liked and disliked; relate how the experience had influenced their educational perspectives; and suggest whether or not they would recommend a similar experience to other student teachers.

Six student teachers mostly aged 19–20, with the eldest aged 30, were interviewed for the survey. Three, currently in the fourth year of their degree, undertook their placement in the United States in 1994; the other three were graduates working as teachers in local schools. Four were Päkehä, two were Mäori. The universities where the New Zealand

student teachers completed a practicum followed the usual American pattern of having one long block of practicum following three or four years of university class work, whereas practicum experiences are integrated within the programmes at the University of Waikato. Thus the Waikato student teachers, although minimally qualified in academic terms, brought considerably more classroom experience to their USA practicum.

Student teachers were most impressed with the resources available to USA teachers. Student teachers were impressed with the professionalism of teachers and were reluctant to criticise their host schools although they commented on big classrooms, lack of group work, desks in rows, and teacher-directed lessons. With one exception all of the student teachers found some ideas and practices they would use in New Zealand classrooms. When asked what changes they would like to see in their American classrooms, their responses centred around the need for more student involvement in lessons, less reliance on specialist teachers to teach subjects such as art, music, and physical education. In their view this resulted in classroom teachers missing out on teaching "the fun things"; getting a picture of their students in all areas; and prevented curriculum integration. They also noted the reliance of teachers on textbooks, with one American teacher reportedly expressing "amazement" that the student teacher had devised her own student questions from a text.

Student teachers associated with one university found their American university supervision to be extremely helpful and supportive, and very similar to that experienced in New Zealand, while the other group found it friendly but less demanding.

The author concluded that while all the student teachers interviewed strongly asserted that the overseas exchange was a worthwhile exercise, the experience strengthened their original perceptions and philosophies rather than introducing any new ones. The international experience forced the Waikato student teachers to evaluate the system they were used to, probably for the first time.

Bertanees, C., & Thornley, C. (2004). Negotiating colonial structures: challenging the views of Päkehä student teachers. *Asia-Pacific Journal of Teacher Education*, 32, 2, 81-93.

This study reports the impact of a component of a degree programme intended to challenge student teachers' hegemonic views of schooling, and deficit perspectives on the underachievement of Mäori children in New Zealand schools. The intention of their degree programme was to develop critically reflective student teachers able to "see their actions in relation to the historical, social and cultural context in which their teaching is actually embedded"(p 82). The student profile for the degree identified that student teachers would be able to: "work in a manner consistent with the principles of the Treaty of Waitangi ensuring that its articles are understood and observed; have an understanding of theories underpinning curriculum development within a framework of colonisation; and be able to teach in a bicultural context".

The authors describe three phases of intervention. The first phase consisted "explaining to" the student teachers that understanding diversity would increase their ability to cater for individual student learning needs, as well as student teacher learning te reo Mäori. This phase, and the subsequent phase, did little to shift perceptions that reasons for Mäori underachievement were inherent in Mäori "difference" and situated within Mäori culture.

The third phase required the formulation of an integrated philosophy throughout the degree as well as equipping the student teachers with the tools to "critique the structures and ideologies that support schooling in New Zealand as a political enterprise and the conduit to privilege and marginalisation" (p. 88). This phase involved analyses of: curriculum development and implementation; representations of Mäori in school texts; and national curriculum and position statements. Student teachers were surveyed for their understandings of the Treaty of Waitangi for school curriculum policy, the ways curriculum policy acknowledged the Treaty, and how Mäori are represented in curriculum and educational policy. The authors reported that after only one semester some students were able to critically theorise the policies and practices of "curriculum that resides within a colonial framework" (p. 91), and develop an appreciation of how Mäori children are marginalised in mainstream schools in New Zealand.

Biddulph, F. (1998). *Peer and self-assessment in teacher education.* SAME papers, 26–40.

This paper reports on the use of peer and self-assessment in a 300 level BEd course on curriculum development on science, mathematics, and technology education. The course consists of three modules: the first involves case study research of the school curriculum experiences in either mathematics or science, of a peer enrolled in the curriculum development course. A summative peer assessment component, carried out by the peer who was interviewed, is included in this module. A summative self-assessment component is included in each of the second and third modules.

The criteria for self- and peer assessment are generated by the student teachers themselves, facilitated by their lecturers. The peer and self-assessment contributes a total of 30 percent of the course assessment.

Data were collected through (i) observation of student teachers in class during the generation of criteria over the last four years; (ii) analysis of students' completed self-assessments sheets from the summer school courses of 1998 and 1999; (iii) analysis of the 1999 summer school student teachers' anonymous course evaluation sheets; and (iv) analysis of the student and lecturer marks for each of the three assignments from the 1998 and 1999 summer school courses.

Four themes emerged from the data. They were negative views, positive experiences, reflective insights, and variability in marking. Some student teachers were negative about the time involved in establishing assessment criteria. They felt that assessment was the responsibility of the course lecturer. Most students participated positively in the peer and

self-assessment experiences for reasons that included: an appreciation of how they could use self- and peer assessment in their own classes; an awareness of the personal impact of self- and peer assessment; insights into own learning; and greater responsibility for own learning. Student teachers developed an appreciation of the complexities and challenges inherent in these assessment approaches.

Results of an analysis of the student peer and self-assessment marks compared with lecturer grades showed that while lecturer grades are spread across the range, the peer and self-assessment grades are mostly grouped at the high end. Student teachers appeared to have awarded themselves marks for effort rather than outcomes, and the high-stakes nature of the assessment contributed to a desire for high marks. The author considered that the self-assessment was largely a summative exercise and suggested that it could also be used formatively. Overall the author considered that the results were encouraging.

Biddulph, F. (1999). The legacy of schooling: Student teachers' initial mathematical feelings and competence. *Mathematics Teacher Education and Development, 1,* 64–71.

This study investigated attitudes of two cohorts of first-year teacher education students beginning a mathematics education course, the highest level of mathematics they had studied at school, and their achievement of a short test of basic mathematical concepts (second group only).

A third of the student teachers had passed mathematics at the sixth form level and 27 percent of the second cohort had achieved in mathematics at the seventh form level, although an appreciable number indicated that they had "really low grades". Over half of the first cohort reported negative attitudes to mathematics and 64 percent of the second cohort. The greater dislike of mathematics reported in the second group may reflect the fact that they had just completed the mathematics test. The authors compared these results with data on New Zealand 8-year-olds' and 12-year-olds' attitudes to mathematics, showing greater dislike with age. Student teachers' understandings of basic mathematical concepts gave cause for serious concern.

The author noted that there was not time in a three-year degree (one-and-a-half courses in mathematics education) to overcome student teachers' deep-seated negative attitudes and understandings in mathematics. He concluded that somehow provision must be made in programmes of teacher education to address this issue, and considered that enrolment in traditional university mathematics courses would be likely to have detrimental results.

Bolton, J. (2000). *A multi-arts creative approach for music education: Its impact on generalist primary teacher education students' confidence and competence to teach music.* Proceedings of the XX11nd Annual Conference, Australian Association for Research in Music Education. University of Melbourne, 30 June–3 July.

This study reports on a qualitative study, which investigated how participation in a multi-disciplinary performing arts group creative project impacted on generalist primary teacher education students' perceptions of their own ability in music and their ability to teach music.

Participants were 80 teacher education students undertaking a one-year teaching qualification for graduates. A third of their course in music education required the student teachers to work in groups to create and perform a multi-disciplinary project (music, dance, drama).

Two questionnaires provided the principal data for the study. The first was a short pre-project questionnaire to present initial perceptions of music self concept, both in terms of own perceived ability in music and ability to teach a range of music activities. The majority of student teachers were not positive about their own ability in music and rated their ability to teach music as low. The post-project questionnaire indicated that the project was a very positive, enjoyable, and successful experience for virtually all student teachers. Working creatively rather than with a prescribed approach developed most student teachers' music, music confidence, skills, and knowledge and enhanced their confidence to teach composition and performance music activities. Working with a multi-arts approach offered meaning, focus, and encouragement for many student teachers' music making and there was strong support for working as a future teacher with this approach to classroom music.

The author concluded that for this group of students there was clear merit in offering a performing arts course that incorporated a multi-arts project and suggested that further research was needed in New Zealand and Australian teacher education institutions to test whether the approach has broader application and merit.

Broadley, G., & Broadley, C. (2003). Principals hire the beginning teacher they like. *New Zealand Principal*, *18* (2), 21–23.

The study investigated the factors that principals considered when appointing beginning teachers, to see if there were different "styles" in their decisions.

One hundred primary and intermediate principals were sent packs of cards with 51 empirically derived statements about beginning teachers, and asked to sort them using a multi-dimensional scaling technique. Seventy-one principals sorted and returned the cards. The responses were used to develop a four-dimensional map that enabled the researchers to determine whether the principals' responses revealed any "styles".

Eight styles emerged for eight dimensions (management, school ethos, community, commitment, teamwork, child focus, maturity, and enthusiasm). For example, some principals shared a profile that emphasised school ethos and teamwork, with a low emphasis on management while another style emphasised child ethos and enthusiasm. The number of principals in each style ranged from 1–17 and the authors could find no relationship between the styles and other factors.

What appeared to be most important to principals as employers of beginning teachers was whether the applicant was compatible with the views and values of the principal. In the view of the authors this makes selection of the principal doubly important, as the principal will select those s/he values.

Brooker, B., & Millar, R. (1997). *An evaluation of the preparedness of compressed programme teacher education students for teaching.* Paper presented at the New Zealand Association for Research in Education conference, Auckland, 4–7 December.

This research focuses on graduating primary students' "feelings of preparedness to teach, their teaching efficacy and personal teaching efficacy." Data were obtained from two groups of students, similar in background qualifications and experiences who completed either a two-year course in teacher preparation (49 weeks) or a 38-week course over 15 months (the compressed course). The programmes had similar learning outcomes. The two-year group had 20 weeks of practicum experience; the 15-month group had 15 weeks.

Students from both programmes were involved (Compressed - 36; Short - 18) and the following research questions were posed:

- How confident did graduating student "feel" preparedness to each?
- How do scores on a "teaching efficacy" scale change across each semester?
- How did college lecturers, primary school principals, and associate teachers judge their preparedness to teach?
- Which components of the compressed programme prepared student teachers well/less well in relation to the other programme?

Data collection involved a survey of their perceptions, the completion before each practicum of a teacher efficacy scale (16 items), and analysis of student teachers' personal reports by associate teachers. The associate teachers also completed a questionnaire and interviews were undertaken with staff involved in teaching the compressed course.

It was found that the students in the short course had significantly higher scores on the self-efficacy scale and the associate reports for the second practicum showed a significantly higher mean rating in the six selected categories for the students in the compressed programmes. The associate teachers (23/32 replied) made positive comments about personal and professional qualities of many of the students, but expressed reservations about their readiness for teaching. The teaching staff expected a more homogenous group in the compressed programme but overall thought that the students

demonstrated similar issues as those in other programmes. They also believed that the short time frame was insufficient to challenge fixed ideas and that both they, and the students, felt under pressure to achieve the required learning outcomes.

Brough, S., Keenan, J., Limbrick, L., McCaffery, J., & Sheehan, J. (1996). *Perceptions about being prepared: Beginning teachers and tutor teachers talk about language programmes.* Paper presented at New Zealand Association for Research in Education conference, Nelson, 5–8 December.

In 1995 the Centre for Language and Languages at the Auckland College of Education and a liaison group of teachers surveyed 109 beginning teacher graduates of the college and 80 tutor teachers on their perceptions of how well college programmes had prepared them in aspects of language learning and teaching.

The Beginning Teacher Survey was organised under four broad categories: planning and organisation of language approaches; implementation of language approaches; monitoring children's learning; and resource knowledge and use. Responses were recorded on a six-point continuum with categories from "not at all well" to "extremely well". There was a category for comments under each list of statements. The same format was used (with questions reworded) to gather tutor teachers' perspectives. Overall, 70 percent of beginning teachers indicated that they felt confident in implementing their language programmes although they felt less confident with oral and visual elements. Tutor teachers' responses indicated that they had greater confidence in the quality of beginning teachers' language programme than the beginning teachers themselves. Ten beginning teachers were then interviewed to allow participants to comment on trends and information from the survey, and to obtain further information on the process of learning to teach language programmes in schools. The authors raise many questions about the meaning of the data they collected; its representativeness; and the methodological compromises they had to make because of "keeping the project going on top of heavy workloads". They identified the need for their institution to "find better ways of creating opportunities to conduct research".

Brunton, K., & Ferry, D. (2001). *Exploring images of teaching.* Paper presented at the New Zealand Association for Research in Education conference, Christchurch, 6–9 December.

Compares visual representations of "learning and teaching" produced by 91 first and 77 third year student teachers in a 3-year teacher education degree programme. The aim of the study was to identify key beliefs about teaching and to determine if there were changes in student views in the two groups.

The student teachers' drawings were classified according to the themes that emerged. These were: teaching as growth; teaching as transmission; teaching as guiding; teacher as a puzzle or a game; teaching as interaction; teaching as a multi-faceted task; and a Mäori view of teaching.

The authors concluded that there were no significant differences between first and third year student teachers, although no statistical techniques were employed.

Calder, I., Faire, M., & Schon, P. (1993). The teaching practice experience. The perspectives of supervising lecturers. *Occasional Paper No.1* Professional Studies Department, University of Waikato.

This study investigates how the practicum was perceived by ten male and ten female teacher education lecturers who were assigned to monitor, guide, and report on student teachers' teaching on teaching practice. The research questions were:

1. What factors appeared to enhance successful teaching practice and teaching practice supervision?
2. What factors appeared to inhibit successful teaching practice and teaching practice supervision?
3. What are the professional development needs of lecturers as supervisors of teaching practice?
4. What are the professional development needs of associate teachers?
5. In what ways did students develop professionally during their teaching practice?
6. In what ways can students be better prepared for their final teaching experience?

The study was organised in two stages. Questionnaires were used in the first stage to gather information about the procedures and strategies used for the first of three lecturer visits to student teachers, and to gather background information about their knowledge and experiences. The second stage comprised interviews of each of the lecturers by an experienced research assistant following the completion of the third and final visit.

Factors that lecturers considered to enhance the successful teaching practice supervision included the establishment of rapport between lecturer and student, including the effort made by the lecturer to listen carefully to the student, and the willingness of the student to act upon advice. Other factors included the visiting lecturer/associate teacher relationship and the student teacher/associate teacher relationship.

Successful supervision of teaching practice was inhibited by a conflict between evaluative and supportive roles of the visiting lecturer, and practices by the associate teacher that inhibited the development of student teacher initiative.

Visiting lecturers identified a number of professional development needs including induction and training for the role of visiting lecturer (expectations, communication skills, ways of providing feedback about teaching, curriculum knowledge, evaluation criteria, peer modelling, and supervision).

Visiting lecturers identified growth in student teacher knowledge and skill in areas of planning, evaluation, management, professionalism, community relationships, reflectivity, insights about children, classroom management, motivation, and a willingness to learn.

Lecturers identified a number of areas where they felt student teachers could be better prepared for their final teaching experience. A key area was that of planning, followed by relationships with children, classroom management, and knowledge of skills such as questioning, time management, communication, and goal setting.

Specific recommendations to improve the programme of initial teacher education in relation to the practicum were developed from this exercise as well as direction for further research.

Cameron, M., & Grudnoff, L. (1993). What principals think of their beginning teachers? *set: Research Information for Teachers No. 2,* item 15.

This study is part of ongoing work on primary beginning teachers; earlier work having been published in *set* in 1990 and 1992. Principals from 228 primary schools who had employed graduates from the Auckland College of Education in 1989 and 1990 were asked to respond to a questionnaire seeking their views on how satisfied they were with the first year beginning teachers they had employed, and areas of strengths and weaknesses in their practice. Seventy-eight percent of principals responded and completed questionnaires in relation to 255 beginning teachers.

The first section of the questionnaire asked principals to rate their beginning teachers as outstanding, very satisfactory, satisfactory, showing some problems, or unsatisfactory for each of 22 items relating to their personal qualities and professional skills. The second section asked them to comment on specific strengths and weaknesses shown by their beginning teachers, which they considered could be attributed to their initial teacher education programme. Seventy-seven percent of the beginning teachers were rated as demonstrating outstanding or very satisfactory personal qualities. Less than five percent were rated as having some problems. Sixty-six percent of beginning teachers were rated as demonstrating outstanding or very satisfactory professional skills, less than eight percent were seen as having some problems.

Principals' responses indicated that they valued beginning teachers who fitted into the school culture. The ability to create a positive learning environment was the most highly rated professional attribute of this group of beginning teachers, followed by willingness to learn and to seek help. Classroom organisation skills were ranked next. Curriculum knowledge was identified as the least satisfactory attribute of beginning teachers.

Many principals identified the critical importance of ongoing support and guidance provided by tutor teachers. The study pointed to the need for schools to induct beginning teachers into their school's particular administrative expectations. The study showed that generally principals were unaware of the content of the initial teacher education programme.

Cameron, M., & Hawkins, J. (2000). *Associate teachers' views of their roles as teacher educators.* Paper presented at the Teacher Education Forum of Aotearoa New Zealand conference "Educating teachers: Context, culture and competence", Christchurch, 30 August – 1 September.

> This study reports the results of a questionnaire, which sought the views of associate teachers on their reasons for being associate teachers, and to identify what they saw as the most important aspects of their roles. Two hundred and seventy-five associate teachers from 124 primary schools returned the questionnaire.
>
> Results indicated that associate teachers viewed teacher education as a joint endeavour between themselves and the tertiary education institution providing teacher education in their areas. They consider they had valuable knowledge and skills, which complemented the tertiary programme. They reported high levels of commitment to both their classroom teaching and associate teacher roles, and indicated that being an associate teacher was a source of personal satisfaction and professional learning. While the majority of responses emphasised roles of emotional support and guidance with classroom practice, a small number identified a role in helping student teachers examine the extent to which their intentions were achieved in practice. There was less emphasis on assisting student teachers with monitoring and assessment of children's learning, and the analysis of children's work to judge the success of their teaching. Overall, associate teachers conceptualised their roles very broadly, viewing their classrooms as safe places for student teachers to develop their own approaches to teaching alongside supportive colleagues.

Corkery, G. (2001). *Men in primary teaching: A study of a cohort at Dunedin College of Education.* An unpublished thesis presented in partial fulfilment of the requirements for the degree of Master of Philosophy in Education, Massey University.

> This study examines factors contributing to decisions of men to withdraw from teacher education, and remain in or leave primary teaching within seven years of graduating. It focuses on the cohort of 42 males who began their teacher education studies in 1990. In 2000 a sample of 20 was interviewed by postal questionnaire, and six of these men were interviewed for in-depth information. Men were classified into three age bands: school leavers, samplers, and retrainers.
>
> Men within each group identified their inability to adjust to the culture of teacher education or of primary schools as a major reason for withdrawing from teacher education. The most common reason for withdrawal from teaching was lack of commitment and the confusion they experienced in their roles as male teachers. The men who were still teaching in 2000 were more likely to be teaching older children, and to have clearer ideas about their roles as male primary teachers and specifically their relationships with boys in their care.

Curham, T. (1996). *"What happened to them?" A long-term study of beginning career patterns of graduates from the secondary teacher training course at the Auckland College of Education.* Paper presented at the New Zealand Association for Research in Education conference, Nelson, 5 - 8 December.

This study reports on the process of entering the teaching profession for all graduating student secondary teachers from one college of education from 1991–1993. The response rate to questionnaires varied from 50–80 percent. The research identified some clear patterns. Sixty percent of the student teachers gained teaching positions. They believed they were appointed on their professional qualities including subject knowledge and their willingness to take extra-curricular activities. The factors they considered to have most assisted them in their transition to teaching were ranked as: professional confidence; knowledge of the curriculum; ability to manage the classroom; and the ability to prepare resources. The ability to relate to students was ranked fifth in importance. The perceived lack of help from the beginning teacher facilitator in their schools, and the low value that teachers placed on knowledge of biculturalism were of concern.

Cushman, P. (1998). The lack of male teachers in primary schools: Some issues raised by first year attrition rates at a college of education. *New Zealand Journal of Educational Administration*, *13,* December, 53–57.

This study investigated the withdrawal of 53 male and female student teachers from their first year of teacher education in 1997. A second survey was conducted with male first year student teachers in 1998. Surveys were used in both studies.

Students were asked to state their concerns when considering teaching as a career.

In the first study, 19 of the 53 student teachers who withdrew were men (a total of 23 percent of the male intake). There was a high proportion of men aged between 20–25 who had a variety of other experiences before entering teacher education. The main reasons for withdrawal for both males and females were "wrong career choice", "stress outside college", and "stress at college".

Year 1 professional studies lecturers conducted the 1998 survey of male student teachers with their male students. A total of 83 out of 99 male student teachers responded. They were asked to rate their level of concern in regard to a series of statements about areas and issues which had been highlighted in the media and which were thought to be possible factors contributing to the low level of males in teaching.

Fifty-six percent of male student teachers had some concerns with the perceived status of teachers, and 78 percent had concerns about the salary level. The majority of males were concerned about possible ramifications of physical contact with children.

The author concluded that further research is needed to include those who considered teaching but who did not enrol, as well as those who resigned early in their careers.

Davies, N., & Savell, J. (2000). *"Maths is like a bag of tomatoes": Student attitudes on entry to an early years teaching degree.* Paper presented at Teacher Education Forum of Aotearoa New Zealand conference, Christchurch, 30 August–1 September.

In 2000 a new degree course (Early Years) was introduced at Massey University to prepare student teachers to work with children from birth to eight years of age. The mathematics curriculum course included both subject mathematics knowledge and mathematical pedagogical content knowledge. This study examined the attitudes to mathematics held by the student teachers who enrolled for Massey University's Early Years degree programme in 2000.

Data were collected by analysing the results of a mathematics screening test as a measure of mathematical competence on entry to the programmes; by completion of a written sentence; and a questionnaire about their previous study of mathematics and attitudes to mathematics on 1 to 11 scale.

Students (number not reported) in the first lecture of their mathematics course were asked to write a simile for mathematics, by completing the sentence: *For me maths is like......* Fifty-three students provided their answers for this analysis.

Almost a third of the Early Years students had not studied mathematics beyond Year 10. None of the student teachers passed all screening test modules, and 22 percent passed none, with a further 24 percent passing just one module. The correlation between the level of mathematics studied at school and results on the screening test was low as was the correlation between the level of mathematics studied at school and attitudes to mathematics. Twenty-eight percent of the student teachers reported a positive attitude to mathematics, 23 percent were neutral, 28 percent were negative, and 20 percent made no response. Students with a background of Year 13 mathematics (5 of six students) were more likely to have a positive attitude towards mathematics, and students who had not studied mathematics beyond Year 10 were more likely to have negative attitudes towards mathematics.

The view of mathematics as something difficult, hard, or requiring a great deal of effort with little likelihood of success was one of the two most common themes in the metaphors of this group of student teachers, and two-thirds seemed eager to avoid it if they could. The author noted:

> Given the relative freedom of teachers in early childhood centres to determine the subject emphasis of their programmes, the predominance of an attitude of avoidance gives cause for concern.

She concluded that subject knowledge is clearly as much of an issue for these teachers of young children as it is for primary school teachers reported by Biddulph (1999) and Thomas (1998), and that it is imperative that issues of subject competence and attitudes to mathematics are addressed within initial teacher education programmes.

Delany, J., & Smith, L. (2001). Flexible failure: A systems response. In M.J. Mahoney, (Ed.). *Education odyssey: Continuing the journey through adaptation and innovation* [CD-ROM]. Sydney: Open and Distance Learning Association of Australia.

Analysis of academic results for students enrolled in Christchurch College of Education pre-service programmes shows that students studying by distance have a lower success rate than those on campus. This is particularly noticeable for distance students from isolated and economically disadvantaged areas, many of whom identify themselves culturally as Mäori. The author notes that while flexible learning options may increase access to teacher education, institutions need to understand the barriers to successful learning and be more responsive to them.

Dewar, S., Kennedy, S., Staig, C., and Cox, L. (2003). *Recruitment and retention in New Zealand secondary schools. Information from a series of interviews, with a focus on beginning teacher, returning teachers, and heads of departments.* Wellington: Ministry of Education.

Between June and September 2002, a series of interviews was conducted with staff in 20 secondary schools throughout New Zealand. The purpose of the interviews was to obtain feedback from participants regarding teacher supply in secondary school with a particular focus on beginning teachers, teachers returning to the profession after a break, and heads of department. This summary focuses on the information gathered from (and about) 63 beginning teachers which was to determine whether there were any barriers to the employment of beginning teachers in secondary schools and what policies and practices might encourage beginning teachers to stay on in secondary schools.

The key findings of the project were:

- Principals of participating schools liked and valued beginning teachers because of their enthusiasm and vitality and consciously looked to employ them. Schools said that the number of beginning teachers they employed was limited by the availability of senior staff to support them.
- Schools were generally satisfied with the quality of the beginning teachers they employed. They looked for beginning teachers who demonstrated "quality" which was defined as: having a love of young people and relating well to them; relating well to a wide range of people in terms of cultural and social background and ability to "fit in" with the culture and ethos of the school; having sound subject knowledge and a good qualification in their subject area(s); displaying energy, enthusiasm, and commitment to the job; ability to plan effectively and organise their time well; being flexible and adaptable; having a sense of humour; working well as part of a team; resilient; displaying sound judgement about when and when not to seek advice and support; appropriate balance in their relationships with students; and having the ability to reflect on and evaluate their own performance.
- There was no clear consensus on whether the quality of beginning teachers had risen, declined, or remained constant over recent years. Those who had established close

relationships with one or more institutions offering teacher education were sometimes able to gain information about promising beginning teachers and encourage them to apply for positions in their schools. They frequently targeted promising beginning teachers when they were student teachers. Participants from these schools were likely to comment favourably on the quality of beginning teachers while those from less fortunate schools were more likely to see beginning teachers as being of lesser quality than previously. Rural areas often had difficulties attracting and retaining beginning teachers. Some participants expressed the view that there are some initial teacher education providers that accept and graduate unsuitable people in order to stay viable. Some beginning teachers were also critical of the calibre of some of their cohort. Comments were made about the different composition of degrees and what they perceived as insufficient content knowledge to teach senior classes.

- Participants felt that beginning teachers, while progressing well, often required extra assistance in the early stages, particularly in the area of classroom management. Beginning teachers, however, felt that it was sometimes difficult to access support because of the busyness of teachers, and that school-wide approaches to discipline were not as effective as they could be.

- Beginning teachers liked many aspects of their work, particularly working with young people and seeing them learn.

- Beginning teachers said they were often frustrated and overwhelmed by expectations that they did not see as related to their teaching mission.

- Almost all of the beginning teachers interviewed said they felt overwhelmed by the amount of paperwork and administrative tasks the job required, and commented that their initial teacher education programmes had not prepared them for this aspect of their work.

- Although advice and guidance programmes were offered in all schools, apart from initial orientation, they appear to be on an ad hoc rather than on a formally scheduled basis.

- Many of the beginning teachers expressed their wish to have regular, timetabled supervision and opportunities for regular lesson observations as part of their advice and guidance programmes.

- School participants acknowledged the critical role of mentoring beginning teachers, yet it was also acknowledged that schools were seldom able to provide the support they felt that beginning teachers were entitled to.

- Over a third of the beginning teachers considered that they would be teaching in five years time. Fifteen percent expected to be teaching (and/or) living overseas, while almost ten percent thought they would be in other employment with almost 18 percent keeping their options open. (Fourteen percent of the data was missing.) HoDs found this turnover both difficult and frustrating, as they repeatedly had to recruit and support new beginning teachers only to lose them.

- Beginning teachers saw workload and pay rates as the main disincentives to their remaining in teaching, often comparing themselves with their peers in other positions whom they saw as having better pay and conditions and shorter hours. Unmotivated students and classroom management issues were also identified as disincentives to remain in teaching.

Suggestions were made to encourage beginning teachers to stay in teaching. These included:

- Attention to the reduction of administrative tasks that are unrelated to teaching.
- Allocating smaller/fewer/handpicked classes to beginning teachers.
- Rationalising workload and expectations for individual teachers and for teachers in general so that teachers feel able to "have a life outside school, and not work most evenings and weekends".
- More leadership and support from senior staff and a culture that supports seeking help and sharing of professional ideas.
- More resources and materials in subject areas.
- Less pressure to do extra-curricular activities while still adjusting to teaching or, adjusting workload in recognition of the extra effort.
- A salary that reflects workload and responsibilities and is "more in line with other professions".

Dickie, J. (2000a). Pacific nations students in primary teacher training. Investigating their learning needs. *set: Research information for teachers, 2,* 11–14.

This study explores how colleges of education can best support and assist Pacific nations' students to complete primary teacher training [sic] successfully. The study involved 21 participants representing Samoa, the Cook Islands, Tokelau, Niue, and Fiji, with two-thirds identifying as Samoan. Eighteen of the 21 stated that English was their first language and the majority had been educated in New Zealand.

Data appeared to have been gathered through interviews.

Pacific nations student teachers identified a range of strategies that they had used to complete courses successfully including peer and lecturer support. Difficulties were identified as: reluctance to speak out in class or group discussion; reluctance to approach lecturers to ask for assistance or information; difficulty understanding and writing assignments; and frustration in having to speak for and justify their culture's perspectives.

Factors outside the college also inhibited their success such as family and community commitments, and part-time work commitments. The participants indicated a range of supports which included having needs-based learning support workshops; grouping the Pacific nations students together in classes; appointing a Pacific liaison person; having their own space to meet; and developing a Samoan language teacher education course.

The author identified a number of implications for the teaching practices of individual lecturers and for institutions offering teacher education programmes.

Donaghy, A., & McGee, C. (2003). *E-Education: Case studies of university teachers' experiences.* Wilf Malcolm Institute of Educational Research: University of Waikato.

This monograph presents seven case studies of university teachers' experiences in an e-education version of the Bachelor of Teaching degree, and one lecturer's experience in teaching a graduate paper.

The case studies detail on-line teaching approaches and practices and reveal key issues relating to teaching experiences, technical needs, and the future of e-learning. The themes included: flexibility and access to tertiary education; limitations of computer technology; changes to on-line teaching; and e-learning social issues.

All of the lecturers found that the e-learning environment had challenged them to re-work their conventional approaches, and regarded this as valuable professional learning. While they enjoyed the flexibility of teaching on-line, they found that there needed to be institutional acknowledgment of the additional demands that this approach required. The lecturers all commented on the motivation of on-line student teachers and how this was reinforcing to them as teachers.

Technical issues with software, copyright restrictions, inadequate telephone lines in rural areas, and incompatibility with different users' computers were all challenges faced by lecturers.

The quality of teaching models in practicum and placement schools was highlighted as a concern, as there is currently no quality assurance in this area.

Donaghy, A., McGee, C., Ussher, B., & Yates, R. (2003). *Online teaching and learning: A study of teacher education students' experiences.* Wilf Malcolm Institute of Education Research, School of Education, University of Waikato.

This study explored ways in which a group of 29 on-line university teacher education students in a 3-year programme study, learn, and organise their time. It sought to identify their support and systems for learning, their use of course material and the effect of lecturer feedback. There were three stages of data collection for this research.

Firstly, students were individually interviewed by telephone and asked questions about how they planned their study time and what their main support systems for study were.

Secondly, anecdotal evidence was collected about how lecturers' on-line interaction and level of feedback affected student teachers' level of participation in on-line discussion groups and assignment work.

Thirdly, students were organised into on-line discussion groups which probed students' interviews further, as well as exploring new issues like the use of the library, time management, reading techniques, and use of study groups.

All of the student teachers generally had positive evaluations of their on-line programme. They identified some problems, most of which related to inconsistency in lectures and courses. Regular interaction and feedback, combined with user-friendly on-line environments contributed to what they considered to be a good course. The findings in this study show that there is an ongoing need to investigate, in detail, a number of aspects of on-line teaching and learning.

Dunmill, M. (undated). Teaching in 3D. 🎼 *our ideas,* 6-15.

The study investigated views on the teaching of music, and the courses in secondary music education from the perspectives of nine specialist music student teachers, and secondary music teachers in the field. It also explored student teachers' background experiences and beliefs and reflection on their experiences with associate teachers.

Questionnaires and interviews following each of the three practicum experiences were data sources for the information about the student teachers. Data was also obtained from course evaluations and student 'mind maps' describing their understandings of music. It is unclear how the views of the secondary school music teachers were obtained.

Three key questions were identified:

1. How do student teachers view the process of learning to teach the secondary music curriculum?

2. What content knowledge and skills bases do the research participants consider necessary for the effective teaching of secondary school music?

3. What conclusions can be drawn that impact on preservice teacher education and the teaching of music in New Zealand secondary schools?

As their year of teacher education progressed their experiences in schools (large mixed ability classes, few practical resources) led some of the student teachers to shift their idealistic images of teaching to a more managerial style. The student teachers also identified areas where they had difficulties in translating their musical understandings into successful and engaging teaching approaches, as well as tensions with associate teachers due to perceived unequal power relationships. They also identified gaps in their knowledge and skills because of a lack of tertiary courses that developed the wide-ranging skills and knowledge bases required to teach music at the secondary school level. The quality of associate teacher supervision and general school community support for music played a critical part in shaping their views on teaching. At the end of the year, all sought positions such as itinerant music teaching, private tuition, or performance work.

Elliot, A. (2002). *Information and communication technology: ICT in New Zealand schools: Preparedness of the student teacher.* Unpublished Master of Education thesis, University of Otago.

> Four 3rd year pre-service student teachers were interviewed to determine their sense of preparedness to integrate information and communication technology (ICT) into their future classroom programmes. It was found they had basic ICT skills (two2 with advanced personal use) but there had been no opportunity to experience ICT integration in their teacher education programme, limited modelling within their programme generally, and almost no integrated use of ICT during their school-based practica. The student teachers were aware of the social and political influences in ICT implementation but lacked knowledge of the place of ICT in classroom programmes and the way it might be used to support teaching and learning.

Fa'afoi, A., & Fletcher, J. (2001b). *Na hakahita ki tagata Pahefika i te Akoga Haka haiakoga: Identifying barriers for Pacific Island student teachers.* Paper presented at the annual conference of the New Zealand Association for Research in Education, Christchurch, 6–9 December.

> The authors, a Pacific Islands College of Education educator and a New Zealand European (Papalagi) from the same institute, attempted to identify the barriers that confronted first year teacher education students of Pasifika cultures. Of the 13 Pasifika teacher education students who were sent questionnaires, only two responded, despite follow-up reminders. The authors concluded that this methodology was inappropriate and instituted weekly lunchtime meetings described as open-ended group interviews. None of the five first year student teachers with already completed degrees who were undertaking a Graduate Diploma of Teaching attended any sessions, although student teachers from other year groups joined the meetings.

> Participants identified barriers to their success in their tertiary studies including the use of the English language, family and church commitments, family expectations, and meeting deadlines, and negative views of Pacific peoples. Student teachers who had previously worked as teachers in their own countries found the difference in expectations between their countries and New Zealand to be challenging.

Ferrier-Kerr, J. (2003). *Making connections: Professional relationships between associate teachers and student teachers.* A dissertation presented in partial fulfilment of the Master of Education degree, University of Waikato.

> This study focuses on the relationship that developed between four associate teachers and their student teachers during a block practicum. Data were collected through questionnaires, journals, observations, seminars, and semi-structured interviews. Four themes emerged as central to the quality of the relationship: personal connectedness; collaboration; role interpretation; and styles of supervision, with personal connectedness and collaboration identified as the most critical principles.

Ferry, D., & Brunton, K. (2004*). Planning by mouse click? Student teachers' use of on-line resources to support their practicum.* Paper presented at Practical Experiences in Professional Education Conference (PEPE) 6th International conference, 2-4 February, 2004, Brisbane, Australia.

This study investigated student teachers' use of on –line resources to support their final teaching practicum. The study aimed to identify student teacher levels of Internet use, the purpose for its use, and their use of the Internet compared with other sources of information, such as books, college notes, and associate teacher guidance. Student teachers were surveyed in 2002 and 2003, using a questionnaire distributed to all third year students present at a lecture shortly before their practicum began. In 2002, 71 of 110 student teachers returned questionnaires and in 2003, 44 of 85 questionnaires were returned. In 2003 "a small random sample" of student teachers were also interviewed.

The study found that student teachers were actively using the Internet to assist them with their planning and assessment, along with more traditional sources of information. The most frequently assessed site was Te Kete Ipurangi (TKI) which had become a central tool for these graduating student teachers. The site was particularly valued for its information and links to other sites. NZ Maths, the Assessment Resource Banks, and the New Zealand Curriculum Exemplars (available on TKI) were also used by student teachers.

Fletcher, J. (1999/2000). Who succeeds? Who finishes? An analysis of first-year teacher education students. *Christchurch College of Education Journal of Educational Research, 5* (1), 57–72.

This research draws on data from a cohort of student teachers who completed their first year of teacher education. The author compared the academic and teaching success of two groups of student teachers: the first, who had strong previous academic backgrounds, and were highly recommended by credible referees gained direct entry to the programme without interview; the second, who met minimum academic standards and also were well recommended by referees.

A range of measures was used to assess the success of both groups of students. Grades in courses and performance in teaching experience were assigned numbers and these were accumulated to allow comparisons.

The best predictor of academic success was previous academic achievement for both groups, and those who gained direct entry had stronger academic achievement than those who were interviewed. There was no difference between the measures of teaching ability between the groups. The authors noted that expectations of first year student teachers were not rigorous. The retention of direct entry students was noticeably higher than the retention of interviewed students. Student teachers in the 15-month graduate programme

(who were all interviewed) had high academic achievement, high retention, and high teaching ability.

Retention rate of Mäori was slightly higher than that of non-Mäori, and they achieved well academically. Male students were slightly more likely to continue with their studies than females, a reversal of the previously reported higher rate (Cushman 1997). There was no comparison between male and female achievement. The author concludes that the current selection processes appear to be effective predictors of success in teacher education.

Forbes, C.E. (1994). *Making the change: Perceptions of the professional development needs of beginning primary teachers in Aotearoa-New Zealand.* A report presented in partial fulfilment of the requirements for the degree of Master of Education, Massey University.

The author received questionnaires from 18 percent of a cohort of 168 student teachers in their final year of teacher preparation and 100 percent of 20 beginning teachers in term four. The questionnaire sought their perceptions of their knowledge and skill in a range of curriculum areas and teaching activities. The beginning teachers were also asked open-ended questions about their use of the 0.2 professional development time.

There were no significant differences in student teachers' and beginning teachers' assessments of their teaching abilities, with both groups identifying music, computers, and drama as areas where they felt least competent. The beginning teachers had not sought assistance in any of these areas.

It was apparent that the majority of the beginning teachers most often used most of the 0.2 time allocated for their continuing professional development for planning, reading assessments, and record keeping. They did not appear to be receiving feedback, intervention, or guidance to help them to become aware of their development needs.

Fox, R. (2000). *A 'good' lecturer: Student teachers' perceptions.* A project completed in partial fulfilment of the requirements of the degree of Master of Education Administration, Massey University.

The views of nine primary teacher education students on attributes of "good" lecturers' practice were gathered through semi-structured interviews. Lecturers in their programme had been recruited from primary classrooms, and had received minimal induction to adult pedagogies.

The student teachers identified ten critical attributes of a "good" lecturer; seven of the attributes related to the lecturer's possession of positive interpersonal qualities and the willingness to build positive interactions within the tertiary classroom. Two criteria related to teaching and learning and one to organisational abilities.

The author noted that student teacher expectations of their lecturers are high — they expect lecturers to teach in ways that ensure their emotional safety and personal

wellbeing, as well as be responsive to their prior knowledge and experience. Such flexibility may be feasible with class sizes of 25–30 and a teaching schedule that allows lecturers to know their student teachers as individuals. The tension between a desire to be a "good" lecturer and meet new expectations for research outputs was identified.

Fraser, D. (1995). Pain and pleasure in partnership between normal school teachers, student teachers, and university teachers. *Waikato Journal of Education, 1*. 71-84.

This report focuses on Normal School teachers' perceptions of their partnership with lecturers and student teachers at the School of Education, University of Waikato.

Data were gathered from 82 percent of teachers and principals from six normal schools in the Hamilton region. Teachers in this survey had clear views of what they perceived as a positive triadic relationship. Teachers valued positive interpersonal characteristics of student teachers such as positive and enthusiastic approaches to their work with children, and professional characteristics such as having lesson plans fully prepared, being punctual, tidy, and well spoken. Teachers did not identify characteristics of professionalism such as critical thinking, informed decision making, confidentiality, and debate about contemporary educational issues. Teachers valued similar characteristics in university lecturers, and found their working relationship to be most constructive when they had shared expectations of their roles, and when university lecturers appreciated teachers' work with student teachers. The research highlighted the need for enhanced communication and stronger school-university partnerships where professional development, action research, and children's learning can be documented, evaluated, and enhanced.

Fraser, D., & Spiller, D. (1996). A pedagogy for improving writing and thinking. *Waikato Journal of Education, 2,* 93–102.

This study evaluates a programme designed to enhance the thinking and writing skills of student teachers through a collaborative approach to drafting, peer editing, and essay writing. Student teachers spent four weeks working on their current essay assignments within tutorial groups. Students engaged in group activities such as exploring the essay topic possibilities, brainstorming, and debating some of the critical ideas and issues underlying the topics.

Lecturers participated by engaging in discussions, and helping student teachers explore their ideas. Students then drafted parts of their essays and participated in a peer review process.

The evaluation is based on lecturer observation, informal student comments, and student teacher responses to a questionnaire. The programme was based on the premise that there is an inextricable association between the development of intellectual understanding of a subject and the capacity to express this understanding clearly. Therefore the writing tasks were perceived to be learning and thinking opportunities if attention can be shifted from

the final product to the process. The results indicated that peer-assisted learning with the writing process enabled student teachers to give and seek feedback from each other, to collaborate and contest ideas, and to develop their writing from a reader's perspective. In particular, the importance of student teachers' expression of ideas orally before writing was seen to facilitate understanding and communication of ideas.

Fursman, L., & Visser, H. (2001). A survey of new graduates from teacher training programmes. *The Research Bulletin*, *12,* 41–54. Wellington: Research Division, Ministry of Education.

The study focused on groups where there are shortfalls in teacher supply: those with qualifications in mathematics, the sciences, te reo Mäori and English; Mäori and Pasifika graduates; and male graduates.

The research was conducted in two stages. The first involved a postal survey of new graduates from initial teacher education in 1997 that asked them about their intentions for 1998 and beyond with regards to teaching. There was a response rate of 68 percent from the 2,382 graduating teacher education students who could be contacted. (Sixty-one percent from primary programmes and 39 percent from secondary programmes.) Just under three-quarters of the respondents were female and 28 percent were male. Eight months later 1,475 of this group could be located to be re-surveyed about whether their earlier intentions had been realised. Eight-one percent returned completed surveys.

At the end of 1997, 13 percent of new graduates did not intend to teach in 1998. The main reasons were overseas travel and further education. A small number planned to seek employment outside teaching because of perceived low salaries, the stress and long hours they associated with teaching, and the greater opportunities they felt were provided by other occupations. There were no significant differences between different groups.

In mid 1998, 41 percent of new graduates were employed in permanent teaching positions, 29 percent in long-term relieving positions of 10 weeks or more, and 15 percent were in short-term positions including day-to-day relieving. Females were more successful than males in obtaining permanent positions. Those with qualifications in mathematics and science (particularly physics and chemistry) were less successful in obtaining employment. Nine percent had not taught since graduating and 28 percent were looking for a teaching position. Eight months after graduation 13 percent of the sample were not teaching.

Garbett, D. (2003). Science education in early childhood education: putting forward a case to enhance student teachers' confidence and competence. *Research in Science Education*, 33. 467-481.

This project explores first year early childhood student teachers' confidence and knowledge in relation to using science subject knowledge in early childhood settings. Fifty-seven of a possible one hundred student teachers returned questionnaires providing demographic information and levels of previous educational achievement. The

participants represented 15 different nationalities, including 27 Päkehä, 2 Mäori, 9 Pasifika, and 14 Asian. Student teachers were also asked to rank their confidence and competence in exploring science concepts with young children. A 73 item multiple choice test, based on a test used with British student teachers in primary teacher education programmes was administered to the student teachers who were also asked to predict their test results.

The data highlighted the poor science backgrounds and science knowledge of the student teachers. They scored considerably lower in the test than British primary student teachers. Seventy-one percent of British student teachers scored more than two-thirds of the possible marks, compared with 16 percent of the New Zealand student teachers. The student teachers had a better understanding of biology than other science areas with 85 percent getting more than half of the items correct. Many of the student teachers overestimated their knowledge and thought that their subject knowledge was adequate for teaching in early childhood settings. The author suggests that the result provides support for the assertion that the academic calibre of early childhood teachers is lower than those in primary and secondary programmes.

The author points to the need to develop student teacher content knowledge alongside pedagogical knowledge in programmes of early childhood education, so that the quality of their interactions with children is enhanced.

Gendall, L. (1997). *Associate teachers' views of their new role in the day-in-school programme.* Paper presented to the New Zealand Association for Research in Education conference, Auckland, 4–7 December.

This paper describes a shift in the role of associate teachers from being "hosts" to student teachers in their classrooms to one that involves a negotiated partnership and a deeper educational role for associates.

Questionnaires were sent to all teachers in the 13 primary schools involved in the programme. Fifty questionnaires were returned. (No report on possible percentage age returned.)

The researchers sought to determine the degree of "match" between stated programme objectives and practice in the schools, and also sought input on how to improve the day-in-school programme.

The majority of the associate teachers considered their key role to be a role model in terms of effective classroom practice. Many teachers demonstrated preconceptions about their roles that were inconsistent with the programme's expectations for their roles. Teachers emphasised craft knowledge more than communicating a theoretical rationale for their decisions.

The study identified the need for stronger partnership between the teacher education institution and the associate teachers; more opportunities for professional development in mentoring skills; and additional resources to give associates and students the time to meet together to discuss their work.

Gendall, L. (2001). *Issues in pre-service mathematics education.* Paper presented at New Zealand Association for Research in Education conference, Christchurch, 6–9 December.

This study was conducted to investigate the impact of a mathematics education programme on student teachers' approaches to planning mathematics in the final practicum of a one-year primary graduate teacher education programme. Prior to this practicum student teachers had spent time in their practicum classrooms and had observed and discussed their future associate teachers' mathematics programme. Their mathematics education programme had encouraged an enquiry approach to the teaching of mathematics and the student teachers had been personally involved in active engagement in mathematically rich experiences in authentic contexts. No direct teaching of mathematical content was included in the programme. How then, did they plan to teach mathematics in their associates' classrooms?

Nine student teachers participated in one-hour interviews prior to their final practicum and completed a questionnaire at the end of the interview.

Despite a number of the students lacking strong personal content knowledge in mathematics, all indicated that they felt confident to prepare a classroom mathematics programme. They were enthusiastic about using an enquiry approach to mathematics teaching despite their awareness that their associate teachers did not necessarily follow this approach. The study was limited in that it did not investigate the realities of implementing these approaches in classrooms.

The author emphasises the importance of student teachers having access to models of good mathematics teaching.

Gibbs, C. (1995). Turning a blind eye. Student teachers' concerns on teaching practice. *New Zealand Principal,* November, 13–17.

Forty first year primary student teachers were invited to record their concerns about teaching practice after their second practicum in a three-year teacher education programme. Written responses were gathered using self-reported vignettes of specific instances where they felt their confidence or capability as teachers were tested, and open-ended statements of concerns or problems arising from this teaching experience.

In all, the student teachers reported 165 concerns or problems, clustered into nine general areas of concern. Discipline and control of student behaviour was the most frequently reported concern (35 percent of student teachers), followed by managing the teaching and learning environment (25 percent), and then by catering for students with special learning

needs and circumstances (20 percent). While most student teachers found their schools and associates welcoming, six percent identified less than supportive school practices that undermined their confidence, and made them feel unwelcome in the school.

The author expressed concern that student teachers may be being given complex classroom responsibilities too early in their programme, which may result in an emphasis on conservative survival strategies instead of on children's learning. He emphasised the importance of designing practicum experiences so that they heighten student teachers' sense of self-efficacy on developmentally appropriate classroom learning activities.

Gilbert, J., & Cameron, M. (2002). When two cultures collide: Similarities and differences between tertiary teachers in two institutional contexts. Research note. *New Zealand Journal of Educational Studies, 37* (1), 87–91.

This research reports on the findings of a small-scale exploratory study which was designed to investigate the views of their academic work held by two groups of New Zealand tertiary teachers: one employed at a college of education, the other at a university. Questionnaires about their work were sent to 70 academics at a New Zealand university and 30 lecturers at a college of education. Thirty-three university lecturers from a range of disciplines, and 17 college of education lecturers completed and returned questionnaires. Participants were also invited to participate in a follow-up focus group discussion on the questionnaire findings: 20 accepted from the university, and 15 from the college of education. The findings from the questionnaires and focus groups indicated that there were clear differences between the two groups' understandings of themselves in relation to teaching, their "discipline" (or "knowledge bse") and research, and their understandings of the relationship between research and teaching. College of education staff were appointed to their positions and derived their professional identity from their success as teachers, while university lecturers were far more likely to see their primary role as being a researcher/scholar. Given a context of inevitable mergers between universities and colleges of education the authors suggest a need to move beyond the binary between "research" and "teaching". They suggest the need to rethink the relation between teaching and research in ways that might allow the emergence of a legitimate scholarship of teaching and/or the development of educationally defensible understandings of the relationship between disciplinary knowledge, pedagogical knowledge, and knowledge of teaching.

Gray, A., & Renwick, M. (1998). *A study into the effectiveness of teacher education programmes.* Unpublished research for the Ministry of Education and the Teacher Registration Board.

This study was commissioned to ascertain views on the degree to which first year primary and secondary teachers were being prepared to plan, teach, and assess the New Zealand curriculum, given an increase in the number of providers of initial teacher education and variations in the length of programmes.

The research data were gathered through postal questionnaires to first year teachers in both secondary and primary schools who had graduated in the latter half of 1997 or early in 1998, and to their supervisory/tutor teachers. Sixty-three percent of beginning teachers and 69 percent of their tutors returned questionnaires.

A majority of primary teachers felt well prepared to plan and teach in all essential learning areas other than technology, although they felt less prepared to assess children's learning. Those who had completed a four-year programme appeared to be better able to plan, teach, and assess in a number of areas than those who had completed shorter programmes. A majority of secondary teachers felt well or adequately prepared to plan and teach in the curriculum area they were currently teaching, and a considerable proportion felt poorly prepared to assess in their curriculum area.

A majority of primary school teachers felt well prepared to encourage the development of most of the essential skills with the exception of self-management and work and study skills. Secondary teachers reported a similar pattern.

Teachers who had graduated from programmes offered by "new" as compared with "established" providers felt better prepared in a number of areas. The authors could not identify reasons for this result and suggested that the students in these programmes tended to be older and perhaps more motivated to achieve.

A relatively high proportion of both groups of teachers felt poorly prepared to teach specific groups of students including those for whom English is a second language, special learning needs, Mäori and Pacific students.

Supervisory/tutor teachers were generally more positive in their judgements of beginning teacher preparation than were the beginning teachers themselves. The supervisory/tutor teachers in primary schools appeared to devote much more time in supporting beginning teachers than their secondary colleagues, and there was considerable variation in the use of the 0.2 professional development time. In their view, this aspect of teacher preparation needed to be strengthened.

Grootenboer, P.J. (2003a). *Pre-service primary teachers' affective development in mathematics.* A thesis submitted in partial fulfilment of the requirements of the degree of Doctor of Education.

This study explores the impact of experience on the affective views towards mathematics of pre-service primary student teachers. It focuses on their mathematical experiences prior to commencing their initial teacher education programme, during their first course on the teaching of mathematics, and during their school practicum placement.

A phenomenological framework was employed to underpin the data collection and analysis. Questionnaires, interviews, participant journals, drawings, and class activities were data sources. Data collection occurred over one year. Voluntary participants were 31 student teachers in the first year of their initial teacher education programme. Eighty-

four percent were women, and 55 percent had not achieved any mathematics qualifications at secondary school.

The findings show that overall the participants were initially apprehensive and negative about mathematics, but their views became more positive after their course in mathematics education. About half of the participants regressed to their negative beliefs and feelings during practicum. It appeared that participants' feelings were largely influenced by the relationships they had with their lecturers and associate teachers. Maintaining positive attitudes over time was identified as an issue.

The author recommends that as there have now been a number of studies into affective issues in mathematics education it is important that more classroom-based research is done.

Grootenboer, P. (2003b). Affective development in mathematics: A case study of two preservice primary school teachers. *The New Zealand Mathematics Magazine*, *40* (3), 28-38.

This paper reports an investigation of the affective positions of two preservice student teachers in relation to their experiences of mathematics and mathematics education. The study initially focused on their experiences prior to beginning their teacher education programme. The second phase explored their experiences during their first semester in teacher education and in particular through their first teacher education mathematics course. Finally, the study explored their beliefs, attitudes, and values after their practicum experience. Two methods of data collection were employed. The two students were interviewed in February, July, and November 2001. The second method was participant journaling.

Data showed that the two students remembered little of their primary school mathematics learning. Neither student could recall any secondary mathematics teacher that they liked or respected, and described their teachers as being "sarcastic, disinterested and incompetent". As a result they felt anxious and inadequate with regard to mathematics. After their initial teacher education course in mathematics, which involved two 90-minute sessions a week for 12 weeks and included lectures, workshops, readings, role-plays, discussions, and fieldtrips, they became enthusiastic about the importance of mathematics and looked forward to teaching it. The first student teacher had her first practicum in a year three class in an innovative school that was involved in the Early Numeracy Project; there was high congruence between the mathematics approaches taught in the institution and classroom. As a result she was able to make meaningful theory/practice links in relation to teaching and learning of mathematics. The second student, in a programme which emphasised completion of worksheets and follow-up testing, now felt that while the approaches advocated in the mathematics education course were "fun", they would not work in "real teaching".

The author acknowledges that while the study is small it illustrates the challenge for mathematics teacher educators to develop more positive attitudes in student teachers towards mathematics, and for student teachers to experience classroom contexts where mathematics is taught in meaningful ways.

Grudnoff, L., & Tuck, B. (1999). *Standards and the competence of beginning teachers in New Zealand.* Paper presented at the 9th ISATT conference, Dublin, July.

The authors of this paper believe that the teaching performance of beginning teachers is a critical indicator of the quality of their pre-service professional teacher preparation. This paper describes an attempt by the authors to develop performance standards and indicators for the assessment of beginning teachers. These standards were socially constructed with teacher educators, primary school principals, and tutor teachers, who then used them to rate the teaching performance of their beginning teachers. The authors then ran focus groups with the tutor teachers and their beginning teachers at each of five schools to obtain feedback on the criticality, comprehensiveness, and representativeness of the written descriptions of the competencies, and the meaningfulness of definitions of scoring levels. Although the tutor teachers were not trained to interpret the scoring criteria, domains, and indicators, they reported that they were relatively transparent to them. Beginning teachers also found them to be transparent. The authors caution that it is, nevertheless, prudent to regard the relationship between the tutor teachers' ratings and the actual performance of beginning teachers as a matter for some conjecture.

Grudnoff, L., & Tuck, B. (2002). *Becoming a teacher: Reflections on the professional development of new teachers and the implications for initial teacher education.* Paper presented to the British Educational Research Association, University of Exeter, 11–14 September.

This study reports on interviews with 16 primary beginning teachers and their tutor teachers as they were completing their second year of teaching. All had been recommended for full registration by their principals and in all cases they were regarded as competent (and in most cases, excellent colleagues) by their tutor teachers. This study is a follow-up on previous surveys of the same cohort using questionnaires and rating scales. Results indicated that beginning teachers had got on top of the "steep learning curve" identified in their first year and were now operating as autonomous professionals able to make their own professional decisions while contributing effectively to a team and to the wider school. Tutor teachers of at least a quarter of the beginning teachers commented on their commitment to their ongoing professional development. The craft knowledge of the beginning teachers had developed, and they were described as "savvy" teachers. Beginning teachers viewed their work with both students and colleagues as rewarding and enjoyable.

The authors discuss how the culture shock of the transition to teaching can be ameliorated in their programme of initial teacher education. Suggestions made by beginning teachers about how this could be achieved actually had been available to them when they were

student teachers; nevertheless the importance of such opportunities could be more strongly emphasised. The role of the tutor teacher was identified as critical, and structural difficulties to realising the full potential of this partnership were identified. The authors point out that an important outcome of their series of studies has been the understanding that different methodologies for gathering data produced different information about beginning teachers' adjustment and performance.

Grudnoff, L., & Tuck, B. (2003). Learning about teaching, learning while teaching, and becoming a teacher. *English Teaching: Practice and Critique, 2* (1), 33–42.

This paper synthesises the results of a series of studies of the adjustment and professional development of beginning teachers. In particular, it identifies the transition from new to "savvy" teacher, the tension between the models of teacher education held by teachers and teacher educators and the role of the school in facilitating the professional development of the new teacher. The findings are linked to previous research and the implications for initial and continuing teacher professional learning are identified.

Grudnoff, L., & Tuck, B. (2004). *Patterns of stress in beginning primary teachers.* Paper presented at Teacher Education Forum of Aotearoa New Zealand conference, Auckland, 5–7 July.

This paper reports on patterns of stress reported by 20 primary beginning teachers in their first two years of teaching. All of the participants were female, 16 were Päkehä, 3 Mäori, and one was Pasifika. They were interviewed at the end of their first and second years of teaching. The study sought information of their views on their development as a teacher, professional development activities, relationships with their tutor teacher, their initial teacher education programme, and the levels of stress experienced. Beginning teachers was asked to draw a continuous line on a graph indicating their stress levels across the year. There were significant differences in the levels of stress depicted at the start of their first year compared with the beginning of their second year. Patterns of stress across the rest of the years were similar, although stress appeared to accompany teaching. The peaks in stress levels were associated with mandated assessment and reporting activities for accountability purposes that teachers did not see as contributing to children's learning and development in the classroom.

Haigh, M. (2001). *Coherence and congruence of perceived roles within practicum partnerships––a case study.* Paper presented at the New Zealand Association for Research in Education conference, Christchurch, 6–9 December.

The author asked a student teacher, her three associate science teachers, and a visiting lecturer in a teacher education to employ a metaphor to describe their role within the triadic relationship of student teacher, associate teacher, and visiting lecturer. Discussion of these metaphors formed the basis of single semi-structured interviews with the five participants. The different metaphors are described and the preferred partnership styles of participants are inferred. The author concludes that the use of metaphoric imagery to

describe their practicum related roles assists them to theorise about these roles, and were internally consistent for four of the five participants. However, the expectations of the student teacher were not closely matched by two of the three associate teachers. In addition, the process of metaphor development did not promote a discourse of critical reflection about participants' respective roles.

Haigh, M., & Jongejan, J. (2004). *Teachers as learners: A pre-service teacher education practicum alternative for teachers already in service*. Paper presented at Teacher Education Forum of Aotearoa New Zealand conference, 5–7 July.

This paper presents research on the experiences of three dyads of LATs: people without teaching qualifications, who have temporary authorisation to teach (Limited Authority to Teach); and their associate teachers. People with LATS are usually people who are employed when a school has been unable to find a qualified teacher; they are often located in rural areas. Some institutions now offer people with LATs the opportunity to enrol in programmes leading to provisional registration as a teacher. This paper reports on the practicum component of a Diploma in Teaching (Secondary) for people with LATs offered by a college of education.

The secondary teacher education programme is usually completed over three semesters, by distance. The issue of the practicum poses a challenge for the institution. Student teachers in campus-based programmes are required to complete their practica in a range of schools, and their teaching is assessed by visiting lecturers from the institution. As a LAT holder may be the only teacher teaching their subject in their school, it is usually impossible for them to gain experience in other schools. Their professional supervision is therefore largely dependent on the knowledge, skill, and inclination of their self-selected associate teacher. They are not observed teaching by visiting lecturers from the teacher education programme. The institution has attempted to enhance the quality of teaching supervision by providing readings and suggestions for the associate teachers and requiring them to engage in formal observations and follow-up discussions of LATs' teaching during designated practica.

This study evaluated the second practicum from the perspective of the LATs and their associate teachers, after it had been assessed. The LAT was expected to undertake the planning and documentation of two units of work, and engage in teaching approaches different from those usually employed. The work was assessed by the college lecturer (based on the LAT's goal setting, planning, and self-evaluation), the LAT, and the associate teacher. The self-reports from participants indicated that that the LATs became more aware of their every-day practice, they felt they had gained tools for analysis of their work, and they became aware of the importance of professional discussion about their work. While the associate teachers were also positive about the design of the practicum, two out of the three were not convinced of the need to enhance their professional

supervision skills by studying the supplied readings. No data was reported on the outcomes of the units of work on student learning.

Haigh, M., & Ward, G. (2004). Problematising practicum relationships: Questioning the 'taken-for-granted'. *Australian Journal of Education*, *48* (2), 134–148.

> The authors conceptualise the practicum as an opportunity for student teachers to develop creative and thoughtful approaches to teaching within a supportive and knowledgeable collaborative context. They reject the commonly held view that the practicum is the site where student teachers "apply" the theoretical approaches to teaching that have been advocated in their coursework. Instead they should take a critical and reflective approach to their developing practice. Courses in their teacher education programmes are intended to foster the knowledge, dispositions, and skills required for student teachers to "look beyond the immediate, to search for meaning and to challenge the norm". Since 1997 the authors have explored the nature of practicum relationships, and the degree of shared professional understandings within these relationships. The studies were all located within New Zealand secondary schools. This article summarises the findings from these studies. They found that despite good intentions within the practicum, their vision of the practicum has yet to be achieved in practice. It was not evident from the studies that student teachers were given the freedom to develop professional agency to any great extent which limited their opportunities for creative approaches, innovation, and risk-taking, or that the student teachers had the skills or inclinations to exercise such professional agency. The authors conclude that shared understandings of the roles of participants in the practicum need to be developed, so that the practicum can operate as a rich educative experience as opposed to a site for practising teaching. The culture of the secondary practicum has proved resistant to change, suggesting that the contribution of the practicum to the preparation of future focused and dynamic teachers has not yet been realised.

Harold, B. (1994). *Professional practice courses at Waikato University: The school based component.* Paper presented at the Australian Teacher Education Association conference, Brisbane, Australia, 3–6 July.

> This paper describes the practicum arrangements in the four-year initial teacher education programme at the University of Waikato. Students have a combination of short-term placement in normal schools, and longer blocks of teaching practice in other schools. During this time they are expected to gain experience in urban and rural schools with junior, middle, and senior levels across all curriculum subject areas. The practicum comprises tasks from both professional practice and curriculum courses. In the fourth year student teachers are expected to undertake action research projects for short periods in schools. The professional practice courses aim to empower student teachers through the development of a reflective approach to the process of teaching, the development of clear links between theory and practice and the encouragement of a critical analysis of

educational issues. This paper outlines the principles underpinning the teaching practicum, describes the structure and organisation of the school-based component, and comments on some emerging practical, theoretical, and political issues.

Hawe, E. M. (2000). *Assessment in a pre-service teacher education programme: The rhetoric and the practice.* A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy in Education, University of Auckland.

> The study investigates how student teachers, lecturers, and others involved in a Diploma of Teaching programme experienced and interpreted assessment. The study was conducted over a 40-month period (1993–1996) when the author was employed as a lecturer at the Auckland College of Education. Data gathering techniques were through direct participation in the field; including observations, informal listening, attendance at meetings, interviewing colleagues; document analysis; and participation in classes as a student. Analysis and organisation of data were informed by the constant comparative method and analytic induction. The study was undertaken at a time when the documents of the college espoused a commitment to standard-based assessment. Students were found to have expectations regarding the outcomes of assessment; they reacted emotionally to these outcomes and attributed results mainly to external factors. In their view, assessment practices were subjective, and they sought to maximise their grades using a variety of strategies. Lecturers were found to be influenced by personal factors outside the official standards-based criteria and displayed reluctance to award failing grades. Two class-based case studies provided additional insights into the meaning that assessment held for participants and highlighted the complex relationship between assessment, learning, and teaching.

Haworth, P. (1998). "Good" teaching and learning: a matter of perception? *set: Research Information for Teachers, 3,* item 13.

> This article is derived from a study of the perceptions of four student teachers from Japan and Hong Kong during a year of teacher education in New Zealand. The study was based on the author's 1996 MA thesis. The research investigated the questions:
>
> a. What sorts of perceptions would Asian student teachers have of New Zealand learning situations?
>
> b. How might these students shift in their perceptions?
>
> In-depth case studies were compiled on each of the four student teachers, using questionnaires and six interviews over a 10-month period. Student teachers observed and related lessons taught by practising teachers and recorded their perceptions on a 23-item rating scale. The teaching session was also videoed and immediately after the observation the videotape was replayed as part of a semi-structured interview. In the interview the student teacher was asked to talk about the rationale behind the ratings given of the observed teaching. The study indicated that the student teacher's prior belief about the

nature of learning influenced both their perceptions of teachers and the learning situation, and their ability to implement and understand the concepts promoted in their teacher education programme. The study highlighted that definitions of "good" teacher are deeply embedded in specific cultural values and attitudes, and that teacher education lecturers need this understanding to address it in their approaches to initial teacher education.

Haynes, J. (1994). Watching oneself teach. *set: Research Information for Teachers, 1,* item 12.

> The study involved the analysis of two transcripts from a mathematics lesson by a student teacher in the second year of a primary programme of teacher education for graduate students. The study is interesting because it is the sole example to date of analysis of a teaching act in this literature review. The author attempts to specify her beliefs about mathematics teaching and she examines her practice for congruence. She also identifies constraints that limit her intended pedagogy.

Haynes, M. (1996). *Influences on practice in the mathematics classroom: an investigation into the beliefs and practice of beginning teachers.* Thesis submitted in partial fulfilment of the requirements for the degree of Master of Educational Studies (Mathematics), Massey University.

> This study follows six beginning teachers into their classrooms after their first term of teaching in primary schools. All of the teachers were female and Päkehä, and five were employed in junior classrooms. Although they had undertaken a variety of teacher education programmes in the same institution (2–4 years) all had undertaken optional advanced level mathematics education courses as part of their initial teacher education programmes. The study sought to explore "what life is really like" for beginning teachers, particularly in relation to their teaching of mathematics.

> The study began with a group interview of all of the participants. At this meeting eight issues facing the beginning teachers in relation to teaching of mathematics were identified. The participants agreed to keep a diary for five consecutive days with a focus on these issues. Following the completion of the diaries the beginning teachers were observed teaching and interviewed about their teaching.

> The author was interested in a number of questions, particularly in how the beginning teachers conceptualised the teaching of mathematics, and whether their contexts supported or constrained their teaching intentions. Were these teachers, as the literature would predict, led to abandon their constructivist views of mathematics learning when faced with classroom and school expectations?

> The data suggested that this group of beginning teachers, who were confident in their beliefs about mathematics teaching and who had the benefit of advanced study of mathematics education, had already moved beyond the "survival stage". Their practice went beyond compliance to school expectations. All found that the assessment practices in their schools failed to address student understanding but tended to "tick off" acquisition

of narrowly defined skills. While they complied with this assessment regime they all sought more valid ways to understand what their students were learning.

Hedges, H. (2001). Preparing early childhood teachers to work with parents: the impact of a family practicum. In S-E Farquhar (Ed.), *Proceedings of the 5th New Zealand Early Childhood Research Symposium,* 21–25.

This study reports the experiences of early childhood student teachers enrolled in a 3-year degree programme following a home-based practicum. The degree outcomes emphasised the development of student teachers understandings about working in partnership with parents and families.

The author's approach to the design is interesting, as to ensure voluntary participation and greater reliability of data, the researchers took no part in recruiting participants or interviewing student teachers. Six months after the home-based practicum student teachers interviewed each other in relation to their experiences and gave their interview transcripts to the researchers for analysis.

Participant responses were analysed according to the three criteria of the expected practicum outcomes and were related to questions about how best to assist student teachers to gain first-hand experience and understandings about parenting, families, and partnerships.

Although there were potentially 14 participants, only five student teachers completed interviews.

The findings were somewhat equivocal. Although the home-based practicum provided experience that would be unlikely to be achieved in any other way, it was seen to be too early in the teacher education programme for student teachers to have the background knowledge for optimal reflection on the experience. Nevertheless the student teachers gained background understandings about the realties of parenting which may have provided a platform for future learning.

Hedges, H. (2004). *Subject knowledge in early childhood: messages from research, implications for teaching.* Paper presented at the Teacher Education Forum of Aotearoa New Zealand conference, Auckland, 5–7 July.

This paper is based on the author's masters thesis (not obtained for this review). Details of methodology are not reported in this paper. The author considers that programmes of initial teacher education for early childhood teachers emphasise child-centred, integrated, and holistic approaches as opposed to developing subject and curriculum knowledge of early childhood teachers. The paper makes a case for the greater inclusion of subject-specific content knowledge and pedagogy within early childhood teacher education, to enable teachers to develop the knowledge required to extend young children's knowledge and understanding.

Heyward, P., Hansen, T., Sheehan, J., Mills, W., Ashman, L., Sinclair, A., & Williams, R. (2000). *Formative feedback: Food for thought.* Paper presented at the New Zealand Association for Research in Education conference, Hamilton, 30 November–3 December.

> In this study a group of teacher education lecturers developed questionnaires to investigate student teacher views on the written feedback they received on their assignments, and lecturers' views on the written feedback they provided. Ninety-nine student teachers (total cohort not reported), and six of eleven lecturers completed questionnaires.

> Results indicated that student teachers who received A grades were the most satisfied with lecturer feedback while the least satisfied were those who received failing grades. Student teachers valued feedback that was constructive and which helped them to identify strengths and weaknesses in their work, although a number most valued feedback that was expressed positively and which did not challenge them. Lecturers, although valuing formative feedback, found it difficult to provide this without an in-depth knowledge of their students. They also found the task of providing helpful written feedback to failing students to be challenging. The paper identifies several dilemmas in the provision of formative feedback to teacher education students.

Hipkins, R. (1998). *How visible is theory in science knowledge construction?* Paper presented at the New Zealand Association for Research in Education conference, Dunedin, 3–6 December.

> This paper reports on a small case study carried out to elucidate understandings of the nature of science knowledge construction held by twelve student teachers towards the end of a compressed course of primary teacher education for graduates. The author argues that teachers need to have an understanding of the theoretical basis on which new scientific knowledge is constructed so that they can teach in ways that offer students meaningful opportunities to engage with scientific ideas and debates.

> Twelve student teachers were asked to discuss in four small groups a series of situations in which the knowledge constructed might or might not been able to have been established "scientifically"'. The hour-long conversations were taped, fully transcribed, and analysed according to the type of reasoning employed. Results indicated that the student teachers did not appear to hold sufficiently coherent understandings about science as a discipline to be likely to be able to assist the future students to explore their ideas *about* science. Implications for teacher education in science are discussed.

Ho, A-H. (2003). *Exploring New Zealand and Taiwanese beginning secondary teachers' perceptions of leadership.* A dissertation submitted in partial fulfilment of the requirement for the degree of Master of Educational Leadership, University of Waikato.

> This comparative project investigates New Zealand and Taiwanese beginning secondary teachers' perceptions of leadership to identify whether they believe they have leadership qualities and how these perceptions influence their attitudes and behaviours when they

begin teaching. The study conducted face-to-face interviews with three New Zealand beginning teachers and telephone interviews with three Taiwanese participants. The beginning teachers were 2001 graduates from four-year secondary teacher education, and had been provided with teacher induction programmes in their respective schools. The Taiwanese interviews were conducted in Chinese, and translated into English for analysis. The study emphasises the contexts of educational systems in New Zealand and Taiwan in order to understand beginning teachers' perceptions of leadership comprehensively in respect to their teacher induction practices and organisational cultures. The author used three strategies of conducting grounded theory analysis: initial or open coding; memo writing; and theoretical sampling.

Five categories of factors that related to the beginning teachers' perceptions of leadership were identified as: culture; leadership experiences; working conditions; time commitment to teaching; and professional development.

Hope, J. (2004). *Student teachers' perceptions of their information and communication technology expertise.* Paper presented at the Teacher Education Forum of Aotearoa New Zealand conference, Auckland, 5–7 July.

This study investigated student teacher perceptions of their ICT knowledge, performance, and dispositions, prior to beginning a teacher education course in ICT. The participants were 160 student teachers enrolled in two BEd Teaching programmes and a graduate Diploma of Teaching. One hundred and thirty were female and 30 were male. Around half were under 30 years of age. Ethnicity data indicated that 56.7 percent were New Zealand European, 10.4 percent were Mäori, 14 percent Pasifika, and 14.6 percent were Asian. Data were collected using a semi-structured self- report questionnaire. The questions and results are reported clearly in the paper.

The data showed that more than 20 percent of student teachers did not have a home computer indicating the need for their institution to provide access to these. Older students had less prior knowledge of computers. The mean self-rating for all students at course entry did not reach the "confident user" level, and mean ratings for commonly used applications such as databases and spreadsheets did not reach the minimum level required for basic classroom usage. Student teachers had positive attitudes towards using ICT, and awareness of ethical issues. The author concluded that there is a need to establish student teachers' learning needs when designing teacher education courses in ICT, and that there is a need to develop their personal competencies, otherwise they will be ill equipped to implement ICT in their classrooms.

Hunt, T. (2000a). *Information Technology in pre-service teacher education within a New Zealand College of Education*. A thesis presented in partial fulfilment of the requirements for the degree of Master of Education, Massey University.

> This study reports a survey of lecturers, final year primary, and early childhood teacher education students, and graduating secondary student teachers of the knowledge, access to, and use of information technology and use of these technologies during their preparation as a teacher.

> Results showed that despite generally high access to computers the use of ICT within the college curriculum and in school teaching placements was limited. Students' responses indicated that traditional media of white or blackboard, printed handouts, and overhead projector are almost exclusively used in college courses.

> In comparison with primary teacher education students fewer secondary teacher education students had gained skills in using presentation software, video-editing, using video and digital cameras, editing sound recordings, and understanding the use of IT to assist students with special needs. Fewer secondary teacher education students considered that they understood theories of learning in relation to IT use.

> Over a third of all students did not feel able to design learning activities which use IT, indicating a need to develop more effective strategies for embedding the use of IT into student teachers' work across the curriculum and enabling them to gain greater experience of its use within classroom contexts.

Insley, S. (2004). *Voices from no-man's land: secondary pre-service teachers and learning to teach.* Paper presented at the Teacher Education Forum of Aotearoa New Zealand conference, Auckland, 5–7 July.

> This paper reports the concerns of a cohort (12) of secondary ESOL student teachers at several points in their one-year initial teacher education programmes and at the end of their first year of teaching. Four of the 12 participants were non-native speakers of English. Data were analysed on entry to initial teacher education (pre-entry writing on characteristics of effective teachers), after one-week classroom observations, after first and second practica (course journal entries), and at the end of the first year of teaching (interviews). Initially prospective teacher education students identified highly idealistic dimensions of teaching such as "passion", "enthusiasm" and were dismayed at the mismatch between these characteristics and the teachers they observed early in their programme. They were catapulted into "survival mode" when confronted with the reality of classroom life, and by the end of their second practicum the majority of the student teachers became preoccupied with class control, and many were dealing with self-doubt about their choice of career and personal adequacy for teaching. Perceived inadequacies in personal content knowledge for teaching were also identified. When interviewed at the end of their first year half had reconciled their self-image as a teacher, but the rest were

disappointed that their ideals had not been realised in practice. One teacher said, "I would like to say that I extend students' minds and bring out latent talent, but the reality is that I deliver the curriculum and make sure that the students know how to do what they need to be able to do for assessment." The author concluded that attention needs to be given to the affective as well as academic and professional dimensions in learning to become a teacher, and that opportunities for professional development in classroom management should be available to new teachers.

Jones, A. (2003). Primary teacher trainees: Identity formation in an age of anxiety. *Asia Pacific Journal of Teacher Education, 31* (3), 181–193.

This paper considers primary teacher trainees' understandings about touching the children in their care. Jones considers that fears about touching children have become a source of anxiety for society, and sought to investigate student teacher perceptions about this issue. Jones distributed questionnaires to graduating student teachers in two teacher education programmes during class time. The questionnaire asked two questions of the student teachers:

1. What have you learned as part of your training about practices related to touching children in your care?

2. Are the "rules" about touching children much of an issue to you? Why? Why not?

The sample comprised the 182 student teachers who were attending class on the day of the survey (around 65 percent of the total graduating cohort). Twenty percent of the sample were male, and the majority (66 percent) were in their 20s.

The majority (83 percent) considered touching children to be a source of regulation and anxiety for them. According to Jones, "the paper suggests that the trainees' insistence on "being aware", taken together with their failure to name "sexual abuse" as an explicit concern, is unlikely to produce a capacity to engage critically with what is at stake for teachers in an era of heightened anxiety about child vulnerability".

Julian, R. (1997). *"If we didn't have them we'd have to reinvent them." An evaluation of normal and model schools in New Zealand.* Wellington: New Zealand Council for Educational Research.

This study was commissioned by the New Zealand Normal School Principals' Association to support any submissions by the association to counter moves to reduce the current role of normal and model schools. It was intended to provide an independent review of the role of the activities currently performed by normal and model schools and to provide some indicators for future development of their roles.

A postal survey of the 22 normal and 8 model school principals was carried out; telephone interviews were conducted with the practicum coordinators from the 5 colleges of education which have worked closely with the normal schools since the designation of

these schools. The results were taken to focus groups of all of the principal participants in Wellington, Auckland, and Dunedin.

Participants saw the main difference between normal and model schools and other schools to be that normal and model schools include the practicum as part of their core business. The colleges of education also saw the roles of these schools to be an essential part of their programmes. The only major identified disadvantage was that they did not cover the full SES decile range and did not offer adequate opportunities for student teachers to work with Mäori students. They considered that they could rely on the normal and model schools to provide consistent demonstrations of good teaching practice. COEs also believed that if the normal and model schools were to lose their designation, they would lose status and would find it harder to attract the teachers needed to model best practice. They also felt that it would be harder to find teaching experience placements as no schools would be obligated to take student teachers. The study did not identify ways to develop and enhance the future roles of normal and model schools.

Julian, R. (1998). *Provider proliferation: Progress or problems for the practicum? A study of teaching practice in times of expansion.* Wellington: New Zealand Council for Educational Research.

This study examines the relationships between five new providers of initial teacher education and 18 schools where their student teachers gained practicum experience. Data were obtained by telephone interviews with providers and school personnel. Schools reported that while there were advantages for them in the provision of practicum they did not see it as part of their core business. There was little congruence between provider and school views on the purpose of practicum, and "language" used by the providers (such as "reflection") was not part of the school respondents' vocabulary. Many of the schools in the sample had to cope with a number of different philosophies of teacher education from a number of providers. Some schools dealt with competition for associates by restricting the number of providers with whom they worked. Others designated almost all of their teachers as associates, which may have reduced student teacher access to models of accomplished practice. The research indicated a need for collaboration between the larger numbers of providers seeking practicum placements for their student teachers to ease pressures on schools, but questioned whether this would happen in a competitive and contestable environment.

Kana, F. (1999). The effectiveness of a Mäori-focused teacher education programme. *Waikato Journal of Education,* 5, 133–137.

This research was conducted to evaluate the effectiveness of a three-year Mäori immersion primary teacher education programme. An earlier programme (1988–1990) had included six te reo Mäori papers, and four other papers taught through te reo Mäori with the rest of the programme taught in English. Entry to the programme was restricted

to those with some fluency in Mäori. This programme was judged to be inadequate for preparation to teach in Mäori medium contexts.

This study sought responses from the first cohort of student teachers enrolled in the new Whänau Rumaki teacher education programme from 1990–1992 where te reo Mäori was the dominant language and medium of instruction. Participants had to have sufficient fluency in te reo Mäori to be able to pass Mäori language papers at stage 3 level.

Thirty-eight of a possible 45 Whänau Rumaki graduates agreed to participate and 10 were selected to be interviewed in depth. Participants had many positive responses to the programme, and considered that they had been well prepared for teaching. The participants identified areas where the programme could be strengthened. All were teaching in Mäori medium classrooms.

Keenan, J., & Jones, J. (1995). The group interview: One aspect of selecting applicants for teacher education. *set: Research Information for Teachers, 2,* item 6.

This study describes a new group interview process as part of the selection process for teacher education, where applicants must demonstrate that they can express ideas fluently, "listen empathetically", and "respond appropriately in different situations". Twenty-four applicants were interviewed (12 successful and 12 unsuccessful), to elicit their views on the group interview process. All 24 applicants agreed that the group interview was a valid test of oral fluency: the successful candidates had, however, prepared more thoroughly for their interview than had those who were unsuccessful. Eighteen candidates had difficulty with the criterion of "empathetic listening", questioning both what this concept meant, and whether it could be judged in practice.

The third criterion, "respond appropriately in different situations", was criticised as being unmeasurable in one interview. Eighteen of the 24 applicants reported conflicting feelings about being interviewed in a group, such as a loss of self-confidence in front of more knowledgeable and articulate peers; a strong reluctance to "sell oneself" in front of peers; and the contradiction of the expectation that they should discuss ideas co-operatively when they were in competition with each other for acceptance to the programme. As a result of the feedback, changes were made to the group interview process, including the use of a co-operative problem-solving situation, which provided a more authentic context for group interaction.

Laing, L. (2000). *Northland trained beginning teachers*. An administrative project submitted in partial fulfilment of the requirements for the degree of Master of Educational Administration, Massey University.

The research "sets out to establish how well Northland trained beginning teachers have been prepared to plan and teach the New Zealand Curriculum Framework". At the time of the research there were seven teacher education programmes being offered by five tertiary training providers in the Northland area. The intention of the study was to ask a sample of

the approximately 120 primary and secondary beginning teachers who had graduated from Northland programmes how well their teacher-training programme had equipped them to become classroom teachers.

The study utilised a questionnaire used by the Ministry of Education in 1998 (Gray & Renwick, 1998). The researcher used a range of methods to distribute the survey. "Through the good services of the Advisory" the researcher distributed the survey to beginning teachers during two professional development days for beginning teachers. Other beginning teachers were contacted by mail and asked to return questionnaires to the researcher. The response rate was 61 from 80 questionnaires distributed. Twenty-eight were from primary beginning teachers and thirty-three were from secondary. There were 11 responses from beginning teachers who had received their pre-service training outside Northland. A third of the secondary beginning teachers had graduated from programmes outside Northland. Data from these beginning teachers was included in the sample because it "aligned with those of the Northland teachers". The majority of the primary teachers (61 percent) were Mäori while the majority of the secondary teachers were NZ European (76 percent). Twenty-one percent of the primary teachers were male, and 34 percent of the secondary beginning teachers were male. About 40 percent of the primary teachers were over 40 years of age, compared with 22 percent of the secondary beginning teachers (most secondary beginning teachers were aged between 20–24).

As in the Gray and Renwick (1998) study a majority of primary teachers felt adequately or well prepared to teach in all essential learning areas although a sizable minority (24–28 percent) felt that they had been poorly prepared to teach mathematics, science, technology, and social sciences. A similar percentage considered that they had been poorly prepared to assess students' work. The secondary beginning teachers were asked to assess their preparation in their two subject areas. The BTs were most satisfied with their preparation to teach mathematics, and least satisfied with science, technology, and the arts (six of nine beginning teachers assessed their preparation to teach the arts as poor). Over a third of the secondary teachers considered that they had been poorly prepared to assess their subject areas, with the writer interpreting this as "while the theory of assessment can be delivered during their formal teacher training more attention needs to be paid to this important activity during practicum".

A majority of primary and secondary beginning teachers felt well prepared to encourage the development of the essential skills, with 24–36 percent of secondary teachers noting poor preparation in self-management and competitive skills, social and co-operative skills, and work and study skills.

Eighty-two percent of primary beginning teachers found the support of their supervisory teacher to be helpful, compared with 66 percent of secondary beginning teachers. Primary teachers also felt better supported by their principals and their syndicate or department.

Teacher support services were rated helpful by three-quarters of primary and secondary beginning teachers.

While the study was not intended to provide comparisons between different providers the researcher noted "there is a disparity of resources between the different providers. The continuum of physical resources is vast. At one extreme are the well-resourced tertiary institutions and colleges of education with their libraries and computer suites. The other end of the range is the back two rooms of a community house with limited IT facilities with very few, if any physical resources. These programmes were heavily reliant upon schools to interface student teachers with modern teaching resources."

Lang, C. (2001). When does it get any easier? Beginning teachers' experiences during their first year of teaching. *Waikato Journal of Education, 7*, 85-98.

This reports the responses of seven beginning primary teachers to a survey at the end of their first year of teaching, which explored their experiences of the process of learning to teach. In most cases it took six months for the beginning teacher to move beyond the "survival stage" and feel that they were succeeding as a teacher. The factors that helped these teachers most to survive were: being supported in their planning as part of a group of teachers; support from their tutor teacher; personal management strategies such as arriving at school very early to keep up with planning, assessment, and administration; and self care. There were no commonly identified responses to a question asking them to identify areas they would have liked to have been included in their initial programme of teacher education, although several teachers would have liked greater knowledge in the area of literacy. To some extent the learning needs of beginning teachers reflected the nature of their teacher education programme, with some "gaps" identified by some graduates from a shortened programme. However, the authors noted that some beginning teachers appeared to be better supported than others in addressing their particular learning needs by teachers in their schools.

Langdon, F. (2000). *Principals' perceptions of effective beginning teachers and the pre-service graduate qualification.* Thesis submitted in partial fulfilment of the requirement for Master of Education, University of South Australia.

The first part of this investigation—principals' perceptions of effective primary school beginning teachers—is summarised in this review (Langdon, 2001). The second part sought principals' perceptions of how initial teacher education programmes can contribute to the development of the dispositional, personal, and professional qualities they identified as important attributes for beginning teachers. All of the principals proposed a closer collaboration between schools and providers of programmes of initial teacher education. While none wanted to move to a model of school-based teacher education they identified benefits for student teachers, practising teachers, children, and schools in building and developing collaborative approaches to initial teacher education. They also emphasised the importance of all contributors to initial teacher education subscribing to a

coherent model and practices, which provided student teachers with consistent role models and shared theoretical understandings.

Langdon, F. (2001). *Principals' perceptions of effective beginning teachers and the paradoxes, dilemmas and implications for educational cultures.* Paper presented at the New Zealand Association for Research in Education conference, Christchurch, 6–9 December.

Fifteen urban primary school principals from a range of school deciles participated in either a focus group interview, a one-to-one interview, and/or a written questionnaire which sought their perceptions of effective beginning teachers, including the knowledge dispositions, skills, and practices required by beginning teachers.

Six common perceptions of an effective beginning teacher emerged. An effective teacher was described as: (1) having the child at the centre of their practice; (2) having positive dispositions and commitment to teaching; (3) having a philosophy and seeking to learn; (4) having curriculum content and pedagogical knowledge; (5) being able to manage a classroom to support learning; and (6) being able to reflect on and respond to their particular working context.

In the view of the author, principals' expectations went beyond technical competency: they expected their beginning teachers to exhibit moral purpose and intellectual approaches to their work.

Lewthwaite, B. (2000). Temporary or permanent changes: training science teacher perceptions and reflections. *SAME papers,* 111–128.

This study is about primary student teacher perceptions of their previous experiences in science, their development during initial teacher education, and the adequacy of courses of teacher education for teaching science.

All 156 student teachers participating in this survey had just completed a compulsory science curriculum methods course, and were either in their second or third year of a 3-year teaching degree. For 95 percent of this cohort this would be the only science education course they would take in their degree.

At the completion of the course student teachers were invited to respond to a questionnaire. The response rate is not reported. Seventy-five percent disagreed with the statement "I have a strong science background", and only 21 percent indicated that they had had a positive science experience at secondary school, with 20 percent agreeing that they were successful secondary science students. Student perceptions of their science education course were generally positive, with 79 percent indicating that their experiences had developed their confidence to teach science. Experiences working with small groups of school students (micro-teaching) helped develop confidence in only half of the students, and 48 percent would have liked a stronger emphasis on science content in the course. Involvement in a personal scientific investigation helped develop confidence in 66

percent of participants. The majority of student teachers recognised a need to further develop their science content knowledge, and disagreed with a statement that their science education course was sufficient for their preparation to teach science.

Lomas, G., Windross, S., & Landman, M. (1996). To degree or not to degree, or breaking new ground: Narratives of developing the degree of Bachelor of Education (Teaching) degree at the Auckland College of Education, in *Teacher Education to Standards?* Proceedings of the New Zealand Council for Teacher Education conference, 25–28 June.

> This paper describes the development of the Auckland College of Education's BEd (Teaching) degree. From the outset the college determined that it would be based on an explicit philosophy of teacher education; it would be a professional degree encompassing the shared aspirations of the institution and aimed at develop well-educated, reflective, and effective teachers. The paper elaborates the difference between a general liberal arts degree where students enrol in courses related to their own interests rather than preparation for a professional qualification. The institution's previous experiences of student teachers attending courses on two sites had indicated that student choice and learning was frequently inhibited by timetabling, difficulties in access to courses of interest, and travel constraints.

> The new degree developed from research resulting in a structured matrix of key dimensions from which all courses ("modules") and module learning outcomes are derived. Seventeen professional dimensions were developed, with each dimension comprising knowledge, dispositional, and performance elements. Another significant feature of the qualification is the centrality of practice, and the embeddedness of practice within the programme.

Mansell, R. (1996). *Professional development of beginning teachers. How does it work?* Paper presented to the New Zealand Association for Research in Education conference, Nelson, 5–8 December.

> This study investigated the advice and guidance programmes and use of the 0.2 time provided to first and second year provisionally registered beginning teachers. These programmes are the responsibility of the employing schools.

> The first challenge for the researcher was to locate the participants, as there was no national database showing where provisionally registered teachers are employed. This necessitated contacting every primary and secondary school in the country and requesting principals' help in passing a survey on to any beginning teachers they had employed. Surveys were anonymous and schools could not be identified. Data were also collected from 35 school advisers who frequently run beginning teacher support groups and programmes in their areas.

> One thousand four hundred and four surveys were returned; 781 from first year teachers and 603 from second year teachers. As there were 1,908 first year teachers receiving the

0.2 staffing allowance, the rate of return for this group was 41 percent. There was no national information available on the numbers of second year teachers, so the response rate could not be estimated for that group. All beginning teachers were positive about their programmes of advice and guidance, with 69 percent of first year primary, and 48 percent of first year secondary teachers indicating that they were working "very well". Other differences in the support provided to primary and secondary beginning teachers are reported. By the second year 55 percent of beginning teachers felt their programmes were working very well and 44 percent of secondary indicated that they were working "very well". A very small minority thought they were going "not very well". Most teachers had an identified supervisor with whom they set up regular meetings and support from other teachers. Secondary schools were much less likely to document the advice and guidance programme, a concern since written evidence can be requested from the Teacher Registration Board when the final recommendation from supervising teachers for full registration is made.

There were different uses made of the 0.2 time in primary and secondary schools. Uses in common were completing records, becoming familiar with school resources and policies, and discussions with other staff. Primary beginning teachers were twice as likely to work directly with students on monitoring and assessment their learning, and almost four times as likely to observe or work with groups of students, and attend professional meetings or courses, and twice as likely to observe in other teachers' classes. The paper includes other data on beginning teachers' perceived strengths and needs and future career goals. Twenty-two percent of this cohort did not expect to be teaching within ten years.

McConnell, B. (2001). Teacher education in environmental education—does it work? *Australian Journal of Environmental Education*, *17*, 35–39.

This paper summarises a research project carried out by the author on the effectiveness of environmental education in New Zealand. Secondary pre-service teachers who had opted for a 20-hour course in environmental education expressed a high degree of satisfaction with the course. The author followed up 11 graduates from the 1996 course and six from 1997 to see if they were teaching, if they were teaching environmental education, and how they now felt about their teacher training. The results were mixed, but some were teaching environmental education. They all continued to speak highly of their college training (sic) in environmental education and all but one would encourage others to do the course. However classroom management problems, staff cynicism, and a lack of status for environmental education had created difficulties for them. Several had already given up teaching as a career, and others were considering leaving. Strategies to counter these disturbing trends are outlined as recommendations to the college and the wider education community.

McGee, J. (1995). The role of liaison teachers in developing school-university partnerships. *Waikato Journal of Education, 1* , 85-94.

> Six liaison teachers (teachers designated by their employing normal schools) were interviewed about their liaison roles with the school of education. Although three teachers carried major responsibility in their schools for communication between their colleagues and lecturers at the school of education in relation to student teachers only one liaison teacher had been specifically appointed to this role. The other teachers had been assigned the liaison teacher role in addition to their other responsibilities. Nor did they have job descriptions that reflected jointly determined expectations of their schools and school of education staff. The study identified the need for greater recognition and professional development for this critical role.

McGee, J., & Penlington, C. (2000a). *Beginning teaching: The anxieties of student teachers completing an intensive pre-service teacher education programme for graduates.* Paper presented at the New Zealand Association for Research in Education conference, Hamilton, 30 November–3 December.

> This study gathered data from a variety of sources (programme monitoring, student teacher questionnaires, student teacher autobiographies, and informal interviews) with graduating student teachers enrolled in a 13-month "compressed" primary programme of initial teacher education and those who worked with them (lecturers, associate teachers, and principals). Considerable resistance to the notion of compressed teacher preparation was evident in both university and school personnel. Student teachers were aware of opposition to their programme and this increased their anxieties about feeling adequately prepared for teaching as well as concern that graduates of more extensive programmes would be advantaged in applying for teaching positions. The profile of this group of student teachers indicated that: they were older than other students; they brought a range of background experiences; they were highly committed; and they were determined to earn high grades. As a consequence they were more demanding of university lecturers and teachers in schools. Associate teachers tended to place unreasonable demands on the student teachers, frequently expecting them to demonstrate equivalent knowledge and teaching skills as student teachers from longer programmes.

McGee, J., & Penlington, C. (2000b). *Four years on: The experiences of beginning teachers who graduated from an intensive primary teacher education programme.* Paper presented at the Teacher Education Forum of Aotearoa New Zealand conference, Christchurch, 30 August–1 September.

> This study reports information on six beginning primary teachers from a 13-month compressed programme of initial teacher education for graduates. The focus of the research was to investigate the quality of their preparation for teaching from the perspectives of five principals, two tutor teachers, and the beginning teachers. Interviews with principals and tutor teachers revealed that beginning teachers had been employed

primarily on the basis of personal characteristics such as social skills and perceived enthusiasm, dedication, and commitment to children, and willingness to "fit in" with the culture of the school. They were aware that these graduates would be likely to have some gaps in their professional knowledge and skill, but believed that they had the dispositions and skill to remedy these. All of the principals reported that their beginning teachers had strong theoretical understandings of curriculum, while the tutor teachers indicated that assistance in organising curriculum, and in matching teaching to students' instructional levels was needed initially. However they felt that six months into the year the beginning teachers were managing well.

The beginning teachers stressed the critical role played by their tutor teachers in helping them develop teaching skills and to cope with the extraordinary workload they encountered in their first year. Finding a balance between work and recreation was identified as a challenge for all five beginning teachers. When asked to comment on the strengths of their initial teacher education programme beginning teachers emphasised the collegial relationships they had formed which continued to nourish their professional growth. They commented that "'the doors are still open" to their university lecturers.

The authors commented that the compressed course appeared to have been an appropriate pathway for this particular group of students, but the quality of the induction programme in schools is also critically important for the beginning teacher to succeed in the classroom.

McGee, C., Oliver, D., & Carstenson, M. (1994). The teaching practice experience. The perspectives of student teachers. Series of studies on the teaching practicum. *Occasional Paper No. 2.* Hamilton: Professional Studies Department, University of Waikato.

Forty-three final year primary teacher education student teachers completed questionnaires before and following their last practicum before graduation and completed logbooks about their experiences over the eight-week period. In addition, two students were interviewed weekly. The intention of the research was to gain an understanding of the practicum experience from the perspective of the student teachers: how did their perceptions develop and change, and what were the key challenges they faced? Overall, student teachers were more positive about the practicum at its end than at the beginning, which suggested that for most student teachers, the practicum was successful. The importance of maintaining a positive relationship with their associate (who would write a final report with implications for future employment opportunities) meant that half of the students made compromises about their teaching approaches and management techniques. Although student teachers rated teaching experience as "better" than their on-campus study both before and after the practicum as it allowed them to develop their actual teaching skills, no theory-practice dichotomy emerged from the data. The quality of relationships with the associate teacher and other school personnel was a leading factor in the perceived success of the practicum. The majority of student teachers felt well

supported and positive about their contacts with university lecturers. Those who were dissatisfied noted issues to do with the quality of feedback, inconsistent expectations, and not knowing their visiting lecturer. The study identified some areas where the practicum experience could be improved.

McGee, J., Ferrier-Kerr, J., & Miller, T. (2001). *Student teachers' initial perceptions about the role and the professional and personal qualities of associate teachers.* Paper presented at the New Zealand Association for Research in Education conference, Christchurch, 6–9 December.

Fifty-five student teachers recently enrolled in a one-year primary teacher education programme for university graduates completed a questionnaire on their perceptions of the role of associate teachers. They were also asked to list ten professional qualities, and ten personal qualities they deemed to be for associate teachers to possess. The categories of guidance and support were identified as key aspects of an associate teacher's role, with teacher modelling of "good" teaching also seen to be very important. Associates' personal qualities strongly featured in the list of professional attributes, highlighting that positive interpersonal qualities were seen to underpin teachers' professional qualities. The authors noted that student teachers did not emphasise subject, or curriculum, or pedagogical knowledge as important attributes of associate teachers.

McPherson, D. (2002). *Searching for angels: selecting for pre-service teacher education.* Thesis submitted in partial fulfilment of the requirements for the degree of Master of Educational Management, UNITEC Institute of Technology.

This study explores the views of a number of providers offering secondary teacher education on the selection process for entry to initial teacher education.

The methodology included analysis of publicity material from four main providers and the use of a focus group to help develop a questionnaire to test the central themes in the study. The questionnaire was sent to programme co-ordinators, and recruitment and selection directors at all 13 secondary initial teacher education providers using the TeachNZ 2001 list. Several copies of the questionnaire were sent to all contacts who were encouraged to pass them on to others who were directly involved in selection or who had particular interests in the area. In all 81 questionnaires were sent out. Twenty-four questionnaires (32 percent) were returned from teacher education providers. The number of institutions responding was not reported.

Copies were also sent to other organisations with a legitimate interest in initial teacher education selection. These were: the Teacher Registration Board, Education Review Office, Teacher Education Forum of Aotearoa New Zealand, School Trustees Association, and the Ministry of Education. A total of four questionnaires were returned from these groups.

The study found a wide range of beliefs about who should be selected for secondary initial teacher education. The differences centred around two key aspects: knowledge of

subjects for teaching, and personal qualities and dispositions. The study found that the most important criteria for selection were enthusiasm and passion for the subject student teachers expected to teach. There was a strong emphasis on personal qualities. Providers tended to believe that students who did not appear to possess important personal and dispositional qualities on entry to a programme of teacher education would be unlikely to develop them during a one-year programme. It was also felt that gaps in subject knowledge could not be addressed in a year, so it was expected that applicants would bring well-developed content knowledge relevant to the secondary school curriculum to initial teacher education. The author identified "a certain flaccidity in ensuring that students have appropriate, transferable subject knowledge at selection", given that they relied on university transcripts to assess this aspect.

Providers ranked the ability of applicants to be able to relate well to teenagers 24th, and a lack of knowledge, skill, and facility in tikanga Māori was not seen as an impediment to entry. Providers did not expect applicants to have a commitment to meeting the needs of Māori learners at selection.

The study concludes with suggestions for further research.

Meade, A., & Bruce, L. (1995). Creating learners who want to know. An action research project following a college-based teaching experience. *Early Years Research. Papers from NZCER seminars on early childhood.* Wellington: New Zealand Council for Educational Research, pp. 15–25.

> This paper describes an action research project, which explored student teachers', lecturers', and children's experiences of an in-college opportunity for early childhood teaching experience in a model practice setting. Student teachers worked in small groups to plan, implement, and evaluate daily programmes for 12 three-,and four-year-old children from local early childhood centres.
>
> A major assessment tool was the use of video recordings of the children and student teachers working together. In addition the senior author observed and kept running record notes. Five different questionnaires were administered to the children (by centre staff), their parents, the staff from the local ECE centres, student teachers, and course lecturers. All groups except the children were informed that there was a research component to the evaluation and their consent was obtained.
>
> The research had three aims:
>
> - to describe the tangible advantages for the participating children,
>
> - to evaluate student teacher achievement of the learning outcomes of the experience, and
>
> - to evaluate the assessment and monitoring approaches used by course lecturers.

While the majority of the student teachers met most of the stated learning outcomes for the experience, and there was no disadvantage to the participating children, the analysis of the data revealed areas where teaching and learning could be improved. For example, it was noted that student teachers could have done more to extend the learning of the children by providing for individual needs; providing rich and varied experiences; listening to and extending children's oral language; and drawing and reflecting on theory.

The data obtained allowed the course lecturers to identify areas where more attention needed to be paid to increase course quality. This was reflected in changes to the in-college teaching experience and in other courses, which are described in detail in the article.

Meek, B. (1998/99). The professional competence of beginning teachers. A survey of employers. *Christchurch College of Education Journal of Educational Research, 4* (1), 51–60.

This article presents the results of a second survey of "those responsible for supervising recent [primary] graduates from Christchurch College of Education teaching programmes." The survey was designed to identify the perceived needs and strengths of beginning teachers.

In 1996, 208 questionnaires were sent to schools known to have employed a 1995 or 1996 primary teacher education graduate from the range of programmes offered by the college. Although the questionnaire was addressed to principals it was requested that the person closely involved with the teacher's induction programme complete the survey. In most cases the tutor teacher completed the survey. The return rate for the 1996 survey was 62.5 percent.

The survey asked for information about class level, type of position etc, and invited responses to two questions regarding the performance of the beginning teacher:

- List up to five teaching related behaviours/competencies that the teacher does without additional support or guidance.

- List any aspects of teacher behaviours/competencies which the teacher lacks *and* which you would have expected to have been included as part of their pre-service course.

Over half the beginning teachers were employed in Years 1–3 levels, around 30 percent in Years 4–6, and 14 percent in Years 7–8 classes.

Responses were classified under six headings: planning skills; management skills; relationship skills; resource and curriculum skills; evaluation diagnostic, record keeping, and reporting skills; and personal skills. Over 90 percent of respondents identified three or more areas where the beginning teachers did not require additional support or guidance (areas of confidence). Almost half identified three or more areas which the teacher lacked *and* which they would have expected to have been included as part of their pre-service

course (lack of confidence). The study does not examine differences in evaluation of beginning teachers from one-year, three-year and four-year programmes.

Mitchell, J.W. (2001). *Early childhood student teachers' beliefs about the role of the teacher and how young children learn.* Unpublished Doctor of Philosophy thesis, University of Waikato.

A three-year study of 17 early childhood student teachers that examined their beliefs about the role of the teacher and how children learn, the influences on these beliefs, and changes to them over time. The 17 participants completed 5 questionnaires and a sample of seven were interviewed and observed on teaching practice. The results indicated that the beliefs student teachers construct are powerfully informed by experiences prior to the teacher education programme and that the family is perceived to be particularly influential. While some beliefs appear to be quite stable, particularly those that had their origin in family values and those that contained strong affective elements, it was apparent that all students modified their beliefs in some way during the course of their studies. Four major trends in terms of belief development about the characteristics of a good early childhood teacher were identified: the move from a dyadic to an ecological view of early childhood education; from an emphasis on caring to one of educating; from a focus on homogeneity to heterogeneity; and from a sense of spontaneity to one of predictability. In terms of children's learning, participants in their final year paid increased attention to the role of exploration and play, and learning through social interaction. Increasingly their ideas were informed by sociocultural theories of learning. The author concluded that teacher education does impact on student teacher beliefs, the impact being greatest when the beliefs that the student teachers use to construct their teaching identity are recognised and built upon.

Ovens, A. (1996). Field experience: An analysis of students' problems. *Journal of Physical Education New Zealand, 29,* 1, 17-22.

This study focuses specifically on the problems experienced by student teachers during their practicum placements for a secondary degree course in physical education. The research was completed as a Master of Education thesis. Data were collected using written surveys, administered prior to and following their final practicum placement, and from paired interviews conducted in schools during their placement, as well as informal observations of the students' teaching.

Seven problems with field experience were identified:

1. field experience has little purpose and direction;

2. poor supervision and feedback;

3. little autonomy to make their own decisions;

4. pressures to conform to the associate's teaching style;

5.   working in poor quality programmes;

6.   increases in workload and time commitment; and

7.   the experience is too short.

From many of the students' comments there appeared to be a strong belief that they learn best from experience, but considered that practicum was not "real experience".

In the author's view student teachers need skilled support to recognise every situation as "real" and to derive meaning from each situation. The student comments also reflected that their own established conceptions of teaching not only influence how they interpret the experience, but also what they learn from the experience, including what advice they listen to and act upon. When student teachers face a different opinion with their associate they appear to maintain their original views of teaching and appear to comply to ensure positive assessments.

Students' comments indicate that their relative lack of power in their relationship with their associate is problematic in learning to teach. In such a relationship the associate's views take precedence and alternative views are often repressed.

The author concludes that field experience provides a "unique and precise" opportunity to learn about teaching. However, student conceptions about teaching need to be made explicit, and examined before they are likely to be modified in response to feedback. This requires associate teachers to have skills in facilitating student teacher learning by testing and challenging their beliefs in a supportive, understanding, and collegial supervision environment.

Ovens, A. (2004). *The (im)possibility of critical reflection: The lived experience of reflective practice in teacher education.* Thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy, School of Human Movement Studies, The University of Queensland.

The aim of this thesis is to examine how five secondary teacher education students experienced the reflective intent of a physical education teacher education degree programme.

It is an account of the pedagogical work on/for reflection and the students' engagement, resistance, and receptivity to that work. The aim is to understand reflection as it is lived, as individuals actively engage in the process of learning to teach. Data sources are the learning narratives of experiences of learning to teach and their engagement with practices aimed at making them reflective.

The narratives provide an insight into the identities of each participant as they are constructed and negotiated within discursive contexts. The narratives demonstrate that learning to teach is not a linear or coherent accumulation of knowledge that transfers unproblematically to teaching situations. Reflection is not something that is acquired in

the form of discrete knowledge or skill, but something that is enacted as part of the reflexive ordering of identity in discursive contexts.

Paterson, J., Horring, J., & Barton, B. (1998). A comparative case study on the effectiveness of mathematics teaching by two groups of teachers in training. *SAME papers*, 162–180.

This paper describes an observational case study of a group of mathematics teachers in training. Three experienced teachers who had previously taught other subjects and were studying mathematics at a university level and four pre-service mathematics graduates took part in the study. The experienced teachers were on a special one-year course called "New Directions", designed to enable them to become teachers of mathematics. The other group comprised mathematics graduates undertaking the usual one-year Secondary Diploma of Teaching programme.

Both groups were observed on two occasions while teaching mathematics to senior high school students. Participants were interviewed briefly before and after each lesson. The observers, both experienced mathematics teachers, scored the teachers' lessons on an observational schedule of mathematical and classroom management related behaviours and on a subjective basis. In addition there was a workshop assessment, which required the participants to design a sequence of mathematics lessons.

It was found that the experienced teachers were, at this stage, more effective overall. They had previously developed pedagogical content knowledge in an area other than mathematics as well as general pedagogical knowledge. Mathematics teaching was being "grafted on" to the general expertise that these teachers had developed, although they were still novices in terms of mathematics teaching. They were observed to make mathematical mistakes. At the time of the first observation they had successfully completed 100 level university mathematics courses. By the time of the second observation their awareness was such that they recognised the problems and were able to use their general teaching skills to address them. The development of mathematical pedagogical content knowledge was seen as central to their effectiveness as mathematics teachers. The authors noted that 200 level mathematics courses appear to be prerequisites for the depth of content knowledge level required to successfully engage secondary school students in mathematical learning.

On the other hand the mathematics graduates possessed mathematical content knowledge but displayed different levels of teaching skill. One student teacher appeared to be mimicking what he saw as teacher behaviour and was more concerned with his own performance than with lesson material or students' learning. Another was able to interact successfully with small groups but "lost it" when attempting to interact with the whole class. Another, while rather tentative, was able to engage the students in mathematical learning.

The authors suggest that learning to teach involves both attention to what teachers do, as well as how students learn, and that no amount of experience will be effective unless teachers have reached that stage when they are focused on students' learning. The recognition of these stages, according to the authors, has implications for teacher preparation. "One is that it is unlikely that teacher preparation can be shortened for most teachers. It simply takes time before these stages can be accomplished." The authors also considered that it may be useful to explore ways of reversing the usual "subject knowledge then teaching knowledge" preparation for secondary mathematics teachers, or to develop them concurrently.

Ramsay, P.D.K., & Hodder, C. (1997). *The provision of preservice primary and secondary teacher education in New Zealand.* A contract consultancy for the Ministry of Education.

The study provides a snapshot of primary and secondary pre-service provision in New Zealand in 1997. At the time there were 16 providers of initial teacher education. Data collection involved three phases:

(1) analysis of provider information as found in calendars, handbooks, and publicity material;

(2) a survey of the institutions requesting information on the student intake; resources available, quality management systems; background experience of staff; programme delivery; innovative developments; and

(3) .visits to twelve institutions.

The authors concluded that variety was now a hallmark of initial teacher education with programmes being of variable length (1-5 years), being offered as full- and part-time, and with ever growing flexibility in delivery. While there was still a predominance of younger students a wide range of student ages was identified and a continuing gender imbalance (approximately 75 percent for primary and 69 percent for secondary) was evident.

While there were minor differences in emphasis in programme provision for primary there were considerable similarities with fundamentally four parts to each programme – the teaching process (including professional studies in the practicum), curriculum studies, educational studies, and liberal or general studies. In general, institutions devoted between 25 to 30 percent of students' time to direct block-teaching practice – usually between 20 and 24 weeks. It was evident that the practicum was viewed as the critical core and every endeavour was made to relate theory to practice. Curriculum studies, while compulsory in all institutions, was generating considerable debate regarding the balance of these areas, together with their relationship with generic courses. In secondary there was also a good deal of similarity among the one-year programmes with teaching experience generally being 13–14 weeks. There was, however, less experimentation with the content and balance of the programmes in secondary, probably the result of the limited timeframe and the necessity to focus on curriculum and the teaching process. Innovations described

include programme delivery by distance—through Internet, email, and teleconferencing—and these strategies were enabling students in remote places to undertake studies.

Associated with the expansion of provision the authors noted the related necessity for increased quality control procedures. Overall, they were impressed by the procedures in place and concluded "there is no question that better systems are now in place for the delivery of high quality programmes and the production of high quality graduates" (p. 60).

Acknowledging that this study was not a direct replication of research undertaken by Ramsay and Battersby in 1988 the authors were, however, confident that the procedures for both the delivery of the practicum and its linkage to the institution-based component of the programme were much improved. The earlier study, which applied to all of the colleges of education, had found that the stated aim of integrating theory and practice was generally not achieved. Ramsay and Hodder noted that policies for students and staff relating to teaching practice are now much more explicit and that there is better communication between lecturers and associate teachers.

The authors gave the following cautions: (1) the small size of some of the newer providers posed questions about economies of scale and associated resource provisions and professional development opportunities for staff; (2) despite improved quality control procedures the sheer diversity of provision suggests that even tighter measures may be needed; (3) the rapid growth in the number of providers may lead to quality issues in times of teacher shortage; (4) moderation procedures need careful attention to monitor the quality of graduates; and (5) the impact of the introduction of a three-year primary teacher education degree needed to be carefully evaluated given that research has demonstrated that quality teachers not only have a deep knowledge of teaching and learning but that they are also liberally educated.

Renwick, M., & Boyd, S. (1995). Early childhood education. Findings from a longitudinal study. *Early Years Research. Papers from NZCER seminars on early childhood* pp. 45–68. Wellington: New Zealand Council for Educational Research.

This paper is based on a longitudinal research study on early childhood teacher education carried out in New Zealand's five colleges of education and one university faculty of education between 1988 and 1993. The study was funded by NZCER with some assistance from the then Department of Education.

One of the researchers visited the six institutions at the end of each of the three years of the programmes. All were programmes leading to provisional registration as early childhood teachers. In each case student teachers completed a questionnaire after a group discussion. In 1991 graduates from early childhood teacher education programmes in Dunedin and Palmerston North were surveyed by postal questionnaire to ascertain their first teaching position and to comment on some of their experiences during their first year

of employment. The same questionnaire was sent in subsequent years to graduates from Hamilton, Christchurch, Auckland, and Wellington Colleges of Education.

The research sought to:

- find out about student teachers' anticipated employment preferences (childcare, kindergarten, or other early childhood service);

- monitor any changes in student teachers' intentions about employment;

- identify student views as to how well prepared they felt for teaching; and

- establish the employment patterns of beginning teachers.

Of the 73 percent of graduating student teachers who indicated that they had an employment preference, the majority indicated that their preference was to teach in a kindergarten, although the proportions varied in each area. Student teachers felt that they had been prepared to teach in all settings, although again there were variations. They held the view that the working conditions, hours, and pay were superior in kindergartens. Overall graduating student teachers felt that they had been prepared either "quite well" (53 percent) or "very well" (42 percent) for their first teaching position. Beginning teachers were appreciative of the opportunity provided for their own personal development including the skills they had developed in human relations and communication, and a heightened awareness of equity issues. They felt that their preparation would have been enhanced by more practical work, including more experience in centre management and administration. Some were critical of aspects of programme organisation and efficiency. A high proportion of beginning teachers were working in early childhood settings, most in the service of their first choice, and most expressed a high level of satisfaction with their jobs.

The authors noted that a number of factors such as fee raises had led to student teachers becoming more critical of their teacher preparation programmes.

Renwick, M., & Gray, A. (1997). *Compressed programmes of primary teacher education: An initial overview*. A report prepared for the Teacher Registration Board, August 1997.

This study was commissioned by the Teacher Registration Board to undertake an external audit of the compressed programmes of primary teacher education that had been introduced in 1997 in response to a teacher shortage. The study was designed to review the *implementation* of the compressed programmes, not to compare their effectiveness, nor to evaluate their outcomes. The sample comprised 11 teacher education providers, and data were gathered from interviews with 72 lecturing staff; 113 staff in schools including principals, associate teachers, and mentor teachers; and 131 students. The study findings were limited the timeframe specified by the Ministry of Education as it was completed when most programmes were at about the mid-point. Also, it was the providers who

selected those whom the interviewers spoke with; and interviews were held with people in groups rather than individually.

The authors concluded that it was too early to judge whether compressed programmes of teacher education are an effective way of fulfilling the short-term goal of providing more trained (sic) teachers in primary classrooms quickly. Providers appeared to have approached the design and delivery of the compressed courses with integrity and a desire to prepare student teachers well. The staff involved were all experienced teacher educators, and the introduction of the new programmes provided an impetus for them to consider innovative ways to teach their programmes, and particularly their relationships with schools. The schemes offered the opportunity to become a teacher to a wider pool than previously, and the calibre of these student teachers was generally high. Ongoing monitoring of programme effectiveness was recommended.

Renwick, M., & Vize, J. (1993a). *Windows on teacher education: Student progress though colleges of education. Phase 4: The first year in the classroom.* Wellington: New Zealand Council for Educational Research.

This is the final phase of a longitudinal study of initial teacher education. Phase 4 is based on three sets of data: (1) 100 primary teachers who were in their first year of teaching in 1992; (2) graduating students who did not get a job teaching; and (3) students from the original cohort who undertook a four-year course and so were in their last year of training. The report focuses on (1) and (2). This report is largely qualitative and descriptive.

One hundred beginning teachers who were working full-time were interviewed, mostly face-to-face, in the last term of the year. Questionnaires were sent to 89 graduates who were not working full-time.

The research questions were designed to determine the beginning teachers' views of their pre-service training and how prepared they felt they were to teach and assess all the curriculum areas. The beginning teachers' views were also sought on their development as teachers through their first year and of the professional support provided.

Most beginning teachers thought that they were well prepared to teach most of the curriculum areas and for classroom planning and management. Many initially found assessment a challenge but were feeling more confident by the end of the year. Most were finding it a more complex and time-consuming job than they had expected and felt responsibility for their own professional development. The teachers valued the support provided by the tutor teachers and their 0.2 release time, although not all regularly had the full allowance.

The authors were impressed by the enthusiasm and confidence of the beginning teachers and the similarity in the responses of the beginning teachers who had been educated in three different colleges. It was evident to the researchers that the school context makes a difference to the professional development of the new teachers. The authors raise

questions about the relationship between pre-service and in-service suggesting that colleges provide generic courses which aim at meeting the needs of most students and that it is for the schools to provide the specific classroom situations that enable teachers to develop the more specific competencies.

Renwick, M. (2001a). *Support for beginning teachers*. Wellington: Ministry of Education.

This reports the experiences of year-one and year-two beginning teachers and their perceptions of the effectiveness of the advice and guidance programmes provided for them. A random sample was drawn of full-time beginning teachers who were entitled to the 0.2 allowance for beginning teachers (that is in the first year). The sample included 25 percent (N=291) primary and 40 percent (N=265) secondary and composite schools. Questionnaires were sent to these teachers—largely set questions with a few open-ended questions. The questionnaire attempted to elicit the level and type of support beginning teachers were receiving and their views of how useful they found this support.

There was a response rate of 79 percent from primary beginning teachers and 86 percent from secondary/composite. Most beginning teachers had a formalised support programme. Primary teachers were more likely to be satisfied with the amount and effectiveness of support given; have regular meetings with a supervising teacher; and regard this teacher as their main source of support. While being relatively satisfied with support related to the five areas based on the Professional Standards of Teachers, and acknowledging that the level of formal support they needed decreased during the year, most considered they still required further guidance and support in one or more of these areas.

Given the critical role played by the tutor/supervising teacher a deeper understanding is needed of the personal and professional skills required and opportunities taken to develop and support this role. There is also scope to develop a shared understanding of the respective roles of initial providers of teacher education and the schools, given that the first year is a continuation of the training.

Renwick, M. (2001b). *An evaluation of the effectiveness of the BEd (Teaching) programme.* Wellington: Wellington College of Education.

This study was designed to comment on the effectiveness of the primary BEd (Teaching) programme. There were two phases to the study: Phase One involved survey and focus groups interviews with graduating students about their views of their preparation to teach, and Phase Two involved face-to-face interviews with a representative sample (20) of provisionally registered graduates and their principals and tutor teachers (33).

Virtually all the graduating student teachers indicated that they considered themselves ready to teach. A high proportion of student teachers were confident or very confident in most aspects of the New Zealand curriculum as surveyed through the questionnaire. Students who had achieved well academically in the programme were the most confident

and positive about their abilities as teachers and about their initial teacher education programme. Areas for development of the programme were identified. These included assessment practices, practicum timing and design, teaching students with diverse learning needs, and greater curriculum emphasis on technology, te reo, and possibly science.

Phase Two was essentially 20 case studies of provisionally registered teachers. While most were positive about their initial teacher education programme, 3 were critical of their experience and most had suggestions for improvement. The author suggested that factors such as choice of courses, and teacher educator quality influenced their experiences of the programme. The two components that were referred to most frequently and which were seen to be most helpful in terms of classroom practice were Professional Practice/Teaching Experience and Professional Education courses. They believed that their class programmes reflected the key values of the BEd (Teaching) programme. These included an emphasis on: "developing a programme appropriate for all of the children in the class; critical thinking and reflective practice; systematic and regular planning; classroom practice with a sound theoretical basis; appropriate assessment practices; and the need to use a wide range of teaching strategies.

All principals were pleased with the performance of their beginning teacher. In all cases they had either met or exceeded their expectations with some considering that they had met registration standards after two terms in the classroom. The majority of tutor teachers said that they had had to give their beginning teacher less support than they would normally expect for an inexperienced teacher.

The beginning teachers were more likely to make positive rather than negative comments about their classroom experiences, with a third saying that there was "nothing" that was not going well, and a number of the others accepting that any problems were to be expected at this stage in their development and would be addressed.

Data from Phase Two emphasised that while the contribution of initial teacher education was "clearly crucial" to performance of beginning teachers, it was not the only factor. Two other factors were identified: the qualities, abilities, skills, and life experiences of the beginning teachers themselves; and school-related aspects such as the nature of their schools, levels and class composition, and the quality of their advice and guidance programmes. The author noted that beginning teachers interviewed had been appointed to schools at all decile levels and that some had specifically sought employment in low decile schools. They taught across the full range of class levels including new entrants. In general schools did not adjust the composition of the class assigned to beginning teachers. As in other studies the quality of the support provided by tutor teachers was found to be very important. Although this was a small sample of beginning teachers from a small sample of schools, most found that the general practice and philosophy of their schools

aligned well with the approaches advocated in their programme of initial teacher education.

Ritchie, J. (1994). Implementing a commitment to biculturalism in early childhood training. *Journal for Australian Research in Early Childhood Education 1,* 122–132.

> This study investigates the effectiveness of bicultural aspects of a 3-year pre-service training programme for early childhood teachers at the University of Waikato.
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> In 1992 a questionnaire was presented to graduating student teachers asking them to rate the effectiveness of various courses in addressing the area of biculturalism. There was a space for comments with each question. Initial questions asked them to assess various courses in terms of the effectiveness of developing bicultural awareness, commitment, and skills. They were also asked for suggestions to improve the programme in future. Thirty-five questionnaires were returned. The response rate was not reported.
>
> Students reported that they entered their course of teacher preparation with a lack of bicultural awareness, commitment, and skills. The paper reports positive ratings of workshops designed to develop students' bicultural awareness and commitment but students considered that they had not sufficiently developed skills in this area (e.g. competence in Mäori language). Possible ways to address this need are discussed.

Ritchie, J. (2003). Bicultural development within an early childhood teacher education programme. *International Journal of Early Years Education*, *11* (1), 42–56.

> This paper describes processes implemented within an early childhood teacher education programme that were designed to support the university's stated commitment to Te Tiriti o Waitangi/the Treaty of Waitangi.
>
> Data came from taped interviews, class discussions, observations, an open-ended questionnaire, and samples of student assignments as data. In addition there were interviews with 18 different participants who included four Mäori and four Päkehä colleagues, three Mäori and three Päkehä graduates from the early childhood teacher education programme, and another group of participants who were facilitators of professional development for early childhood centres.
>
> The study describes the processes from the perspectives of participants. The lecturers described the strategies they employed to generate a "heartfelt commitment" to biculturalism in teacher education student teachers, pointing to the need for teacher education to go deeper than technical competency. Pedagogical approaches that were implemented included study of colonisation, cultural and racism awareness, interactive teaching, exploring own cultural paradigms, and validating emotions. The positioning of Mäori knowledge as central in programme content, and partnership between Mäori and Päkehä lecturers to ensure that Mäori content is taught appropriately, were other features of the institution's approach.

Rose, D. (1993). *From college to classroom: The acquisition and maintenance of teaching skills.* Report to the Ministry of Education, Wellington.

> Nineteen student teachers completed a 24-hour training programme that was designed to improve their maintenance of teaching skills when they became teachers. The training programme consisted mainly of skill practice in 2 classroom settings with performance feedback. The skills chosen for training were: increasing the use of approval and decreasing the use of disapproval; increasing the use of feedback on performance and decreasing the use of criticism; using wait-time: (a) after asking a question and before calling on a student to answer (teacher wait-time); and (b) after a student response has finished (pupil wait-time).

> The student teachers were observed prior to their training course, during teaching practice immediately following the course, and the ten who gained teaching positions were observed when teaching in their own classrooms. Although there were changes in some skills following the training programme the only skill that generalised to the classroom was higher rates of approval and feedback. Contrary to the training aim, there was an increase in criticism rates.

> The author considers that the challenge for teacher educators is to provide close, databased supervision so that student teachers have a greater opportunity to learn desired teaching skills.

Ross, B. (2003). Student self-grading in a Bachelor of Physical Education Course: Direction of reflection. *Conference Proceedings*, NZARE/AARE conference, Auckland, 30 November – 3 December.

> This paper described research that evaluated student teachers' development of a "critical consciousness" related to their experiences in two first year courses of physical education teaching where they were responsible for self-grading their work. This project had ethics approval and the researcher was not involved in teaching the students during their second year when the research was carried out.

> The methodology involved 28 of a possible 62 student teachers' editing of previous years' self- assessment interviews, so that they provided what they considered to be an accurate portrayal of the learning and teaching and consciousness that had developed from the assessment process. Student teachers were interviewed after the editing process.

> The student teachers were mostly positive about the self-assessment process and the majority thought it was fair. The paper provides considerable discussion of the complexities and dynamics involved when assessment is shared with student teachers and is not the sole responsibility of the lecturer.

Russell, B., & Chapman, J. (2001). Partnerships in education shared understandings: enhancing the Practicum. *Pacific Asian Education*, *13* (2), 74–85.

This paper describes the impact of short-term contracts at a college of education on the professional development of classroom and early childhood teachers. The study explores the extent to which shared understandings developed when associate teachers have the opportunity to work closely with their colleagues in teacher education programmes.

The research sample was six males and 19 female teachers who had spent a period of time from one semester to two years employed at the college of education. The sample included three who had worked in early childhood centres, 12 from primary, and seven from the secondary sector.

For the first part of the research a questionnaire was used as the basis for a structured interview. It focused on the previous teaching experience of the interviewees, their experiences while working at the college, and their perceptions of how these experiences had subsequently influenced their teaching and enhanced their professional development. For the final stage of the research a questionnaire was distributed to participants.

Most respondents felt that the time at college had allowed opportunities for reflection that were not possible in the normal day-to-day activities of a teacher. They reported that they had been able to re-examine best practice and the relevance of theory in informing such practice. The opportunity to visit other classrooms and centres was also appreciated. Other aspects that were valued were collegial interaction, feeling that their input was relevant and valued, working with student teachers, and the professional renewal generated from increasing their professional knowledge (the opportunity to access recent research literature and attend conferences).

Most interviewees considered that they had made changes in the way they taught resulting from their employment in initial teacher education. These were identified as a greater focus on sound pedagogical practices, an increased awareness of equitable practices, and a willingness to experiment and be innovative. Participants also indicated a greater understanding of the curriculum documents and subject content, and an increased awareness of the importance of relationships within their classrooms and centres. They now felt better able to support the professional learning of student teachers in their classrooms and centres, given that they had a better understanding of college courses, programmes, and expectations.

They also saw the importance of a unified approach to student teachers from college and schools, acknowledging that this did not always happen: "I now realise that it's important that we are all saying the same things and not knocking each other…students need to hear the same messages." They also had informed perspectives on the improvement of the college programme, particularly in terms of the time allowed for learning to teach key curriculum areas. Concerns were expressed that academic work was becoming privileged

over practical resulting in a devaluation of the practicum. "I feel that some people are too busy with all the new stuff papers…research…and don't really want to make time to visit students in schools."

Salter, D. (2000). Learning and teaching science: views of pre-service teachers. *Exploring issues in science education.* pp. 23–32.Wellington: Ministry of Education.

This article reports the views of a group of pre-service primary teacher education students (number unknown) enrolled in a one-year graduate programme. Near the end of their programme the student teachers completed a survey that aimed to measure their attitude towards science; their conceptions of learning science; their perceptions of science knowledge; and their ability to teach science.

It was found that the students had positive-tending attitudes towards science and that they felt more confident about their knowledge of biology than physics and chemistry. They tended to feel confident about their ability to teach science even when their knowledge base was low. Their views of learning science tended to be more consistent with surface-level than deep-level conceptions. Finally, the relationship between the student teachers' perceptions of their understanding of science content knowledge and their ability to teach science was statistically significant.

The author reaches five conclusions. Firstly, that while pre-service teachers' attitudes towards science cannot, alone, adequately predict teaching behaviours, there is evidence that those with positive attitudes are more likely to devote greater time to teaching science. Secondly, that the positive attitudes of the students are likely to be reflected in their classes. It is suggested that these attitudes may have been influenced by their science education course, indicating, as have other studies, that teacher education can improve attitudes towards a subject. Thirdly, that the predisposition to have surface-level conceptions of science may lead them to teach for memorisation rather than understanding. Fourthly, that lack of science knowledge of some of the cohort may lead to reluctance to teach science. Finally, some findings were inconclusive and need further study. For example, the students' perception of their science-teaching efficacy was not related to their attitudes towards science. This contradicts several other studies, although one other had similar findings to this one.

Sanders, M. Dowson, M., & Sinclair, C. (in press). What do associate teachers do anyway? A comparison of theoretical conceptualisations in the literature and observed practices in the field. *Teachers College Record*, 107 (4).

The research for this Masters thesis was conducted in Tauranga, and supervised by Catherine Sinclair from the University of Western Sydney. The research used case study methodology to observe the interactions between four primary level associate teachers and 4 student teachers over a four-week period. The associate teachers were all members of a school attached to the college of education. They comprised three females and one

male, and the student teachers were all young (20–22 year-olds). One male, and 3 females were on their final practicum in a three-year programme. The fourth female was observed during her fourth of six practica.

The intention of the research was to gather field-generated data on the actual practices of associate teachers "in action" to identify their supervisory practices and compare this data with the literature on associate teacher practices. Data involved annotated field notes, and verbatim transcriptions of key (350) interactions. The data were coded to identify major themes in the interactions.

The associate teachers were each observed for four full days over four weeks. The observations totalled 87 hours. At the conclusion of the observations each associate teacher was interviewed for one hour.

Seven roles emerged from the data, although two main roles predominated. Forty percent of all interactions were identified as "planning", where teachers discussed their planning in practical "nuts and bolts" terms. They did not provide rationales for their teaching decisions, and there was only one reference out of 144 interactions to New Zealand curriculum documents. Teachers later confirmed that they did not feel they had a strong understanding of these documents or a clear idea of what they should be focusing on in their work with student teachers.

A quarter of interactions were classified as "teacher modelling", and 14 percent as "evaluative". The evaluative interaction tended to be short, on the run, and related to management and classroom organisation rather than children's learning. Only one percent of the interactions was focused on pedagogical talk. It was noted that associate teachers gathered minimal data on which to focus their discussions with student teachers. The authors identified three necessary conditions for more educative interaction: time, associate teacher knowledge of the content and approaches of programmes of teacher education, and "a significant degree of cognitive organisation" on the part of the teacher. The research also identified the difficulties that associate teachers have in juggling their multiple roles and recommended the need for explicit opportunities for associate teachers to perform their roles more effectively.

Shaw, H. (1997). *Report on the current arrangements between pre-service teacher training providers and schools including the normal schools: prepared for the Review of Teacher Education.* Unpublished report for the Ministry of Education.

This paper gives an overview of the arrangements for teaching practice between the pre-service training providers and 22 primary and intermediate normal schools. Traditionally, normal schools attract additional resources from the Ministry of Education, and this research was prompted by a recommendation in the Ministerial Reference Group (MRG) for the functions served by normal schools to become contestable and by the emergence of new providers who lack access to normal schools for their student teachers.

The principals of the normal schools were interviewed either by telephone or by visiting the schools. In addition, 16 providers were sent three-page questionnaires. The exercise identifies some important key points relating to the availability, proximity, and suitability of appropriate schools for "trainees to access a range of teaching practice opportunities in suitable primary and secondary schools"; quality assurance, affordability, contestability, risks to the State, and options for partnership.

The introduction of new providers made it more difficult for enough suitable practicum placements to be found, particularly in secondary schools. Difficulties arose from the large numbers of trainees wanting placements for popular subjects such as English and History, or from a lack of suitable placements in specialist subjects such as Mäori and Chinese. Competition between providers, the increases reported in workplace pressures, and the prevailing industrial climate all tended to make suitable placements more difficult in the secondary sector.

The report noted that the cost of teaching practice is significant for providers, and if it became too expensive the result could be a drop in the quality of teaching practice provision, and fewer theory/practice links. It was suggested that newer providers could be funded to reflect their lack of access to the normal schools. The study recommended that a major shift in the current provisions for normal schools would profoundly affect relationships that were currently working well, with little likelihood of significant gains in quality or costs of provision.

Simpson, M., & Anderson, B. (1997). *Distance education: A poor relation? Policy and delivery issues in the use of computer mediated communication in a course of primary teacher education and training at Massey University College of Education.* Paper presented at the New Zealand Association for Research in Education conference, Auckland, 4–7 December.

This paper describes the policy environment since 1989, which encouraged a greater diversity of initial teacher education programmes including more flexible methods of teaching.

It describes the External Delivery Option (EDO) of the 3-year primary teacher education Diploma of Teaching. The writer describes the 52 of 56 applicants accepted for the programme as being of "high calibre" and as geographically spread throughout the country. Several issues are raised, including the lower funding category for programmes on the unfounded assumption that they are less interactive and require less lecturer involvement. The need for specific lecturer expertise in creating distance courses is discussed and the implications for professional development for staff is discussed. The writer concludes that government policy and direction technically allowed innovation but failed to support it with adequate funding.

Sinclair, A. (2003). *Practising reflection, or opening up a metaphorical can of worms.* Paper presented at International Conference on Thinking, Phoenix Arizona, July 2003.

> This paper reports on the evaluation of a course in a programme of initial teacher education designed to facilitate the development of reflection. The paper describes five approaches that were used to interweave reflection throughout the course.

> The aims of the evaluation were to illuminate the reasoning that guided the course development, to identify the contextual factors that influenced it, to describe the approach used and gain an understanding of "how the students and teachers felt and thought about this module".

> From the total of 500 students enrolled in the module, a random sample of 40 student teachers was selected to answer a questionnaire. Eight student teachers were also interviewed. Thirty-four student teachers returned the questionnaires. Learning logs and reflective writing from an unidentified number of student teachers were also analysed for evidence of reflection. Themes arising from the data were: the learning milieu, metaphors, critical friend, critical writing, reflective writing, voice, disposition, and blame.

Smales, J. (2002). *Help or hindrance: The image of "self as teacher" held by New Zealand first year teachers.* Unpublished thesis, Master of Education, Massey University.

> The research aims to determine the images of 'self as teacher' held by first year teachers, the factors that influence these images, and how they are reflected in professional development, teaching practices, and personal school-based interactions.

> A sample of 30 beginning teachers was selected that was representative of the range of gender, life experience, and decile rating of school of employment of New Zealand first year teachers. Narrative methodology involving non-structured interviews was used. Transcripts of the interviews were verified by the participants and then analysed to identify use of metaphor to describe "'self as teacher", the frequency of use, and factors that appeared to influence such use.

> It was found that "self as teacher" images held are shaped by experience and inform the way the teaching role is perceived. The images held tend towards optimism, emphasising nurturing, caring, and facilitating and are not usually viewed in scholarly terms. Events and situations experienced during the first year can enhance, challenge, or shatter "self as teacher" image. Drawing on the four stages of professional development suggested by Brock and Grady (1997)—focus on self; focus on teaching and related task; focus on impact on students; and focus on integrating skills and strategies—it was found that those teachers who hold images where the focus is still on "self" metaphorically perceive themselves as inadequate and as outcasts. Adequate and appropriate support is the key factor in enabling teachers to evolve their image as teacher within the context in which they work which in turn leads to effective and satisfying teaching practices.

Smith, D. (1997). Separating supervisory roles in a New Zealand student teaching practice. *Waikato Journal of Education, 3, 169-180.*

> This study explored the different supervisory roles of six associate teachers, one liaison university lecturer who has no role in student teacher assessment, and two evaluative university lecturers, who observe and critique student teaching. A wide range of data sources were employed including observation of other liaison lecturers' work with students before and during the practicum, observation of student teachers' lessons, analyses of recordings of associate teachers' feedback to student teachers, analysis of post-observation conferences between evaluative university lecturers and student teachers, and a survey of the six female student teachers. The study showed that although the supervisory roles overlapped in some key areas, each of the supervisors contributed differently, reflecting the different conceptualisations of their roles. Only the university supervisors assisted the student teachers to make links between teaching and theoretical principles. The practice of separating the liaison and evaluative roles of the university supervisors appears to complement the work of each other and of the student teacher and contributed to overall student teacher development.

Snook, I. (2000). Teacher Education—Preparation for a learned profession. In Alan Scott & John Freeman-Moir (Eds.), *Tomorrow's teachers. International and critical perspectives on Education* (pp. 143–155). Christchurch: Canterbury University Press.

> This paper first provides an historical overview of initial teacher education from its inception until 2000. It also discusses the sometimes uneasy relationship between colleges of education that provided teaching qualifications and the universities that did not and instead focused on research and postgraduate studies, but which were increasingly collaborating in teaching 4-year qualifications. This co-operation was halted with the introduction of 3-year teaching degrees. Snook is critical of the 3-year degrees, which he describes as "professionally focused and academically narrow". He believes they reflect a "practical craft" model of teacher preparation, a model that reduces teachers to functionaries who accomplish narrow technical tasks and are measured on their performance. While he believes that aspects of this model are important for teacher preparation he argues that teachers need to have a broad understanding about the social, historical, and political contexts of schooling. Such studies will lead to informed and critical teachers who can lift their heads above the immediacy of their own classrooms and encourage innovation, critical thought, and independent learning. This will not occur unless their programme of initial teacher education fosters these qualities in student teachers.

Spiller, D., & Fraser, D. (1999). Writing to learn: A collaborative endeavour. *Innovations in Education and Training International, 36* (2), 137–144.

> This paper outlines collaboration undertaken by teachers of a course of initial teacher education and two faculty members from the university's Teaching and Development

Unit. The purpose of the initiative was to have the staff developer working alongside course lecturers as part of the teaching context, rather than the traditional model of teaching skills outside the context in which they are used.

The critical evaluation of the programme was based on faculty observation, staff interviews, informal student comments, and 70 student responses to a questionnaire. The learning initiative required student teachers to learn to engage in academic writing supported by their peers and university staff.

Results indicated that there were benefits for all participants.

Te Moana, W., & Selby, R. (1999). Monitoring a Mäori teacher training programme in Aotearoa New Zealand. In *Indigenous education around the world. Workshop papers from the World Indigenous People's Conference*: Albuquerque, New Mexico, 15–22 June, 1996.

This paper describes the rationale for, and monitoring of, a Mäori teacher education programme set up as a partnership between Wanganui iwi and the Wanganui Polytechnic. The first author of the paper describes his role as an external monitor as being "someone who was unreservedly committed to protecting the course, to fostering its on-going development, to talking with tribal groups who were interested in supporting a course within their own regions and someone familiar with the politics of schools their Boards of Trustees and their general organization as well as the politics of post-secondary institutions."

At the time of writing the programme was located in a dozen locations within New Zealand in tribal regions where the tribe had requested the course and where the elders had negotiated for the course to be located within that region. At each location an instructor was found from within the membership of the local tribe to teach the course and oversee the students in that region. In 1996, 52 Mäori students had graduated from the course to return to their communities as local teachers. The author describes the role of a monitor as "a positive an rewarding one as the course and its benefits spread through the communities who now often feel a far greater stake in the education of both their school children and their mothers and daughters, uncles and sons who may be selected by the tribe to be the future educational leaders."

Thomas, G. (1998). *Pre-service mathematics teacher education: A weak intervention?* Paper presented at the New Zealand Association for Research in Education conference, Dunedin, 3–6 December.

The author describes some data on student teachers' secondary school mathematics achievement, and an initiative for a mathematics pedagogy course in a teacher education programme.

The author reports data from students in one programme of education indicating that of the 80 percent of students who took mathematics in the sixth form just 8 percent received

a grade of 3 or higher. In her view this is evidence that entering knowledge of mathematics is weak. The paper describes a newly developed Year 3 mathematics education course, which attempted to simulate the demands that students would face as beginning teachers of mathematics. Student teachers were placed in "syndicates" of 3–6 peers where they worked on mathematical tasks based on the age level that they were working with during their practicum.

College of education tutors, school support personnel, resource consultants, and classroom teachers provided specialist input. In addition, syndicates had access to a mathematics intranet, which include information relevant to their Year 3 mathematics course. While reportedly student teachers found this approach valuable, no data was available on their practice as beginning teachers. The study also describes a proposed beginning teacher mathematics website for all of its primary graduates. The website was intended to assist beginning teachers with their mathematics teaching: it included discussion groups, an email help desk, Internet links and resources. No data was provided.

The author asserts that ultimately the quality of mathematics education experienced by students in classrooms depends on the quality of their mathematics teaching.

Timperley, H. S. (2001). Mentoring conversations designed to promote student teacher learning. *Asia-Pacific Journal of Teacher Education, 29* (2), 111–123.

This paper reports on a training programme for mentor teachers in mentoring conversations that was designed to facilitate student teacher inquiry or expansion of the rationale for their teaching decisions, rather than on immediate issues of practical importance. An analysis of 22 audio-taped transcripts of feedback conversations between mentors and their student teachers revealed that before training mentors typically gave a great deal of advice about how to overcome undisclosed concerns about a student teacher's practice. The strategies taught to teachers emphasised basing conversations on observed data; sharing responsibility for identifying strengths and problems; discussing reasons and assumptions underpinning student teacher decisions; giving advice with reasons; and enquiring about the consequences of the advice.

After training, mentors more frequently disclosed their concerns, checked to see if concerns were shared, and engaged the student teachers' personal theories about their reasons for their teaching decisions. Mentors were also more likely to develop a shared action plan with the student teacher.

The author concluded that in the absence of explicit training, teachers in schools are likely to follow a technical approach to working with student teachers although they are able to improve the quality of their conversations with student teachers if they are given the training in how to do so.

The author also suggested that university-based and school-based teacher educators should recognise that each has something to contribute to teacher education and to learn

from the other. In her view, school mentors must use their professional expertise to inform jointly analysed problem and their solutions and the university must provide the conditions under which mentors can develop this expertise.

Timperley, H., Black, J., Rubie, C., Stavert, M., & Taylor-Patel, C. (undated). *What happens in the practicum: The contribution of school-based practitioners to teacher education. Research affiliate report to the Ministry of Education.* Wellington: Ministry of Education.

This study sought to investigate how associate teachers and mentor teachers in four primary schools conceptualised their roles with regard to working with teacher education students, and also investigated their actual practices. The case-study schools represented a range of school deciles, and all belonged to a university/school consortium. Participation in the consortium required that a mentor teacher in each school undertake training for their roles as part of a Masters degree. Mentors had overall responsibility for each student teacher's practicum, although the student teachers were placed in associate teachers' classrooms. Associate teachers had not received preparation for their roles by the university. The researchers were interested in the degree to which the activities engaged in with student teachers by mentor teachers and associate teachers could be described as having a "training" or "educative" approach. Each case study comprised one mentor teacher, two associate teachers, and two student teachers who were enrolled in a one-year teacher education programme for graduates.

Indicators of educative practice were the extent to which student reflection on practice was promoted, and the extent to which theory-practice links were promoted. Data were collected in a number of ways: semi-structured interviews with mentors and associates early in a practicum; diary entries by mentors, associates, and student teachers over a six day period; tape-recordings of feedback sessions to student teachers; and follow-up interviews.

Results showed that three of the four mentors held views of their roles consistent with university expectations, and performed their roles in an educative manner. They were better at eliciting student teachers' theories than they were at articulating theory-practice links. The fourth mentor and most of the associate teachers' activities resembled a teacher-training model in which practical teaching guidance predominated. The one exception was an associate teacher who had been taught educative mentoring skills by her mentor.

The authors suggest that the skills necessary to promote reflective practice are "a matter of training and reasonably attainable under particular conditions".

Tunoho, Te Rangitapu Diane. (1999). *Te whakatupu pouako. An indigenous teacher-training model.* Paper presented at the World Indigenous Peoples Conference on Education, Hilo, Hawaii.

This paper describes a teacher education programme, the Poumanawa Mātauranga Whakaakoranga, taught at Te Wānanga-o-Raukawa, an indigenous tertiary institution.

The aim of the programme is to produce graduates who can teach people to see the world through Mäori eyes and are competent to teach a range of subjects using the Mäori language. The core curriculum has been developed from a Mäori knowledge base, with the essential learning areas in the New Zealand curriculum framework aligned with Mäori knowledge. Course content is described, and the process of accreditation.

Turinui, H. (2003). My first year: how I became a confident teacher. *Teachers and Curriculum, 6,* 11–16.

This article describes the challenges faced by a first-year teacher in a new-entrant Year 2 bilingual classroom. These included working through her identity as a teacher (rather than "mother"), behaviour management, addressing the children's physical hunger, establishing productive relationships with parents, tutor teacher, ancillary classroom assistants, her 0.2 reliever, and accessing help from school advisers. At the end of the first year, while she believed that she had experienced considerable growth and development she was "left quite shattered in terms of being drained of energy, ideas, and motivation". She therefore made the decision to become a part-time relief teacher in her second year.

Turnbull, M. (2004). *Social and system integration: A study of an early childhood practicum.* Unpublished paper, Auckland College of Education.

In this paper the author conceptualises the practicum as a social system rather than as an event and/or opportunity to teach. The paper is one of several which derive from the author's PhD thesis which focused on a final seven-week early childhood practicum. The participants were six early childhood student teachers and their assigned student teachers and visiting lecturers. Semi-structured interviews were undertaken with each of the participants, before and after the practicum. In addition, student teachers' daily reflections on practice were used as documentary evidence of their professional engagement in the practicum.

The focus of the PhD was the extent to which the student teachers were able to demonstrate professional agency in the practicum. Professional agency refers to the capacity of the student teacher to apply their knowledge, skills, understandings, and dispositions to their work in professional settings. Student teachers were required to demonstrate critical reflection when engaging in and recording their teaching practice, as well as participation in the triadic assessment of their work with their associate teacher and visiting lecturer.

Links between the college of education and practicum settings were seen to facilitate or impede the capacity for student teacher agency. The capacity of the student teachers to demonstrate professional agency was, in turn, related to the degree of alignment between programme components and the practicum settings. Because of considerable variation in aspects of the programme experienced by the student teachers, the same programme components could either facilitate or impede student teacher learning. Student teachers

appeared to have had different learning experiences in relation to the skills of critical reflection, and inconsistencies in practicum supervision and the triadic assessment process. A further impediment appeared to be insufficient integration of theory and practice in the teaching of the BEd (Teaching) degree, with inadequate opportunities for early childhood students to develop practical knowledge and skills. A further issue was the perceived marginalisation and low status of early childhood perspectives in the teaching of the degree. The author reported that "The students variously demonstrated a lack in ability to apply knowledge and understanding in assessment and planning; to engage in effective practice in some curriculum areas; to reconstruct practice as a result of critical reflection; to utilise effective communication and advocacy skills; and to articulate a beginning philosophy of professional practice." In this paper the author considers ways to strengthen the congruence between the two sites for student teacher learning. The following recommendations were made: greater consideration of the integration of theory and practice in the early childhood courses; development of a specific module for practicum preparation for early childhood student teachers; ongoing professional development to enhance supervisory practice for early childhood visiting lecturers; development of moderation processes to ensure reliability in practicum assessment; and ongoing professional development to enhance supervisory practice in early childhood associate teachers.

Whatman, J. (1997a). Teaching is performing: An alternative model of teacher education. *Research in Drama Education, 2* (2), 173-184.

> This paper synthesises the author's MEd research into the roles adopted by secondary student teachers in a performing arts section of a one-year programme of initial teacher education. These roles were identified as "performer", "teachers", and "trainees". The role of "teacher as performer" appeared to have the most utility for this group of students as they grew to appreciate that many of the skills required for successful performance in the arts are prerequisites for successful teaching. In particular, the processes of reflection in/on action are required for both artistic performances and the art of teaching.

Whatman, J. (1997b). *From teacher to teacher educator: Learning new roles.* Paper presented to the annual conference of the New Zealand Association for Research in Education, University of Auckland, 1997.

> This paper explores the views of four secondary teacher educators in relation to their transition from successful secondary school teachers to teacher educators. All emphasise that the role of teacher educator requires additional knowledge and skills from that required of a secondary school teacher. Learning how to teach others to teach was seen to require knowledge of how adults construct knowledge; ways to tie in course work and practicum; understanding of the discipline of teacher education; clearer conceptions of teaching and learning; and, increasingly, engagement in research.

Whatman, J., Cosgriff, M., & Thevenard, L. (1999). *Reconceptualising curriculum studies in pre-service teacher education.* Paper presented at AARE/NZARE conference, Melbourne, 28 November–2 December.

The authors conducted two semi-structured group interviews with ten first-year beginning secondary school teachers to identify the impact of two pre-service multidisciplinary performing arts and education outside the classroom (EOTC) courses on their classroom teaching. The pre-service courses had emphasised multidisciplinary approaches and personal skill building and had accepted student teachers with minimal prior curriculum knowledge.

The courses both used experiential approaches where curriculum theory was derived from students' practical experiences. The researcher identified six themes from these interviews and asked current student teachers enrolled in the two courses to write comments on the themes as they entered their final month of initial teacher education.

The findings suggest that first-year teachers and current student teachers supported the same themes.

Participants considered that they had gained personal and professional skills such as gaining in confidence, looking at things and people in new ways, and working as a member of a group. The beginning teachers believe that they had developed skills and strategies they were able to use in their teaching including how to make learning fun and memorable. The approaches used in their pre-service interdisciplinary programmes had also in their view, given them confidence to take considered risks in their teaching and to learn from reflection on experience.

Williams, R. (1994). *Career aspirations of student and beginning teachers.* Thesis completed in partial fulfilment of the requirements for Masters of Arts, University of Auckland.

The career aspirations of 120 student teachers and 90 teachers in their first to third year of teaching were investigated and gender and age differences examined.

Quantitative data was gathered through questionnaires and follow-up interviews were undertaken with 28 participants. Results indicated that although fewer women than men aspired to leadership positions, many women wanted responsibility and promotion. More women than men had planned long-term career goals and strategies to achieve those goals. Evidence suggested, however, that men knew more about "playing the career game" than women.

It also appeared that men were more likely than women to experience mentoring early in their careers, which positioned them for leadership roles. Other factors, such as family commitments, gender discrimination, and age were found to influence women's career decisions.

Whyte, B. (1997) The benefits of butterflies. *Teachers and Curriculum*, *1,* 123–132.

> This paper describes how student teachers from a college of education and a normal school collaborated on the design of an intensive art experience for children in a junior syndicate. Student teachers were first immersed in the processes for generating mono-prints based on an exhibition of butterflies in a local museum. They then planned and taught a similar unit with children. Data were collected from a student teacher, the lecturer teaching the unit, and a normal school teacher. Although this is a very small study the processes of collaboration are well described.

Yates, R. (2001). Right in your own backyard: A description of flexible learning applied to primary teacher education. In *Providing Quality Education and training for rural Australians.* SPERA National Conference Proceedings. Wagga Wagga, New South Wales, Australia.

> In 1997, in response to a teacher shortage, the University of Waikato began teaching a programme of primary teacher education designed for people living in rural areas who wished to study and teach in their local communities. Student teachers are accepted in groups so that they are able to interact with other students in their local area.

> This paper describes a mixed media initial teacher education programme that engages student teachers in a range of communication technologies, primarily personal computers and the Internet. The programme involves three one-week block courses a year as well as one day a week in a local school. Programme members must also undertake a least one practicum in a school other than their local school. In addition, university staff visit each area twice a year to work with the student teachers, observe their teaching, and link with schools where the student teachers are working. The programme has been presented for five years, and some features are apparent.

> In 2001, about 30 percent of the student teachers were Mäori. The retention rates and academic success of the students has been high. In the first group, 48 of 52 students completed in 1999 and 60 of 72 students completed in 2000. The reasons for the higher dropout rate in the second cohort are not known, but the author speculates that the initial cohort may have had greater commitment. Student teacher academic success was also high. The intention that graduates would teach in their local areas has also been realised, with 46 of the first 48 graduates winning teaching positions in their local areas. The author reports evidence from Barr (2000) indicating that there is general satisfaction from principals with the quality of the graduates.

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Appendix 1: Empirical studies reviewed

Appendix 1 summarises the empirical research reviewed under the six main headings. Some studies overlap one or more areas. They have been classified under the area first referred to in the review.

SELECTION

Author / s	Date	Participants	Sector	Research focus	Data Gathered	Results
Fletcher. J.	1999/2000	Student Teachers	Primary	Compares academic and teaching success of two first year student teacher groups: those with direct entry and those who were interviewed	Student records	Student teachers who had achieved well prior to their direct entry had stronger academic achievement than those who were interviewed. Retention rate of males and Mäori higher than for other groups.
Keenan, J., & Jones, J.	1995	24 Applicants for teacher education	Primary	Describes views of successful and unsuccessful applicants on group interview selection process	Interviews	Identifies issues with the process that were used to enhance future selection processes.
McPherson, D.	2003	Selection for teaching	Secondary	Explores views of 13 providers of secondary initial teacher education (and some organisations) on selection	Questionnaires	A wide range of beliefs on who should be selected for secondary initial teacher education. Differences related mainly to subject knowledge and personal qualities and dispositions.

STUDENT TEACHER PROFILE

Author / s	Date	Participants	Sector	Research focus	Data Gathered	Results
Corkery, G.	2001	Student teachers	Primary	Examines factors contributing to decisions of men to withdraw from teacher education or leave primary teaching within 7 years of graduating	Questionnaires Six interviews	Inability to adjust to the culture of teacher education or roles in primary schools, and lack of commitment to teaching given as main reason for leaving.
Cushman, P.	1998	Student teachers	Primary	Investigated the withdrawal of student teachers from teacher education, and sought views of first year male student teachers on issues with potential impact on decision to remain in teaching	Questionnaires	Thirty six percent of those who withdrew from teacher education were men (23% of the intake). Over half of the males expressed a level of concern with the perceived status of teaching, and 78% with salary levels. The majority were concerned about possible ramifications of physical contact with children.
Hope, J.	2004	Student teachers	Primary	Student teacher perceptions of their ICT knowledge, performance, and dispositions before course in ICT	semi-structured self report questionnaires	Mean self-rating for all students at course entry did not reach "confident user" level and mean ratings for commonly used applications such as data-bases and spreadsheets did not meet minimum level required for basic classroom usage.
Williams, R.	1994	Student teachers and beginning teachers	Primary	Career aspirations	Questionnaires and follow-up interviews with 28 participants	More women than men had planned long-term career goals and strategies. Male teachers were more likely to experience mentoring for leadership.

PRIOR KNOWLEDGE AND BELIEFS

Author / s	Date	Participants	Sector	Research focus	Data Gathered	Results
Baker, R., & McNeight, C.	2000		Secondary	Pre-entry academic qualifications	Document analysis/discussion	Breadth of understanding seen as more important than specific content knowledge.
Baker, R., & Whatman, J.	1999	120 student teachers	Secondary	Academic and work backgrounds of student teachers	Document analysis/discussion	Considerable diversity and breadth of backgrounds with implications for future teaching.
Ballingall, P.	1994	240 student teachers	Primary	Language backgrounds	Survey	Almost all student teachers were monolingual.
Biddulph, F.	1999	Student teachers	Primary	Mathematics background and attitudes to mathematics	Questionnaire	Majority reported poor prior mathematical achievement and dislike of mathematics.
Davies, N., & Savell, J.	2000	Student teachers	Early years (Birth-8)	Attitudes and knowledge in relation to mathematics	Mathematics screening test, completing a sentence about Mathematics, questionnaire	A third of student teachers had not studied mathematics beyond Year 10. Majority believed Mathematics was hard. Subject knowledge of mathematics seen to be an issue.
Garbett, D.	2003	57 student teachers	ECE	Background science knowledge	Questionnaire and multi choice test	Poor science knowledge.
Grootenboer, P.J.	2003a	31 student teachers	Primary	Impact of experiences on affective views of mathematics	Questionnaires, interviews, participant journals, drawings, class activities	Initially participants were apprehensive and negative towards mathematics. Views changed after mathematics course but regressed after practicum experience.
Grootenboer, P.J.	2003b	2 student teachers	Primary	Affective views in relation to mathematics and mathematics education	Interviews and participant journals	Student teachers had negative experiences of secondary school mathematics teaching. Views changed after mathematics course, and practicum experiences were critical in future perspectives.
Haworth, P.	1998	Student teachers	-	Views of teaching and learning	Case studies, videos, interviews	Definitions of "good" teaching are culturally bound and resistant to change.

Hipkins, R.	1998	12 student teachers	Primary	Intention to elucidate student teacher understandings of the nature of science knowledge construction	Structured small group discussions	Student teachers did not appear to hold sufficiently coherent understandings about science as a discipline to be likely to be able to assist their future students to explore ideas about science.
Jones, A.	2003	182 student teachers	Primary	Understandings about touching children	Questionnaire	Majority considered touching children to be a source of anxiety for them.
Lewthwaite, B.	2000	156 student teachers	Primary	Perceptions of previous experiences in science, their development during initial teacher education	Questionnaire & course evaluation	Few student teachers reported positive or successful experiences in secondary school science. The majority believed their teacher education course had developed their confidence to teach science.
Mitchell, J. W.	2001	17 Student teachers	Early childhood	Longitudinal study of beliefs about teaching and learning	Questionnaires and interviews	Teacher education impacts on student teacher beliefs.
Salter, D.	2000	Student teachers	Primary	Attitudes to science teaching	Not reported	Five conclusions presented in relation to attitudes, conceptions of science.
Thomas, G.	1998	Student teachers	Primary	Describes innovative approach to mathematics teacher education		Student teachers found this approach valuable.
Whatman, J.	1997a	Student teachers	Secondary	Roles adopted by STs in performing arts section of one year graduate teacher education programme	Interviews	The role of "teacher as performer" appeared to have most utility Skills for successful arts performance are also required for successful teaching.

TEACHER EDUCATORS						
Author / s	Date	Participants	Sector	Research focus	Data Gathered	Results
Fox, R.	2000	9 student teachers	Primary	Perceptions of "good" lecturer's practice	Interviews	Ten critical attributes identified by student teacher; seven related to positive interpersonal qualities.
Gilbert, J., & Cameron, M.	2002	33 university lecturers from a range of disciplines, 17 college of education lecturers	Tertiary	Views of academic work held by university and college of education teachers	Questionnaires, focus groups	Clear differences between the two groups' understanding of themselves in relation to teaching, their "discipline" and research.
Hawe, E. M.	2001	Student teachers, lecturers	Primary	Describes extended field based project in mid 1990s investigating how student teacher assessment was experienced, interpreted, and understood	Direct participation in the field, observations, informal listening, interviews, document analysis, participation in classes as a student	Highlighted the reluctance of staff to award failing grades, and pressure put on staff who attempted to follow policy. Staff considered personal factors in addition to quality of assignments when making assessment decisions.
Whatman, J.	1997b	Teacher education lecturers	Secondary	Views on transition from teaching in secondary schools to tertiary teacher educator	Interviews	New knowledge and skills are required to be a successful teacher educator.

ASSOCIATE TEACHERS AND THE PRACTICUM						
Author / s	Date	Participants	Sector	Research focus	Data Gathered	Results
Calder, L., Faire, M., & Schon, P.	1993	20 teacher education lecturers	Primary	Perceptions of the practicum	Questionnaires and interviews	Identified factors that enhanced or inhibited successful teaching practice, and identified professional development needs of lecturers and associate teachers.
Cameron, M.,& Hawkins, J.	2000	275 associate teachers	Primary	Sought views of associate teachers on their reasons for being associate teachers and the most important aspects of their roles	Questionnaire	Associate teachers viewed the preparation of teachers as joint responsibility between themselves and tertiary providers. They most emphasised roles of emotional support and guidance with classroom practice.
Dunmill, M.	undated	9 music student teachers	Secondary	Perspectives on teaching music	Questionnaires and interviews following each teaching experience	Views changed from idealistic to negative. None sought teaching positions in schools.
Ferrier-Kerr, J.	2003	4 associate teachers and 4 student teachers	Primary	Relationships between associate teachers and student teachers during practicum	Questionnaires, journals, observations, seminars and interviews	Personal connectedness, collaboration, role interpretation and styles of supervision emerged as key themes.
Ferry, D. & Brunton, K.	2004	Student teachers	Primary	Use of on-line resources in planning and assessment	Questionnaire	Student teachers actively use the internet to assist with planning and assessment.
Fraser, D.	1995	82% of normal primary school principals and teachers in Hamilton	Primary	Perceptions of partnership with School of Education and student teachers	Questionnaires	Teachers most valued student teachers' interpersonal attributes, and professional attributes such as punctuality, tidiness and being well spoken. Teachers valued similar qualities in lecturers.
Gendall, L.	1997	50 associate teachers	Primary	Investigated associate teachers' views of their roles	Questionnaires	Associate teachers considered their key role to demonstrate effective classroom practice. Emphasised craft knowledge rather than communicating theoretical rationale for their decisions.

Gibbs, C.	1995	40 student teachers	Primary	Concerns about teaching practice	Self-reported written vignettes	Nine general areas of concern - discipline and control of student behaviour the most frequently reported concern.
Haigh, M.	2001	1 student teacher, 3 associate teachers, 1 visiting lecturer	Secondary	Views of triadic relationship	Interviews	Expectations of the student teacher were not closely matched by her associates
Hedges, H.	2001	5 student teachers	Early childhood	Views of home-based practicum	Transcribed peer interviews	Equivocal findings. Appeared to be too early in programme for student teachers to gain fully from the experience.
Insley, S.	2004	12 student teachers/beginning teachers	Secondary	Concerns about becoming a teacher	Analyses of student teacher writing, semi-structured interviews at end of first year of teaching	Student teachers moved from idealistic notions of teaching to concerns about classroom control. Only half resolved these concerns by the end of their first year of teaching.
Julian, R.	1997	Normal and model school principals; College of Education practicum organisers	Primary	Views of roles of normal and model schools	Postal surveys	Participants affirmed the value of normal and model schools in preparation of student teachers
Julian, R.	1998	5 new teacher education "providers" and 18 associated schools	NR	Relationships between providers and schools	Telephone interviews	Little congruence between school and provider views on purpose of practicum. Difficulties for schools in meeting requests from increased numbers of providers and range of philosophies.
McGee, C., Oliver, D., & Carstenson, M.	1994	Student teachers	Primary	Final year student teachers' experiences of final teaching practicum	Pre-post questionnaires, log books, 2 students interviewed	Overall student teachers were more positive about the practicum at its end than the beginning. Half the STs made compromises to "fit in" with expectations of associate teacher who would assess their teaching. Some areas identified for future improvement.
McGee, J.	1995	Liaison teachers	Primary	Investigated roles of liaison teachers	Interviews	Identified the need for greater recognition and professional development for this role

McGee, J., Ferrier-Kerr, J., & Miller, T.	2001	55 student teachers	Primary	Graduate student teacher views of roles of associate teachers	Questionnaires	Guidance and support and teacher modelling of "good" teaching, and positive personal qualities seen as key attributes of associate teachers
Meade, A., & Bruce, L.	1995	Programme innovation	Early childhood	Evaluates student teachers, lecturers' and children's experiences in an in-College model ECE programme	Video recording, observations, questionnaires	Identifies areas where student teachers could have enhanced the children' learning
Ovens, A.	1996	Student teachers	Secondary	Problems experienced by physical education student teachers in final practicum	Pre-post surveys, paired interviews, informal observations.	Seven problems identified. Associate teachers need skills in helping STs to meaningfully learn from the teaching experience.
Paterson, J., Horring, J., & Barton, B.	1998	7 mathematics student teachers (3 experienced teachers, 4 mathematics graduates)	Secondary	Observational case study of mathematics teaching	Classroom observation, analysis of mathematics planning	The experienced teachers were more confident classroom teachers than were the mathematics graduates, but each group had particular learning needs
Rose, D.	1993	19 student teachers	Primary	Impact of skill training course on classroom practice	Observations	Changes in use of some skills following training did not generalise to later classroom practice
Russell, B., & Chapman, J.	2001	25 teachers previously employed on contract in initial teacher education programme	Early childhood, Primary, Secondary	Impact of experience as teacher educator	Questionnaires	Benefits to professional learning and renewal, and development of shared understandings
Sanders, M., Dowson, M., & Sinclair, C.	In press	Associate teachers	Primary	Observed supervisory practices of associate teachers	Annotated field notes, interviews	Two key roles of associate teachers emerged, but little emphasis beyond practical advice and guidance
Shaw, H.	1997	ITE providers and normal schools	Primary	Overview of arrangements for teaching practice between the "pre-service training providers and normal schools"	Interviews	Recommended continuation of current arrangements

Smith, D.	1997	6 associate teachers and 3 associate teachers	Primary	Contribution of different supervisory roles in practicum	Observations, analysis of associate and lecturer feedback, and student survey	Associate teachers did not make theory practice links. Roles complemented each other and contributed to overall student development.
Timperley, H.	2001	11 associate teachers	Primary	Outcomes of training programme in mentoring conversations for associate teachers	Transcript analysis	Training was successful in increasing associates' use of data-based conversations and collaborative future planning
Timperley, H., Black, J., Rubie, C., Stavert, M., & Taylor-Patel, C.	undated	4 mentor teachers ;8 associate teachers; 8 student teachers	Primary	Roles and practices of mentor and associate teachers in mentoring student teachers	Transcript analysis	Three of the four mentors demonstrated views and behaviours consistent with university expectations. Fourth mentor and most of the associate teachers emphasised practical guidance.
Turnbull, M.	2004	6 student teachers, associate teachers, and visiting lecturers	Early childhood	Student teacher agency in the practicum	Semi-structured interviews, student teachers' daily reflections in practice	Institutional practices hindered the development of student teacher agency

IMPACT OF INNOVATIONS, PROCESSES OR COURSES

Author / s	Date	Participants	Sector	Research focus	Data Gathered	Results
Averill, R., & Te Maro, P.	2003	Student teachers	Primary	Perceptions bicultural content in mathematics course	Questionnaire	Affirmed bicultural content.
Baker, R.	1995	23 student teachers	Primary	Use of a science-technology-society perspective for developing science content knowledge	Questionnaire; four in-depth interviews	The approach enables student teachers to adopt a more coherent and contemporary view of science and greater appreciation of the need for them to have an understanding of science concepts. Interviews revealed difficulties in translating these ideas into classroom practice.
Barr, H.	1995	6 student teachers	Primary	Impact of teaching experience in USA	Interviews	Student teachers found experience to be worthwhile, and strengthened rather than changed beliefs about teaching.
Bertanees, C. & Thornley, C.	2004	Student teachers	Primary	Challenging views of Päkehä student teachers	Journals and survey	Some student teachers appeared to have changed their views.
Biddulph, F.	1998	Student teachers	Primary	Use of peer and self assessment	Observation, analysis of self assessment sheets, comparison of student teacher and lecturer assessments	Range of views, highlighting assessment issues. Students teachers generally rated own work more highly than did lecturers.
Bolton, J.	2000	80 student teachers	Primary	Investigated impact of multi-disciplinary performing arts creative project on perception of ability to teach music	Pre-post questionnaires	Increased confidence and enthusiasm for teaching music.
Brough, S., Keenan, J., Limbrick, L., McCaffery, J.,& Sheehan, J.	1996	109 beginning teachers, 80 tutor teachers	Primary	Investigated perceptions of how well prepared beginning teachers were in aspects of language learning and teaching	Questionnaires, teaching reports, efficacy scale, interviews with 10 BTs	Most beginning teachers felt confident in teaching language programmes, with less confidence in oral and visual elements. Tutor teachers expressed more confidence in BT's performance than the BTs themselves.

Elliot, A.	2002	4 student teachers	Primary	View on preparedness to integrate ICT into future classroom programmes	Interviews	Despite personal ICT skills, no opportunity to experience ICT integration in their teacher education programme, and limited opportunity in schools.
Fraser, D., & Spiller, D.	1996	Student teachers	Primary	Evaluation of a collaborative approach to thinking and writing skills	Lecturer observation, informal student comments and questionnaire	Peer-assisted learning with the writing process facilitated student understanding and developed writing skills.
Gendall, L.	2001	9 student teachers	Primary	Investigate the impact of mathematics teacher education course on student teachers' approaches to planning mathematics	Interviews, questionnaire	Student teachers indicated their confidence to use an enquiry approach to mathematics teaching.
Hunt, T.	2000	Lecturers, graduating teacher education students	Primary, Early childhood and Secondary	To identify student teacher knowledge, access to, and use of ICT	Questionnaires	Despite generally high access to computers the use of ICT within the pre-service curriculum was limited. Secondary students had gained fewer skills. Over a third of all student teachers did not feel prepared to incorporate ICT into their teaching.
Ovens, A.	2004	5 student teachers	Secondary	How student teachers engaged, resisted and/or were receptive to reflective intent of their teacher education programme	Learning narratives	Reflection is not something that is "acquired" but is enacted as part of reflexive ordering of identity in discursive contexts.
Sinclair, A.	2003	40 student teachers	Primary	Evaluation of course designed to promote student teacher reflection	Questionnaires, 8 student interviews, learning logs, reflective writing	Several themes emerged from the data
Whatman, J., Cosgriff, M., & Thevenard, L.	1999	Beginning teachers	Secondary	Impact of preservice multidisciplinary arts and Education Outside the Classroom courses on teaching	Semi-structured group interviews	BTs considered that they had gained personal and professional skills and processes. They were able to create positive and enjoyable classroom learning experiences.

PROGRAMME EVALUATION: Research by Institutions						
Author / s	Date	Participants	Sector	Research focus	Data Gathered	Results
Brunton, K., & Ferry, D.	2001	91 first year, 77 third year student teachers	Primary	Compared visual representations of learning and teaching	Classification of student teacher drawings	No differences between the two groups
Cameron, M., & Grudnoff, L.	1993	178 principals	Primary	Sought principal satisfaction with BTs	Questionnaires	78% of 255 BTs rated as having outstanding or very satisfactory personal qualities, with 68% rated as having outstanding or very satisfactory professional attributes.
Delany, J., & Smith, L.	2001	Student teachers	Primary	Comparison of academic results between on-campus and distance students	Analysis of academic records	Students studying by distance had lower success rates than on-campus students
Dickie, J.	2000a 2000b	21 student teachers	Primary	How can colleges of education best support Pasifika student teachers to complete primary teacher training?	Interviews	Factors outside the institution inhibited success Institutional responses identified
Donaghy, A., McGee, C., Ussher, B., &Yates, R.	2003	29 student teachers	Primary	Explores how on-line students studied and learned in teacher education programme	Telephone interviews, on-line discussion groups	Generally positive evaluations of on-line programme. Some issues identified.
Forbes, C.E.	1994	30 student teachers and 20 beginning teachers	Primary	Perceptions of teaching knowledge and skills of student teachers and BTs. BTs also asked about their use of .2 time.	Questionnaires	No significant differences in student teachers' and BTs' assessment of their teaching abilities. Use of .2 time not for professional development.
Grudnoff, L., & Tuck, B.	2002	Beginning teachers and tutor teachers	Primary	Views of BT teaching competence held by BTs and their tutor teachers at end of provisionally registration period	Interviews	Beginning teachers had addressed early challenges and were now operating as autonomous professionals

Haigh, M., & Jongejan, J.	2004	3 people with Limited Authority to Teach (LATS), and 3 associate teachers	Secondary	Professional supervision of LATs in distance programme	Document analysis and self reports	Positive perceptions from all participants. Two of three associate teachers not convinced of need to enhance professional supervision skills.
Hawe, E. M.	2000	Student teachers, lecturers	Primary	Thesis describes extended field-based project in mid 1990s investigating how student teacher assessment was experienced, interpreted and understood	Direct participation in the field, observations, informal listening, interviews, document analysis, participation in classes as a student	Describes how student teachers believed assessment to be subjective and attributed their results to external factors, and highlights complex relationship between assessment, learning, and teaching.
Heyward, P., Hansen, T., Sheehan, J., Mills, W., Ashman, L., Sinclair, A., & Williams, R.	2000	99 student teachers, lecturers	Primary	Views of student teachers and lecturers on written feedback on student teacher assignments	Questionnaires	Student teachers valued feedback that was constructive. Those who received A grades were the most satisfied with lecturer feedback. Lecturers found it difficult to assess students' work when they did not personally teach them.
Kana, F.	1999	38 student teachers	Primary	Student perceptions of Mäori-focused teacher education programme effectiveness	Questionnaire; interviews	Graduates were all teaching in Mäori medium settings. Considered they had been well prepared for teaching.
Laing, L.	2000	21 beginning teachers	Primary and Secondary	Views of preparation in Northland trained teachers	Questionnaires	Majority felt adequately or well prepared to teach
McGee, J., & Penlington, C.	2000a	Student teachers, lecturers, associate teacher, principals	Primary	Perception of students in a compressed programme	Programme monitoring, student teacher questionnaires, course reviews	Considerable resistance to notion of compressed preparation
McGee, J., & Penlington, C.	2000b	6 beginning teachers, 5 principals, 2 tutor teachers	Primary	The quality of teacher education preparation for BTs from a compressed programme	Interviews	Although BTs had some gaps in knowledge and skill and needed considerable help initially, six months into their first year they were perceived to be managing well. Quality of induction programme seen to be essential.

Meek, B.	1998/99	Supervising teachers in schools	Primary	To identify supervisors' perceptions of the needs and strengths of BTs	Surveys	Over 90% of respondents identified three or more areas where BTs did not need additional guidance and support, and almost half identified three or more areas where BTs did need additional guidance and support.
Ritchie, J.	1994	35 student teachers	Early childhood	Effectiveness of courses in addressing biculturalism	Questionnaires	Awareness and commitment developed but insufficient skill development
Ritchie, J.	2003	Student teachers, 8 teacher educators, 7 graduate beginning teachers	Early childhood	Processes to support commitment to Te Tiriti o Waitangi	Interviews, class discussions, observations, questionnaires, student assignments	Describes processes from perspectives of participants.
Ross, B.	2003	28 student teachers	Secondary	Evaluated STs' development of a "critical consciousness" related to self assessment	Editing and discussion of videoed self assessment interviews	Student teachers were mostly positive about the experience and thought it was fair. Other issues discussed.
Russell, B., & Chapman, J.	2001	25 teachers previously employed on contract in initial teacher education programme	Early childhood, Primary, Secondary	Impact of experience as teacher educator	Questionnaires	Benefits to professional learning and renewal, and development of shared understandings
Spiller, D., & Fraser, D.	1999	30 student teachers / lecturers	Primary	Faculty co-operation across disciplines	Questionnaires, observation, staff interviews	Benefits for all participants
Yates, R.	2001	Two student cohorts (n=124)	Primary	Description of initial teacher education programme delivered by mixed media	Document analysis, student records	Retention rates of first cohort higher than second cohort. Academic success also high. 30% of first intake were Mäori.

PROGRAMME EVALUATION: External Research						
Author / s	Date	Participants	Sector	Research focus	Data Gathered	Results
Ramsay, P.D.K., & Hodder, C.	1997	Snapshot of initial teacher education provision	Primary and Secondary	Types of programmes offered, content of programmes	Published provider information, survey of institutions	Variety was now a hallmark of initial teacher education. Necessity for increased quality control procedures to maintain quality.
Renwick, M.	2001b	134 graduating student teachers, 20 beginning teachers, 33 principals and tutor teachers	Primary	Evaluation of BEd (Teaching) programme	Questionnaires, interviews	Most BTs and employers thought beginning teachers were well prepared for their teaching responsibilities. School context is important.
Renwick, M. & Vize, J.	1993a	National sample of beginning teachers	Primary	Views of the quality of their teacher education programme	Questionnaires, interviews	Most BTs thought they were well prepared for their teaching responsibilities. School context is critical.
Renwick, M., & Boyd, S.	1995	National longitudinal study, student teachers/beginning teachers	Early Childhood	Views of preparation, employment preferences, employment patterns	Questionnaires	Student teachers generally felt well prepared to teach. High proportion of BTs were employed in prepared ECE settings.
Renwick, M., & Gray, A.	1997		Primary	National evaluation of compressed programmes of initial teacher education	Interviews	Too early to judge the worth of compressed programme. Providers were all experienced teacher educators who had approached the design of programmes with integrity. Calibre of student teachers appeared to be high. Recommended ongoing monitoring of programmes.

BEGINNING TEACHERS

Author / s	Date	Participants	Sector	Research focus	Data Gathered	Results
Anderson, J.	1999	4 Beginning teachers	Secondary	Learning to teach mathematics	Interviews, group discussions	Need for supportive induction and mentoring.
Averill, R., Anderson, D., Easton, H., & Hynds, A.	2004	Beginning teachers	Primary	Bicultural content in teaching mathematics	Interview	School context supported/constrained implementation.
Broadley, G., & Broadley, C.	2003	100 school principals	Primary and Intermediate	Investigated the factors that principals considered when appointing beginning teachers, to see if there were different "styles" in their decisions	Sorting cards	Eight styles emerged for eight dimensions. Principals choose candidates who fit their style.
Curham, T.	1996	Beginning teachers	Secondary	Follow up of graduates from 1992, 1992, 1993	Questionnaires	60% gained teaching positions. Subject knowledge and willingness to take extra-curricular activities believed to be factors in gaining employment. Perceived lack of help from BT facilitator identified as a concern.
Dewar, S., Kennedy, S., Staig, C., & Cox, L.	2003	Beginning teachers	Secondary	Feedback on teacher supply issues with emphasis on Beginning Teachers (BTs)	Interviews	Identified the perspectives of BTs, principals, and heads of department on issues such as "quality", induction, and barriers to enjoyment of teaching.
Fursman, L., & Visser, H.	2001	National survey of graduating student teachers; beginning teachers	Primary and Secondary	Focused on groups where there were shortfalls in teacher supply	Questionnaires	Reports breakdown of who intended to teach, who gained employment.
Grudnoff, L., & Tuck, B.	1999	Teacher educators, principals, tutor teachers and beginning teachers	Primary	Exploratory study on developing and measuring standards for beginning teachers	Focus groups	Standards appeared transparent to participants.

Grudnoff, L., & Tuck, B.	2004	20 beginning teachers	Primary	Patterns of stress across first two years of teaching	Semi-structured interviews	First term, year one was the most stressful Peaks in stress were related to assessment for accountability purposes.
Grudnoff, L., & Tuck, B.	2003	Beginning teachers, associate teachers	Primary	Synthesises authors' previous studies on adjustment and professional development of BTs		Identifies transition from new to "savvy" teachers, tensions between views of teacher education institution and the schools.
Haynes, M.	1996	6 beginning teachers	Primary	Explore first year of teaching, particularly in relation to teaching mathematics	Interviews, diaries and observations of teaching	Participants were confident in their ability to teach mathematics, and had already moved beyond the "survival stage" of teaching.
Ho, A-H.	2003	3 NZ beginning teachers; 3 Taiwanese beginning teachers	Secondary	Perceptions of educational leadership in relation to others and self	Face-to-face and phone interviews	Five categories of factors that related to perceptions of leadership were identified.
Lang, C.	2001	7 beginning teachers	Primary	Describes the first year of teaching in relation to their preparation to be teachers	Questionnaires	In most cases it took 6 months for BTs to progress beyond the "survival stage". Identifies sources of support, and needs of some beginning teachers.
Langdon, F.	2001	Principals	Primary	Principals' views of effective beginning teachers	Interview; focus groups; written questionnaires	Six common perceptions emerged. Principals' expectations went beyond technical competency.
Mansell, R.	1996	Beginning teachers	Primary and Secondary	Investigated the advice and guidance programmes and use of 0. 2 time for provisionally registered teachers	Surveys	The majority of BTs were positive about their advice and guidance programmes, with more primary than secondary saying they were working "very well". Different uses of the 0.2 time are identified and discussed.
McConnell, B.	2001	17 Beginning teachers	Secondary	Follow-up on teachers who had taken a preservice course in environmental education in 1996 and 1997		Despite positive recollections of their pre-service course in environmental education, lack of policy and school support for environmental education had created difficulties for classroom programmes.

Renwick, M.	2001a	National sample beginning teachers	Primary and Secondary	Perceptions of advice and guidance programmes	Questionnaires	Most BTs had formalised support system. Primary teachers had more support than secondary. Professional development for tutor teachers suggested.
Smales, J.	2002	30 beginning teachers	Primary	To determine images of "self as teacher" held by first year teachers, and impact of these images on professional development	Non-structured interviews	Images tended towards nurturing and facilitating rather than scholarly. Experiences in first year can enhance, challenge or shatter "self as teacher" image. Adequate and appropriate support seen as a key factor.
Turinui, H.	2003		Primary	Description of first year of teaching		Identifies personal and professional learning challenges.

Appendix 2: Mail merge letter

Research evidence about initial teacher education

The New Zealand Council for Educational Research is currently working on a project to bring together and analyse research evidence about initial teacher education in New Zealand over the past decade (1993 – 2003). Initial teacher education includes pre-service teacher education and the first two years of provisional registration. We are focusing on the primary and secondary sectors as well as research on early childhood education programmes that lead to graduates being qualified for provisional registration by the New Zealand Teachers Council. We are doing this work under contract to the Ministry of Education and the Teachers Council who want to use this review as a platform for building a research programme in this important area of education. It is therefore a good and important opportunity for us to help shape the research agenda for the future.

You are a person who has expertise and knowledge of this area and we are asking for your help in locating research evidence for the review.

Our focus will be on evidence, which gives material on any one of the following areas.

- The socio-political context of teacher education in New Zealand over the past decade.
- Teacher education as a field of enquiry. Within this context we are seeking to identify the themes, trends, and implications that emerge from the New Zealand research on initial teacher education and so to identify key gaps in relation to the international literature.
- The teacher education curriculum. For example, research that sheds light on the theoretical frameworks of programmes, programme components, practicum, and graduation standards.
- The teacher educators. In this context research on the ways people become teacher educators and about the roles and influence of the associate teachers.
- The prospective teachers. What research exists, for example, on characteristics of student teachers such as their expectations of teaching, their long-term aspirations, academic abilities, and motivation to learn?
- Beginning teachers. What studies have addressed the experiences and work of beginning teachers and how the school/early childhood centre processes and systems assist or constrain their development, motivation, and ability to promote student learning?

The research evidence we are seeking could be in a variety of forms, e.g. a single case study, a survey or an evaluation study. We know that there is likely to be some evidence that may not have

been formally published but nevertheless provides important material for our consideration, such as theses, internal reports or publications. We are also interested in locating any work in process, particularly significant work such as Masters or PhDs in this area. If you are currently engaged in research on initial teacher education (including the induction period) a short summary of the focus and methodology of your research (and any preliminary trends or possible results) would enable us to include your work in the review.

We would be very appreciative if you would send us any evidence that you have or refer us to material that you think would be helpful. We are working under tight timeframes and would like to have the evidence or know it is on the way by 7th May. Please contact either Marie (mariec@xtra.co.nz) or Robyn (Robyn.Baker@nzcer.org.nz) if you want further details. Please send copies of actual material and information about the availability of theses, to NZCER (address above).

We know we are asking you to return information to us very quickly, but think you will appreciate that this work will be an important project for teacher education research development in New Zealand.

Robyn Baker   Marie Cameron

Appendix 3: Template for Annotated Bibliography

General area	
Reference:	
Published:	
Refereed/non refereed	
Type of Study	
What study is about	
Research design	
Research question/s	
Results	
Author's implications	
Reviewer's comments	