

High quality practica and the integration of theory and practice in initial teacher education

A literature review prepared for
the Education Council

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Introduction

Background to this review

The Education Council of Aotearoa New Zealand (the Council) wants to ensure initial teacher education (ITE) graduates have the capability to successfully teach in today's environments as well as have the skills to adapt to meet the needs of teaching in the future. The Council is currently considering a range of proposals that aim to lift and strengthen ITE, including reviewing practica requirements.

The Council has asked NZCER to undertake a literature review of research and rangahau¹ to help build an evidence base about what high quality practica looks like, to inform future programme requirements and to provide a practical resource for the ITE sector. The Council wants to identify the features of practica arrangements that lead to stronger graduating teacher outcomes; that is, confident graduates who are able to use adaptive expertise to problem solve and lift learner achievement, and who are ready to teach when they start their first teaching position in a school, kura or centre.

There has long been debate and contention as to how best to prepare new teachers, internationally and in New Zealand (see, for example, Cameron & Baker, 2004; Menter, Hulme, Elliott, & Lewin, 2010; Reid, 2011; Vick, 2006). Vick (2006) provides salutary parallel information from across the Tasman describing over a century of attempts in England and Australia to find solutions to the problem of balancing the integration of theory and practice. He suggests that contemporary proposals to change ITE are firmly embedded in the policies that have shaped ITE for so many years.

Recent government investigations into ITE have taken place in England (Hobson et al., 2009), Wales (Furlong, 2015), Scotland (Menter et al., 2010) and Australia (AITSL, 2015; Teacher Education Ministerial Advisory Group, 2014). Hobson et al. (2009) highlight deficiencies with practicum arrangements, although some other references provide examples of high quality practicum and theory/practice balance, and urge governments to take note of these examples. Furlong (2015) provides a summary of high quality ITE based on a British Educational Research Association (BERA) and Royal Society of Arts (RSA) review. Among the five core features identified by Furlong, three are directly relevant to this review:

- Develop strong links between theory and practice, in a way that helps students to understand and explore the interconnectedness of educational theories and classroom practices;
- Establish strong links between initial teacher education and continuing professional development of teachers in schools;
- Ensure that all of the principles are underpinned by a clear understanding of evidence about how students teachers learn to teach and that courses themselves are the constant subject of research and development. (p. 8)

1 Rangahau is a word used in Māori to denote research.

In the UK and US in particular, movements to improve ITE have resulted in a number of different kinds of programmes with alternative pathways. Examples include field-based training or repositioning practicum as “clinical practice” as the medical community do. These are attempts to provide better integration of “theory” and “practice”. Our review has found that any exploration of practica needs also to focus on this integration—the knowing and the being, practising and learning of a beginning teacher cannot be separated into different sites for learning but will most profitably come together when learning is embraced in a range of contexts that cohere.

Questions the review is addressing

1. What are the features of high quality *practica* that have a positive impact on outcomes for student teachers?
2. What are the features of high quality theory and practice integration within other parts of the ITE programme (course work) that have a positive impact on outcomes for student teachers?
3. What can we learn from other professions about integrating theory and practice in professional education?

Scope

The review attempts to address all ITE contexts in New Zealand and other jurisdictions:

- primary, secondary, early childhood education (ECE) and Māori-medium/bilingual settings
- different ITE delivery models (e.g., classroom-based, field-based and school-based); for example, Teach First NZ, The Graduate School of Education, many ECE programmes
- undergraduate, postgraduate, Masters.

The literature scan focused on practica in ITE but included research in other professions (e.g., medicine, psychology, nursing or social work). We were somewhat surprised at how little of the literature is related to research on practicum or on theory to practice. There is a body of literature about Teach First/Teach for All and other “alternative” field-based programmes, mostly in the US, but we have not examined that in this review. Part way through our writing an international colleague sent extremely useful resources from Canada, most noticeably *Field Experiences in the Context of Reform of Canadian Teacher Education Programs* (Falkenberg & Smits, 2010). We have not made reference to all the research included in the publication nor fully described the raft of programmes that are the subject of many of the articles in the publication. Many of these describe the individual approaches to programmes in different provinces. These were summarised by the editors and we have included reference to the editorial chapters.

A note about terminology

We have used the terminology most commonly used in New Zealand, referring to extended periods of time in schools or ECE settings as “practica” or, where applicable, “field-based” (as in a number of ECE programmes and for student teachers in the Teach First NZ secondary programme). We use the terms “student teacher”, “mentor teacher” and “visiting lecturer” and “teacher educator” (tertiary-based). Unless we are directly quoting, we have tended to use New Zealand terminology for continuity. Internationally, parallel terms appear to be:

- Practica: sustained practical experience; practical experience; professional experience
- Field-based: employment-based; centre-based; school-based
- Student teachers: teacher candidates; teacher trainees; interns; participants; pre-service teachers
- Mentor teachers: associates; supervisors; hosts
- Visiting lecturers/teacher educators: university lecturers; faculty
- Co-ordinators: supervisors; liaison lecturer; community co-ordinators; practicum liaison teacher.

Challenges and limitations

Our review of the literature has found that it is hard to disentangle practica from other aspects of ITE provision, even when articles are specifically about extended experiences in schools/ECE settings. We have found very little literature that is concerned with structural elements of practica. There is a lack of research linking ITE and graduating teacher or student outcomes. We have found only one article that incorporates a specifically Māori perspective and one that relates to Māori-medium contexts. There is a lack of literature on bilingual programmes, including practica. The voice of associate/mentor teachers seems to be largely missing from the research, and there seems to be very limited research on mixed-media/distance programmes even though these have operated in New Zealand for more than 25 years. We have not found any research on the merits of Normal School practica versus other practica or on the role of Normal Schools in ITE in New Zealand. While some findings (e.g., about the need for a shared vision or purpose) are applicable across a range of programmes, other findings are more relevant to particular pathways.

Our reading took us down a number of “side-alleys” and it was challenging to work out the extent to which the findings would add most value to the literature review. Another limitation is in the nature of the bulk of the research—one-off, small-scale projects on individual programmes and/or practica experiences predominate.

Structure of the review

We have structured the review under the research question headings. The final section provides details of programmes deemed to be high quality.

Section 1: Key findings

Section 2: Methodology

Section 3: A brief overview of ITE and the role of practica

Section 4: What features of high quality practica have a positive impact on outcomes for student teachers?

Section 5: What features of good theory and practice integration within other parts of the ITE programme have a positive impact on outcomes for students?

Section 6: Practicum in other professions

Section 7: Examples of programmes regarded as high quality

Section 1:

Key findings

In establishing high quality features of practica we have read 100 or more refereed journal articles, research reports, books, theses and reviews. Most of these describe ITE practica from the perspective of the tertiary provider seeking stronger partnerships with schools and/or ECE centres or more effective relationships between those involved in practicum teacher preparation. There is a very strong sense of the need to prepare graduates who are classroom-ready and to involve whole communities in accepting responsibility for new teacher preparation.

Our review of the literature indicates that a study of practica cannot be usefully disentangled from other aspects of ITE. For example, it is not possible to describe high quality aspects of practica in isolation from the ethos or purpose of a programme. It is one thing to deal with the structural elements of practica, but making changes to practice is more complex.

We identified eight essential ingredients of high quality practica and field experiences. High quality practica have *all* of the following features:

1. The purpose is fully understood, negotiated and enacted by all participants.
2. There is genuine/authentic partnership between institutions (the tertiary institution and the school or ECE setting).
3. Roles and responsibilities are clearly defined and understood (especially those of the visiting lecturer, the mentor teacher and the student teacher).
4. Mentor teacher (and visiting lecturer) professional learning opportunities fully prepare those involved for their roles.
5. The student teacher is prepared for and willing and able to take agency and to develop adaptive expertise with support.
6. The whole school or ECE setting takes responsibility for the practicum (not one mentor teacher in one classroom) and is a site of learning (a community of learning/practice) for all involved.
7. Every aspect of the ITE programme is integrated and there is not a sense of “theory” and “practice” being enacted separately in different institutions.
8. Formative and summative assessment of student teachers is a negotiated, transparent and agreed process between the tertiary institution, the school/ECE setting and the student teacher.

Structural aspects that the literature identifies as likely to lead to high quality learning include:

- Student teachers need to have school/ECE experiences early in their programme.
- Student teachers need to be taught how to approach early observation/immersion/relationship building in schools/ECE settings.

- Fewer longer practica appear to be more useful than a series of short practica. Practica need to be long enough for genuine relationships to develop and be maintained.
- There is some evidence that having a host school/ECE setting is important in terms of student teachers gaining a sense of “belonging” and “being”—both needed for their development. Field-based programmes tend to allow for this. A contrasting experience in an additional different context also builds student teacher knowledge and skills. At least one setting must offer student/teacher diversity.
- The practica need to be integrated with other courses. There is some research that identifies online programmes as ways to help with this integration.

Key findings about the integration of theory and practice are:

- Notions of a theory-practice divide are unhelpful; reconceptualising learning in ITE can help overcome barriers and integrate learning.
- Creation of a “third’ or “hybrid” space can help redefine responsibilities (e.g., of the school/ECE setting and the tertiary institution). The clinical practice model does this, as can embedded or sustained practica.
- Student teachers, mentor teachers and teacher educators need to be specifically taught ways of seeing, thinking and being—in the school/ECE setting and the tertiary institution. This includes deconstructing and talking about teaching and learning.
- Rehearsing, modelling, coaching, micro-teaching, think alouds, reflection, inquiry, representation, decomposition and approximation are strategies that help student teachers learn to teach and to become a teacher.
- Online learning platforms and shared portfolios can help with integration and a shared understanding of purpose and of assessment of the student teacher.

Other professions face the same challenges of how best to prepare people, how to connect theory with practice and maximise the practice-based learning opportunities. Three ideas to consider from other professions for ITE practice are: signature pedagogies (developing a “suite of signature pedagogies that are routine, that teach people to think like, act like, and be like an educator” (Shulman, 2005, n.p.)); providing both depth and breadth of experience to enable legitimate participation in clinical practice; and vocational thresholds where learners experience significant and meaningful learning.

We have read widely and drawn literature from a number of jurisdictions in addition to New Zealand. The messages are remarkably similar. There is concern about ITE and there have been strong moves in the US and UK to address perceived problems in the past 20 years. As a result of our reading we have concluded that only changing practicum aspects of ITE is unlikely to have a significant impact on graduate outcomes from ITE.

Section 2:

Methodology

Search terms

ITE practicum; practica; clinical practice/experience; theory to practice.

Overview

The work involved seven steps:

1. Familiarisation and scoping of the topic. This included an initial meeting with the Education Council and reading key documents to understand the direction of the future of ITE. Key documents included the Council's publication on strategic options for developing future orientated initial teacher education and the Ministry of Education documents *Initial teacher education outcomes: Standards for graduating teachers* (Aitken, Sinnema, & Meyer, 2013) and *Learning to Practise* (Timperley, 2013). We did not replicate information in these key New Zealand documents.
2. Collation of NZCER publications and other publications underpinning recent NZCER-supported research and evaluation relating to ITE and practica. This included Teaching and Learning Research Initiative (TLRI) projects (Anthony & Kane, 2008; Brennan, Everiss, & Mara, 2010; Haigh et al., 2013), Teach First NZ evaluation reports (Cameron, Whatman, Stevens, & Spiller, 2014; MacDonald, Whatman, & Stevens, 2016; Whatman, MacDonald, & Stevens, 2015) and an evaluation of the Manaiaakalani Digital Teaching Academy (Hipkins, Whatman, & MacDonald, 2015; Vaughan, Bonne, & Eyre, 2015b).
3. NZCER's library undertook a comprehensive literature search using keywords: ITE practicum; practica; clinical practice/experience; theory to practice. This included ECE, primary and secondary ITE in English, dual and Māori-medium contexts. We searched ERIC, Education Research Complete, British Education Index and Google scholar. We searched Ako Aotearoa's website and the TLRI section of NZCER's website and followed references from early literature we read.

We looked for:

- any published New Zealand research or rangahau evidence, including Master's and doctorate theses
 - international literature in comparable jurisdictions (e.g., from the UK, Ontario and Australia)
 - US literature that provides quantitative studies linking practica to learning outcomes.
4. The Council sent an email to providers asking them if they were aware that there may be unpublished research, rangahau, theses, or "grey literature" that could usefully inform the literature review or any key pieces of research that have informed each organisation's thinking about practica.

The email elicited five responses. Two people provided comprehensive reading lists and identified unpublished theses. One person sent a submission previously submitted to the Council.

5. We read 50 refereed research articles, 13 research reports, 12 government reviews and discussion documents of ITE and nine books or theses. Of these, 35 were from New Zealand. The following table sets out country of origin and type of publication.

TABLE 1 **Research publications sourced and analysed**

Country of origin	Type of publication	Number
New Zealand	Refereed journal article	13
	Research report	9
	Government/organisation discussion document	7
	Other (book or thesis)	6
Australia	Refereed journal article	13
	Research report	1
	Government/organisation discussion document	2
	Other	1
UK	Refereed journal article	4
	Research report	2
	Government/organisation discussion document	3
Canada	Refereed journal article	3
	Research report	1
	Other (book chapter or PhD)	3
US	Refereed journal article	15
	Government /organisation discussion document	2
	Reports	2
Other jurisdictions	Refereed journal article	5

6. NZCER senior researchers analysed the literature and identified four key areas: research specifically about practicum; research on field-based programmes; research discussing theory to practice; and research concerned with clinical practice. We also looked at research from other professions. To some extent these categories overlap or researchers use terminology interchangeably. However, for the purposes of isolating high quality features in different contexts, they served as a useful initial organising framework.
7. We prepared a literature review that outlined the available research findings organised by the research questions highlighted in the introduction, and highlighting possibility for change. Most of the available research is one-off small-scale research on individual programmes. We also made a table outlining features of “exemplary” programmes, or programmes considered to be preparing teachers well for the realities of teaching.

Section 3:

A brief overview of ITE and the role of practica

The purpose of practica

In high quality practica the purpose is fully understood, negotiated and enacted by all participants.

One of the features of high quality practica is that there is shared understanding of the purpose of practical experiences. In this section we review some of the literature that contributed to this recommendation. We then look at some of the research that links to student outcomes and other research that relates to specific aspects of practice. We have included this research in this overview chapter as the findings are important to any discussion of quality practica but do not generally isolate specific features of quality.

Menter et al. (2010) conducted a review on teacher education for the Scottish Government. The review described four models of teaching and teacher professionalism—the effective teacher, the reflective teacher, the enquiring teacher and the transformative teacher (p. 17)—all of which were seen to be important. A fundamental task for any review of ITE in New Zealand will be to determine what sorts of teachers we want and the place practica can play in addressing that.

Desbiens, Lepage, Gervais, and Correa-Molina (2015) contend that purposes are not in fact shared:

... the very mission of initial teacher education itself has been a bone of contention: for practitioners, it should greatly facilitate integration into school practices, while university educators instead aim for the transformation of educational practices (Field, 2008; Grimmer, 1995; Solomon, Manoukian, & Clarke, 2007). Furthermore, classroom practices have little influence on university courses and, conversely, there are limited academic contributions to student teachers' integration into the school milieu and to their teaching practices. (p. 170)

The authors identify some Canadian programmes that have met this challenge by establishing closer university–school bonds or by having teachers work in the university, or by conducting course work in a high school. There is not agreement among teacher educators in Canada about the desired content of ITE

programmes. For example, some researchers consider reflection is too demanding of neophyte teachers, whereas others see no purpose in teacher education unless reflection is integral to the framework. There are issues of coherence when mentor teachers do not evaluate those aspects of ITE deemed important by teacher educators and when the guidelines and standards for assessment of student teachers are not clear.

Dillon and O'Connor (2010) question the purpose and place of practica in ITE through a dual lens: a technical-rational or scientific approach (theory to practice) or a reflective practice or experiential approach (citing Schon (1987) and Korthagen (2001)). The authors consider that, in order for the latter to occur, ITE programmes need to:

- make practica the centre of ITE
- structure reflection into ITE programmes
- take account of student teachers' prior learning
- provide professional learning for teacher educators in how to develop reflective practice
- have groups of student teachers constructing their knowledge together
- ensure partnership between schools and universities.

In their review of the practicum (Cohen, Hoz, & Kaplan, 2013) found 113 empirical studies conducted between 1996 and 2009. They isolated four goals of practica, each with a different potential purpose:

1. promote the preservice teachers' professional abilities (sub-goals: to apply and integrate particular methods; to teach particular content by particular methods; to develop preservice teachers' domain and didactical knowledge)
2. getting to know the school environment (sub-goals: become better acquainted with the school's internal and external environment; expand acquaintance with the teacher's role)
3. promote the preservice teachers' growth (sub-goals: develop the preservice teachers' personal growth)
4. impact the school (sub-goals: boost school students' achievements; influence mentor teachers and the community). (pp. 351–353)

A study by Morrison (2016)² examined Australian university-based teacher educators' understandings of the purpose of professional experience (practicum) and how these experiences are enacted. Participants were asked to rank 11 statements about the purpose of practicum:

- A. Practicum aids student teachers to put theory into practice
- B. Practicum assists student teachers to develop teaching strategies/practices
- C. Practicum enables student teachers to learn about the complex role of the teacher
- D. Practicum enables student teachers to become part of a professional community
- E. Practicum helps student teachers to determine if a teaching career is really for them
- F. Practicum encourages student teachers to engage in reflective practice
- G. Practicum helps student teachers to develop an identity as a teacher
- H. Practicum enables student teachers to meet real learners and real situations
- I. Practicum allows student teachers to engage in teachers' daily activities
- J. Practicum enables the student teacher to develop his/her philosophy of teaching
- K. Practicum is a context for assessing the student teachers' competency. (p. 112)

The highest ranked item was B. Teacher educators considered this statement about "teaching strategies/practices" to include practical experiences such as micro-teaching and planning that prepared student teachers within the university setting. They considered the ranking exercise difficult as priorities for practicum changed over the course of a student teacher's programme.

2 This study was also carried out at the University of Auckland but there are not yet any published outcomes from it.

Field (2008) similarly explores notions of purpose through a discussion of the “field” as being both university- and school-based. When defined this way the field occurs throughout the year, is always a place of inquiry and highlights the importance of relationships in learning to teach.

ITE research does not appear to be much influenced by future-oriented thinking. Some studies investigate the role of technologies in shaping teaching in the future (see, for example, Lane (2012) and Kereluik, Mishra, Fahnoe, and Terry (2013)). Downie (2015) explores the value of e-portfolios in building stronger connections between student teacher, mentor teacher and visiting lecturer, with visiting lecturers carrying mobile devices to readily access the portfolios. Lam, Donnelly, Woods, and Shulha (2016) also discuss the potential for e-learning to provide connections between different facets and people involved in practicum. The authors contend that e-learning can support student teachers in the integration of theory and practice, including helping to “construct meaning in shaping their philosophical stance on assessment pedagogy” (p. 42).

As with Kereluik and colleagues, Gilbert (2013) is concerned with a “new orientation” to knowledge, thinking and learning needed for the future. Gilbert argues that ITE should prepare teachers for “a multiplicity of competencies” (p. 111). This should include: deep knowledge; knowledge about learning; skills in mentoring, coaching, counselling and community liaison; leadership and programme management skills; and a sophisticated understanding of diversity. However, the author considers it is not realistic to expect teachers to be competent in all of these areas. Drawing on an article by Garvey Berger (2010), cited in Gilbert (2013), Gilbert’s conclusions that relate to practica include:

- Personalise teacher education—identify and develop individual strengths
- Focus on relationship skills—explicitly teaching where necessary
- Build programmes around a focus on “third spaces”—(between people as places where new knowledge is created)
- Support teacher educators to engage in their own “transformative learning”. (pp. 113–114)

What is the problem?

ITE tends to be seen in binary terms: as theory and practice. Critics of ITE consider that there is too much theory and not enough practice (see, for example, Russell and McPherson, 2001, p. 63). Many (if not most) student teachers consider their practica experiences as more useful than their tertiary-based courses in terms of learning how to teach. However, some studies (see, for example, Anthony and Kane (2008)) suggest that once student teachers have begun teaching, they may better appreciate their ITE as a “whole” where learning occurs in all aspects of the programme. Thus learning is incremental over time—graduates tend to see value in theory more after the first few years teaching.

Anthony and Kane’s (2008) research into secondary student teachers identified areas of strength and need in their classroom readiness. Graduating teachers perceived themselves to be “well prepared” or “very well prepared” to meet the challenges of teaching in the classroom. They appeared least confident in terms of assessment and monitoring of student progress, responding to students’ diverse needs, inclusive educational practices related to Māori, and communication with parents. Other areas where about half the respondents felt ill-prepared were in identifying and addressing specific learning needs and supporting students who have English as a second language.

After 6 months teaching, interviews with beginning teachers identified the following as positive in terms of preparing them for teaching: practicum; planning; reflective practice; preparation for assessment; and mix of theory and practice. “Areas that the teachers would have liked to have seen more focus on included: classroom management, curriculum focus, school organisation, and meeting students’ diverse needs—especially the needs of students from non-English-speaking backgrounds—and knowledge and understanding of pedagogical practices related to inclusion and support of Māori” (Anthony & Kane, 2008,

p. 22). These findings suggest that more attention needs to be paid to providing opportunities for student teachers to better master these skills and knowledge, and to do so in ways that make them a meaningful part of learning during the practicum.

Current requirements in New Zealand

According to the Education Council website (<https://educationcouncil.org.nz/content/initial-teacher-education-providers>) there are 156 approved ITE programmes in New Zealand, delivered as 80 qualifications by 25 providers.

Providers must meet the Council's requirements for the approval of ITE programmes set out in '*Approval, Review and Monitoring Processes and Requirements for Initial Teacher Education Programmes*':

Practical teaching experiences must provide evidence that the student teacher has been actively supported to:

- integrate theory and practice throughout the programme
- plan, implement, assess, evaluate and reflect on their teaching practices
- analyse and interpret practices they observe in schools or ECE centres in relation to research, theories and other knowledge gained throughout the programme
- reflect on their own learning and practice to develop personal and professional goals.

The practicum for a student teacher will operate as a partnership between the teacher education provider and a fully registered associate teacher.

The roles and responsibilities of associate teachers, the teacher education provider and the student teacher must be made explicit in documentation. The practicum should have specific learning outcomes that are supervised and assessed by the visiting lecturer, recognising the advice and feedback provided by the associate teacher. (Education Council, 2010, p. 16)

Student teachers in 3- and 4-year programmes must have a minimum of 20 weeks of practicum across the years of the programme with at least one, 3-week block of practicum in the first 2 years of the programme. The final practicum must be 5 weeks in the same school or centre, with 3 weeks completed as a block (i.e., not 2 days a week).

Students in 1-year programmes must have a minimum of 14 weeks of practicum.

One-, 3- and 4-year field-based programmes must have a minimum of 14 weeks of practicum including a minimum of 8 weeks away from the "home centre setting".

The Council also requires that most of the visiting of student teachers is done by teacher educators who teach in the ITE programme in which the student teachers are enrolled. All visiting lecturers/staff must be ITE staff who are teachers registered in New Zealand and who hold a current Practising Certificate. There are further requirements about documentation, numbers of visits, information that the mentor (associate) teacher has about the programme and a relationship being established between the visiting lecturer, the teacher and the student teacher.

In addition programmes need to meet relevant New Zealand Qualifications Authority (NZQA) or Committee on University Academic Programmes' (CUAP) requirements.

Linking teacher education to outcomes for student teachers

We reviewed very few studies that focused on linking ITE to improved learning of student teachers or students. In their review of empirical studies on practicum, Cohen et al. (2013) isolate three different clusters of outcomes of practicum for student teachers: cognitive and emotional development;

improvement of instructional competences and skills; and school students' achievements. About two-thirds of the 51 articles reviewed referred to cognitive and emotional development with most of these having favourable outcomes. Student teachers were reported to have enhanced their perceptions and understandings of students, schools and communities and to have improved efficacy and self-confidence and ability to reflect. Eleven studies reported that student teachers had become more skilled teaching mathematics, science, reading or using technology. However, in seven studies student teachers did not implement teaching approaches on practicum as envisaged by the researchers.

Linking teacher preparation to student outcomes

A few studies have attempted to tie teacher preparation to student outcomes. One of these (Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2008) looks at data for student teachers from 31 ITE programmes in New York City. The study attempts to determine if particular ITE is more likely to lead to better academic outcomes for elementary school students.

A cautious conclusion of the study is:

The results also suggest that features of teacher preparation can make a difference in outcomes for students. One factor stands out. Teacher preparation that focuses more on the work of the classroom and provides opportunities for teachers to study what they will be doing produces teachers who are more effective during their first year of teaching. (p. 26)

Their findings identify differences between first- and second-year teachers suggesting that:

inexperienced teachers may make use of their preparation sequentially.³ Teachers with stronger preparation in day-to-day issues are relatively more effective in their first year, while those with stronger content knowledge are able to make use of that knowledge by their second year. (p. 27)

The authors conclude by querying whether value-added studies of academic outcomes are “actually good measures of either the range of student learning that we care about or of teachers' impact on learning” (p. 28).

Hurd's (2008) study in England investigated the impact on secondary school students of the school having student teachers. He argues that schools get extra resourcing for having student teachers but that this has to be considered alongside having inexperienced teachers and mentors having their focus diverted from their classrooms. He used evidence from inspections to:

assess whether trainee teachers affect school students' test and examination results. The findings of this research are that the number of trainees has no significant effect on school results at A-level or General Certificate of Secondary Education (GCSE), or on the overall value added between Key Stage 3 and GCSE level. However, at Key Stage 3 level at age 14, while there appears to be a very small depressing effect on achievement in schools with low numbers of trainees, there is a significant positive effect on achievement in schools with larger numbers of trainees. (p. 19)

These findings all have implications for theory/practice integration and practica arrangements and have resulted in jurisdictions trialling or adopting alternative pathways (usually field-based) or a clinical practice model or moving from undergraduate to postgraduate qualifications. We have reviewed the literature about field-based ITE here as even though field-based ITE might be considered extended or sustained practica, employment options during ITE differentiate the experiences of student teachers and the contexts within which they are studying.

³ That is, what they put in place in their first year are the things they have practised but as they become more experienced they can draw on other things they have learned.

Field-based ITE

In this section we review the literature that relates to field-based ITE. This aspect of ITE is also known as centre-based/school-based or employment-based. The literature is from New Zealand (ECE, primary and secondary programmes) and from England (primary and secondary programmes). The challenges and strengths highlighted in the previous section are often the focus of studies of field-based ITE.

We found two articles that related specifically to the field-based nature of ECE. Coombes and Downie (2014) argue for field-based ITE⁴ as a valid ECE choice. A defining feature of field-based ITE is the sustained relationship the student teacher has with the site. This allows for immersion, participation in a community of practice and the integration of theory and practice. Another key feature is the underpinning concept of *how* to be a teacher as opposed to just doing the work of a teacher. According to the authors, field-based ECE in New Zealand is underpinned by: a commitment to situated and experiential learning; the development of critical and reflective teachers through the centrality of praxis; and andragogical principles of adult learning (p. 21).

Howie and Hagan's (2009) study looks at a sustained practicum within the field-based Manukau Institute of Technology ECE programme. In this model, the practicum is sustained within an ECE setting over the 3 years of the programme and embedded into the taught courses to enable "authentic assessment which promotes the development of contextual knowledge, practice, and professional relationships over time" (p. 2). Student teachers in the study strongly valued the opportunities to "develop ongoing reciprocal relationships between student teachers and children and their parents/whānau, centre staff, lecturers and other student teachers" (p. 7). They also valued opportunities for authentic practice and being part of a community of practice. The student teachers were rated by participants in the study as being more employable than other ECE graduates. The authors acknowledge that time does not equal quality. The success of the sustained practicum was in how fully the student teacher was included as a member of the teaching team and engaged with the centre activities and the responsibilities they took on.

NZCER has evaluated two recent New Zealand employment-based initiatives: Teach First NZ (Cameron et al., 2014; MacDonald et al., 2016; Whatman et al., 2015) and the Manaiakalani Digital Teaching Academy (Hipkins et al., 2015). Our findings indicate that both programmes have been effective in preparing teachers. Success in Teach First NZ is dependent on all of the following elements:

- the robust selection process resulting in high-calibre participants
- the responsiveness of the programme, in part made possible because of its small size, but also as a consequence of the robust partnership between Teach First NZ and the University of Auckland's Faculty of Education
- effective support and mentoring for participants from schools and Teach First NZ partnership personnel
- immersion in the classroom, coupled with opportunities for participants' critical reflection on themselves and their teaching (MacDonald et al., 2016, p. 2).
- (MacDonald et al., 2016) recognise the importance of the mentor teacher/student teacher (called participant) relationship but also acknowledge that mentoring is a departmental and even school-wide responsibility. The authors found evidence that having a high quality mentoring relationship with a "good" mentor was more important than having a mentor in the same department. They also acknowledged the changing role of the mentor and of the mentor teacher–student teacher relationship over the 2-year student teaching experience. Encouraging mentor teachers to take up professional learning and development (PLD) opportunities has been an ongoing issue for the university.

⁴ The student teacher is an employee of an ECE setting, spending their working year in that centre and undertaking a tertiary qualification at the same time.

Our 2015 evaluation of the Manaiakalani Digital Teaching Academy (MDTA) (Hipkins et al., 2015), where 10 graduates were paired with 10 mentors in a shared teaching/learning partnership, identified:

The three aspects of MDTA (in-class pairing with a mentor, digital upskilling and university study) have all played a significant role in the BTs' [beginning teachers'] preparation and the strength of the model relies on the interplay between the three aspects. It is not possible to say which has had most impact as each has played out very differently for the 10 BTs. (p. ix)

Whilst MDTA is not an ITE programme there are useful lessons for ITE practicum:

In the strongest mentor/BT collaborations, both partners mutually enhanced their pedagogical repertoires as they worked and studied together. Three mentor/BT relationships were extremely successful and the mentors in those relationships (and in most other mentor/BT combinations) commented positively on their own learning because they were a mentor, their learning from the BT, especially in relationship to using digital tools, and the positive impact that having two teachers with the class had had. They also valued the university component, in particular the course on accelerating learning, and could see the importance of now having the theoretical background to critically examine their practice. (p. x)

An employment route into teaching has been available in England for almost 20 years. Smith and Hodson (2010) carried out a small-scale case study with mature graduates who became student teachers in primary and secondary schools, undertaking practica at a lead school, and then a second school. They wanted to explore how the student teachers might value theory. The participants said the theory they had been introduced to at the university was useful; however, they tended to talk about theory as something they had researched or had read about. In terms of learning from experience, student teachers described the impact of immersion, intensity and immediacy of being in the classroom as they got to know the class. They also valued the opportunities to get to grips with policies and systems.

In this programme, student teachers move to a second school for the first 6 weeks of the second term. This appeared to have had a positive impact on them. They could try new ideas and skills without feeling self-conscious, and interacted with other student teachers. Some said they returned to their lead school with "new professional learning and an enhanced professional identity" (Smith & Hodson, 2010, p. 271).

Douglas (2011) describes a university-school partnership model of secondary ITE in England and explores the experiences of four student teachers in different subject areas. He defined three different approaches in the relationship between mentor teacher and student teacher: learning by imitation; learning by enculturation; and learning by innovation. The history department, an example of a strong collaborative department, focused on the learning of all participants and emphasised experimentation and debate in their practices and the student teacher considered her learning to be "continual exploration" (p. 101). However, even in other strong collaborative departments, where the focus was not on pedagogy, student teachers were not exposed to thinking and talking about teaching and learning. Douglas considered that universities should help student teachers "engage with the social practices of school departments, in order to develop teachers who are able to work with change" (p. 103).

In another paper, Douglas (2012) described a "change laboratory method" to improve practicum experiences. In the primary school where the research was conducted, Douglas found two main contradictions. The first concerned the contradiction between the debate and critique encouraged by the university and, in contrast, the student teachers' and mentor teachers' emphasis on support. Teachers in the change laboratory meetings acknowledged the importance of critical inquiry and acknowledged that, without the laboratory meetings, they would not have considered it was their role to provoke debate. The second contradiction was the influence of school and classroom on student teacher thinking. The change laboratory discussed the importance of teachers letting go to encourage student teacher learning.

Hobson et al. (2009) conducted a longitudinal study on different routes into teaching in England. This study is significant because it followed student teachers into teaching and because the authors compared outcomes for student teachers from different ITE pathways. Most student teachers reported that their ITE programme had prepared them well for teaching, especially in relationship to establishing positive relationships with students, teacher educators and mentor teachers, and that they had had an impact on student learning. The student teachers considered that mentor teachers were most helpful when they gave them teaching strategies and ideas, encouraged them, helped them with workload issues and were “accessible and available” (p. 15).

The study found that “trainees who had followed employment-based and school-centred programmes tended to give higher ratings of the support they received and their relationships with mentors and other school-based colleagues than those who had followed other ITT routes” (p. 18). However, the authors reported statistically significant results for student teachers in the same ITE pathway but with different providers. Age, student teachers’ motives for doing ITE and their expectations and ideas about teaching were also important factors. The authors also cautioned against placing too much store on these results as the effects of different ITE preparation and support were not statistically significant once the student teacher began teaching.

Clinical practice model

We included literature on teaching as a clinical profession,⁵ focusing particularly on features of the clinical approach to the preparation of pre-service teachers. This literature comes predominantly from the US, Australia and Scotland, where clinical approaches to ITE have been developed and implemented, often alongside more traditional ITE programmes. Many of these examples are outlined in the section of this review giving examples of high quality programmes.

Teaching as a clinical profession draws on models of decision-making processes used by medical practitioners, and on models of educating medical interns to support the development of their knowledge and clinical judgement (McLean Davies, 2017). Alter and Cogshall (2009, p. 3) identify five key characteristics of a clinical practice profession:

- Centrality of clients (students)
- Knowledge demands (highly complex, requiring general and specialised knowledge and skills)
- Use of evidence and judgement in practice
- Community and standards of practice
- Education for clinical practice (academic grounding, practice-based training, and ongoing learning).

Characteristics of ITE for clinical teaching in education

The MESH Guide (McLean Davies, 2017) on clinical teaching summarises the characteristic of ITE for a clinical practice model:

- close partnerships between schools and universities that inform practice in both sites (Grossman, 2010; Conroy et al., 2013—cited in McLean Davies (2017))
- strong articulation between coursework and professional practice founded on a shared understanding and commitment to clinical reasoning and practice
- professional conversations between novice and mentor that pose questions and probe to make reasoning explicit (Kriewaldt & Turnidge, 2013)
- a shared community of practice whose members are committed to a clinical approach.

5 A useful summary is available online as a MESH Guide. (MESH stands for the Mapping Educational Specialist knowHow initiative. MESH Guides are updatable evidence summaries or digests that support teachers’ access to research via research summaries.) The *Clinical Teaching in Education* guide is at <http://www.meshguides.org/guides/node/593>

The National Council for Accreditation of Teacher Education (NCATE) national strategy report identifies 10 design principles for clinically based preparation (NCATE, 2010, pp. 5–6):

1. Student learning is the focus.
2. Clinical preparation is integrated throughout every facet of teacher education in a dynamic way.
3. A candidate's progress and the elements of a preparation program are continuously judged on the basis of data.
4. Programs prepare teachers who are expert in content and how to teach it and are also innovators, collaborators and problem solvers.
5. Candidates learn in an interactive professional community.
6. Clinical educators and coaches are rigorously selected and prepared and drawn from both higher education and the P-12 sector.
7. Specific sites are designated and funded to support embedded clinical preparation.
8. Technology applications foster high-impact preparation.
9. A powerful R&D agenda and systematic gathering and use of data supports continuous improvement in teacher preparation.
10. Strategic partnerships are imperative for powerful clinical preparation.

We discuss some of these features in greater detail later in this review.

There is, as yet, limited evidence on the impact of clinical experience models of ITE compared with other approaches. Burn and Mutton (2015, p. 227) summarise this evidence, mostly from single studies:

- Clinical experience has a positive effect on beginning teachers' learning. They are better able to integrate theoretical and practical knowledge, and are more confident (Hammerness et al, 2005, cited in Burn and Mutton (2015)).
- There is some evidence (they cite two studies) that clinical preparation is a factor in determining teacher effectiveness.
- Graduates are better prepared for their first teaching positions, with increased confidence, and are increasingly committed to teaching long-term (again they cite two studies).

McLean Davies et al. (2013, p. 104) report that 90 percent of the first graduates from the Melbourne University Master of Teaching claimed they were "well" or "very well" prepared for "the real life of the classroom", compared with 40 to 45 percent from a study of 1,545 new teachers across Australia.

Section 4:

What features of high quality practica have a positive impact on outcomes for student teachers?

In this section we summarise features of high quality practica according to the literature we found. Given the paucity of research that considers links between practica arrangements and student teacher influence on students' or other teachers' learning or the school or ECE setting, it is somewhat difficult to attribute "high quality" to particular features. However, for many features, a number of researchers have reached similar conclusions—thus consensus is pretty strong. In addition, these features are identified within the wider body of work on ITE and adult learning and development.

TABLE 2 Features of high quality practica

High quality practica have all of the following features:

1. The purpose is fully understood, negotiated and enacted by all participants.
2. There is genuine/authentic partnership between institutions (the tertiary institution and the school or ECE setting).
3. Roles and responsibilities are clearly defined and understood (especially those of the visiting lecturer, the mentor teacher and the student teacher).
4. The student teacher is prepared for and willing and able to take agency and to develop adaptive expertise with support.
5. Mentor teacher (and visiting lecturer) professional learning opportunities fully prepare those involved for their roles.
6. The whole school or ECE setting takes responsibility for the practicum (not one mentor teacher in one classroom) and is a site of learning (a community of learning/practice) for all involved.
7. Every aspect of the ITE programme is integrated and there is not a sense of “theory” and “practice” being enacted separately in different institutions.
8. Formative and summative assessment of student teachers is a negotiated, transparent and agreed process between the tertiary institution, the school/ECE setting and the student teacher.

We have described the “purpose” of practica in the previous section. In this section of the literature review we focus on features 2–6 in the list above. We also describe structural aspects that the literature identifies as likely to lead to high quality learning. These include:

- Student teachers need to have school/ECE experiences early in their programme.
- Student teachers need to be taught how to approach early observation/immersion/relationship building in schools/ECE settings.
- Fewer longer practica appear to be more useful than a series of short practica. Practica need to be long enough for genuine relationships to develop and be maintained.
- There is some evidence that having a host school/ECE setting is important in terms of student teachers gaining a sense of “belonging” and “being”—both needed for their development. Field-based programmes tend to allow for this. A contrasting experience in an additional different context also builds student teacher knowledge and skills. At least one setting must offer student/teacher diversity.
- The practica need to be integrated with other courses. There is some research that identifies online programmes as ways to help with this integration.

Integration of theory and practice is the focus of the following section (Section 5).

This section is structured with a sub-section on those quality features described fully in the literature. We incorporate evidence about any type of programme in any sector. At the beginning of the section we provide summary information from the one publication we have located on Māori-medium ITE as this takes a different view of practica than other literature.

Māori-medium ITE

We have found one publication related to Māori-medium ITE. Katoa Ltd (Cram, Kennedy, Te Huia, & Paipa, 2012) provided background papers for the Ministry of Education on ITE outcomes. The authors consider that the six principles of Kaupapa Māori can be used to describe effective practicum experience in Māori-medium. The principles are:

- Rangatiratanga
- Taonga Tuku Iho
- Ako Māori
- Kia Piki Ake i Nga Raruraru o te Kāinga
- Whānau
- Kaupapa. (p. 65)

The authors explore the implications for each of the principles. Those that are relevant to practicum (the background papers also discuss induction of beginning teachers) include:

- Rangatiratanga: ensure performance expectations are clear and obtainable; help student teachers to connect kura philosophy and goals; mentors need to share power with student teachers and have them identify their needs and be part of the decision making practices about their own training (p. 68).
- Taonga Tuku Iho: Kaumātua should be available as role models and support (p. 70).
- Ako Māori: mentors should be in close proximity of student teachers, observe their practice and have regular hui with them; support student teachers to gain local knowledge; provide opportunities to practise skills (p. 72).
- Kia Piki Ake i Nga Raruraru o te Kāinga: train and support student teachers with problem-solving ‘tricky situations’ (p. 75).
- Kaupapa: create a research culture of best practices; ensure all stakeholders’ intentions align (p. 79).

The authors also advise that intending student teachers have “some experience of the reality of Māori-medium education before they apply for entry to ITE” (p. 89).

Authentic partnerships with a clear sense of purpose

In high quality practica there is genuine/authentic partnership between institutions (the tertiary institution and the school or ECE setting). Every aspect of the ITE programme is integrated and there is not a sense of “theory” and “practice” being enacted separately in different institutions.

Relationships between institutions

Furlong (2015) contends that:

In order to be of the highest quality, initial teacher education needs universities to provide strong research-led courses; it needs a school system that is willing to take responsibility and provide leadership in key parts of all programmes; and it needs to ensure that both university and school components are carefully integrated with each other. (p. 8)

Simpson and Grudnoff (2013) suggest that we need to re-think the purpose of practicum, its roles, responsibilities and expectations. This would include setting aside the current privileging of university knowledge and the assumption that practicum should be geared to the university’s orientation. The authors identified that changing ways of doing things so there is true partnership will be time-consuming and costly and will require “intense and ongoing interactions and large doses of goodwill” (p. 78).

Grudnoff (2011) describes the beginnings of a redevelopment of university–school partnerships where there are “shared understandings regarding roles, responsibilities and expectations among teacher educators, schools and student teachers” (p. 231). In a pilot project, four schools and the university established conditions that would immerse the student teachers in the whole school as well as an individual classroom so that they were better prepared for the realities of teaching.

Grudnoff, Haigh, and MacKisack (2017) report on a “major overhaul” (p. 180) of practicum in an undergraduate primary degree. The study involves the university and four of the 20 partnership schools. In this model, the whole school, rather than the individual classroom, becomes the practicum site.⁶ The new model of practicum developed in collaboration includes:

- group of 4–6 student teachers assigned to a school which then selects an appropriate mentor teacher for each student teacher
- school selects one teacher (AL) to have overall professional responsibility for all student teachers in the school and to work with the mentor teachers
- university selects one lecturer (ULL) to work with school/AL
- the principal is involved in designing the practicum that is appropriate for their school
- the AL and the ULL have the prime responsibility of designing a practicum that meets school culture and university requirements for that group of students
- practicum assessment practices involve a range of professional participants depending on the elements of the practicum design. (p. 182)

Taking up such a partnership model requires that participants adopt new roles and responsibilities. There is more to-ing and fro-ing between sites. Site-specific oversight roles must be created, with an accompanying increase in leadership responsibility for the school-based ALs. Their role was seen to be a “significant factor in building a more collaborative and less hierarchical approach to the practicum” (p. 186). The changed university teacher-educator role led them to think about practicum more broadly and to interact with the principal and the AL professionally (not administratively). The authors considered that constructing new roles helped change people’s thinking towards new ways of working in partnership.

Spaces for collaboration had to be co-constructed into a “third space” (p. 187) where decisions were made together and solutions found. Assessment of the student teacher was a shared endeavour. The authors considered that, in this model, concepts of theory and practice were seamlessly integrated. This model is similar to those described in the section on clinical practice, involving a person with professional responsibility for student teachers within the school and a university-based teacher education with responsibility for student teachers at the school. It is somewhat akin to the MDTA model where a university-based mentor helped make the links between theory and practice for student teachers and mentor teachers. Her role was seen to be critical for the success of the programme.

Harlow, Cooper, and Cowie (2014) describe a model developed at the University of Waikato to bring different communities of practice (teacher educators, teachers and student teachers) together. Known as CUSP (Collaborative University School Partnership), the programme paired first-year primary student teachers in a classroom for one day a week over two semesters and followed this with a 3-week practicum. The authors found that the student teachers in the CUSP programme felt better prepared for their 6-week practicum in their second year:

In particular the CUSP programme helped them to feel confident about building relationships with children in the classroom (98%) and to be reflective about how children learn (97%), to make connections between theory and the practice of teaching and learning (95%) and to develop a good understanding of what it means to be a teacher (94%). (p. 3)

Harlow et al. (2014) cited Wenger’s (1998) communities of practice model to identify student teachers’ learning: as experience; as belonging; and as becoming. The authors caution that the programme needs to be seen as a “flexible, responsive and continuously evolving approach” (p. 85).

⁶ The evaluation of Teach First NZ also highlighted the importance of the whole department and school as a site for ITE rather than just the individual classroom/mentor teacher.

Le Cornu (2012) reported similar findings. She examined how the school-based co-ordinator in the practicum experience contributed to student teacher learning. She considered that in new conceptions of practicum as partnership, co-ordinators play a vital pedagogical leadership role and that we should no longer be thinking only about the triad of visiting lecturer, mentor teacher and student teacher. In her study, co-ordinators identified four key elements of high quality practicum: “the quality of Mentor Teachers (MTs); commitment from leadership; the quality of the University Mentors; and the Program’s commitment to the notion of a *learning community*” (p. 22).

The co-ordinators considered that their role was to develop relationships, encourage reflection and help maximise learning from a school perspective. They also directly supported the mentor teachers, which indirectly impacted on student teachers. They identified four key types of support: “Co-ordinator meetings, the University Mentor, commitment from school leadership and how the professional experience was structured” (p. 26) and found lack of time to be the main challenge. Le Cornu concluded that:

School Co-ordinators are essential players in implementing the notion of new school-university partnerships ... This study has highlighted the importance of the Co-ordinator’s pedagogical role in professional experience. As well as supporting PSTs’ learning to teach, they also supported the broader focus of them learning to be teachers. (2012, p. 26)

Gan (2014) likewise identifies collegial relationships developed through university–school partnerships as essential to ESL student teachers’ professional growth and identity development. He found that the student teachers experienced practicum as social, and they eventually became co-learners belonging to a community of practice. The community, however, was initially a place with tensions for student teachers caused by lack of communication and misunderstandings. Communities of practice will not automatically become so unless all members recognise and work towards shared understandings.

Establishing authentic institutional relationships takes time and commitment from those institutions. Normal Schools were originally designed to work in partnership with colleges of education. We did not find research evidence to confirm or refute the extent to which these partnerships continue. Partnerships are likely to require tertiary organisations to stand back from decision making and ownership. Schools and centres are likely to need to take more responsibility for inducting new members of the profession. In all of these negotiations and re-positioning, establishing the roles and relationships of individuals is paramount.

Roles and relationships of individuals

In high quality practica, roles and responsibilities are clearly defined and understood (especially those of the visiting lecturer, the mentor teacher and the student teacher). Every aspect of the ITE programme is integrated and there is not a sense of “theory” and “practice” being enacted separately in different institutions.

Hoben (2011) explored an enhanced role for school-based co-ordinators (called practicum liaison teachers) in a case study of 10 secondary schools. Hoben found that student teachers had a different (and more positive) experience of practicum when supported by these co-ordinators who were given time and money and conferred status to perform their roles. Co-ordinators managed a sizeable group of student teachers, provided a professional learning plan and pastoral support for them and helped assess the student teachers. The co-ordinators reported improved relationships with their colleagues, renewed enthusiasm and professional satisfaction, new learning and new opportunities for leadership. The success of the role and its positive impact on student teacher outcomes was dependent on the support of the principal and the senior leadership team. University staff reported satisfaction in engaging in professional dialogue with co-ordinators.

Haigh and Ward (2004) drew on three studies of secondary ITE to explore notions of relationships within practicum. They found that practicum was not ideal for participants despite good will. The authors had envisaged a social-constructivist and collaborative environment but these conditions were only partly realised and student teachers did not have the agency for “possibility—thinking and risk-taking” (p. 145). Haigh and Ward say there needs to be a “more explicit discussion” between the student teacher, the mentor teacher and the visiting lecturer about expectations. Roles and relationships could be enhanced through discussion of professional agency and cultural reform.

Grudnoff (2011) considers that ITE providers need to re-look at what happens on practicum. She sees a mismatch between a perceived imperative to copy the mentor teacher in order to pass the course and engaging in a more challenging learning relationship to better understand the complexities of teaching. Douglas (2011) echoes this sentiment.⁷

In a study of primary practicum in New Zealand, Ferrier-Kerr (2009) identified five key themes necessary for the establishment and maintenance of effective professional relationships between mentor teachers and student teachers: personal connectedness; role interpretation (understanding the roles and developing open communication); styles of supervision (which became more collaborative as the practicum progressed); collaboration (team work that enhanced student teacher development and student learning); and reflection (joint engagement in action research).

Hirschhorn (2008) advocates for careful pairing of mentor teacher and student teacher and for open dialogue through information sessions at the outset of practicum. He considers this would help with the trust and ability for risk taking and exploration.

Hascher, Cocard, and Moser (2007) describe positive emotions as influencing student teacher success and progress on practicum. They consider that it is important for practicum placements to enable positive relationships between mentors and student teachers and for teacher educators to design practicums that balance learning from experience and learning from reflection.

Zeegers (2005) reports on changes at the University of Ballarat which reinvigorated its practica by changing names and roles of participants (e.g., from supervisor to mentor), setting up buddy systems, having weekly professional debrief sessions and appointing community co-ordinators who acted as a link between the university and the school and school cluster. It is the latter role that seems to have had most impact on helping mentor teachers and student teachers. This could be a possible role or oversight role for the Education Council or programme monitor.

McConnell (2015) described contextual factors that affect mentor teacher–student teacher relationships. Student teachers’ sense of belonging was affected by the beliefs and expectations of the mentor teacher (in this case, whether the student teacher was employed or voluntary at the centre). Reciprocity, respect and the ability to take part in authentic learning situations were also key to student teacher learning.

Kempton et al. (2015) were concerned with mentoring journeys and becoming teacher-researchers. This is the only article we have found that has a Māori focus. The authors reflected on their support of each other and the student teachers, where maintaining respectful ethical relationships is at the core. Guided by concepts of *kaiārahi piri* (literally to closely guide) and *te o māramatanga* (the world of light), the authors:

give practical examples of how cultural understanding and lived experiences (if they are shared and/or legitimated by those mentoring) can be a way into engaging powerfully with the world of academic research. (p. 145)

This sub-section has addressed roles and relationships, identifying ways partnerships between individuals (especially mentor teachers and student teachers) can be established. In the following sub-section we

⁷ Douglas’s research is discussed in the following section.

identify the skills, knowledge and attributes individuals need in order for those partnerships to flourish and the role of other participants in improving these.

The student teacher

In high quality practica the student teacher is prepared for and willing and able to take agency and to develop adaptive expertise with support.

Hobson et al. (2009) consider that a major reason student teachers withdraw from ITE is an unrealistic expectation of ITE and of the teaching profession more generally. The authors recommend that teacher educators support student teachers to:

‘surface and examine their initial beliefs and assumptions’ (Feiman-Nemser et al., 1989: 1). There is a need to challenge and attempt to modify those conceptions which may run counter to evidence-informed ideas of how learning to teach might best be facilitated (Fosnot, 1996; Edwards and Ogden, 1998). (p. 248)

Recommendations for ITE providers in relation to better supporting student teachers include:

- putting more emphasis on interpersonal skills
- helping student teachers deal with the emotional aspects of becoming and being a teacher, taking careful account of beginner teachers’ emotional states and welfare
- being sensitive and responsive to the unique characteristics (e.g. relating to age, ethnicity, motivations, prior experience and conceptions) and needs (with respect to emotional states as well as learning)
- giving student teachers a clear view on what kind of support they will need and how they might want or need to look for such support from more than one person; and more generally,
- developing appropriate noticing and reflection skills that will enable them to continue learning from their own and others’ experiences throughout their careers. (Hobson et al., 2009, p. 254)

A Portuguese study (Caires & Almeida, 2007) used the Inventory of Experiences and Perceptions at Teaching Practice with 224 student teachers. This study found that the main benefits of practicum were: “higher levels of self-knowledge, a more realistic perception of self and own skills, and a larger interpersonal skills repertoire” (p. 117). The authors consider that teacher educators need to be more attuned to the stresses of learning to teach implied by these areas of benefit and to supporting student teachers with coping strategies.

Falkenberg and Smits (2010) explored the challenges in field experiences of overcoming student teachers’ preconceived notions of teaching and of themselves as teachers. They suggested that the mentor teacher needs to be well-prepared to address these notions and to overcome the issues of Apprenticeship of Observation.⁸

Le Cornu and Ewing’s (2008) study concerned the development of student teacher resilience through being part of communities of practice on practicum. At the University of South Australia, student teachers get support through being placed in clusters at schools and in Learning Circles which operate on campus as well as in the school. The model provided opportunities for peer support (through reciprocal learning relationships), provided explicit teaching of particular skills and attitudes (mutuality, empowerment and

8 The term “Apprenticeship of Observation” often refers to people’s assumed familiarity with teaching through their immersion in education as a student. Unless student teachers and beginning teachers are specifically supported to do otherwise, they tend to fall back on the teaching they experienced as students. See, too, the discussion on the “practice turn” (Reid, 2011) in the following chapter.

the development of courage) and required that the student teacher, mentor teacher and university mentor adopt particular collegial roles.

Anderson, Walker, and Ralph (2009) looked at student teachers' self-efficacy in practicum. They identified the important role that mentor teachers play in helping build student teacher efficacy and considered that mentor teachers should "place an intentional focus on building self-efficacy" (p. 168) as well as on building generic teaching competencies.

Aitken et al. (2013) and Timperley (2013) provided compelling evidence of the need for student teachers to work with others to continually inquire into and reflect on practice. We have not replicated this material about ITE in this paper but it has clear implications for the sort of support they need via the relationships they experience before, during and after practicum experiences.

Brouwer (2007), cited in Menter et al. (2010) suggests that "teacher educators model action research as a practice-embedded approach to professional inquiry" (p. 21).

Hedges and Gibbs (2005) used field experiences in family homes in the first year of an ECE programme in New Zealand as part of preparation for parent-teacher partnerships. Student teachers spent "12 days over 4 weeks (a total of 96 hours) participating in family life and young children's care and education" (p. 118). Their paper described the experiences of two student teachers and concludes that the family placement is one positive way of helping to develop collaborative partnerships between student teachers and parents. The student teachers valued the intense opportunity to be part of family life with preschool children.

White, Peter, Sims, Rockel, and Kumeroa (2016) describe practicum challenges of preparing student teachers in Australia and New Zealand institutions to learn to teach infants and toddlers. They found that not all student teachers did a practicum with this age group and seldom did so in the first year, as student teachers may not have the observational skills and ability required to engage with families. Where student teachers did undertake a practicum, the focus tended to be on establishing relationships.

Student teachers bring many preconceptions and ideas about teaching to ITE. Mentor teachers in particular can help foster dispositions for teaching and challenge accepted wisdoms in student teachers. They will be most successful working in concert with visiting lecturers. Visiting lecturers and mentor teachers will need to reconsider their roles to provide optimum support for student teachers. Providing student teachers with a variety of contexts can also foster important learning.

The visiting lecturer and the mentor teacher

In high quality practica mentor teacher (and visiting lecturer) professional learning opportunities fully prepare those involved for their roles. Every aspect of the ITE programme is integrated and there is not a sense of "theory" and "practice" being enacted separately in different institutions.

Gunn, Berg, Haigh, and Hill's (2016) research on ITE and teacher educators' academic work is part of an international study using Cultural Historical Activity Theory (CHAT) framing and analysis. Their analysis found a number of contradictions and tensions in the work of teacher educators. They identified three different teacher educator roles: a professional expert; a dually-qualified teacher educator; and a traditional academic-type teacher educator. They describe the demands on the dually-qualified teacher educator who must be certificated as a teacher (and therefore visit student teachers on practicum) and professionally accepted within the teaching community". In addition, as academics, they are expected to do research and report on it. Gunn et al. argue that, unless something is done about the divisions of labour:

of those who can research but not teach (in schools and early childhood settings) and those who can teach but not research, university-based ITE will do little to disrupt historical divisions between theory/

practice, research/teaching, and academic/professional, and the opportunity to expand teaching (be it in the university or in early childhood education or school settings) through research-informed and evidence-based practice will be lost. (p. 13)

Cohen et al. (2013) found seven sources of tension in the relationships within the practicum triad (student teacher, visiting lecturer and mentor teacher):⁹

1. Lack of time was an issue for mentor teachers and visiting lecturers. This resulted in poor co-ordination and superficial reflection which limited learning.
2. Power struggles and unequal status between student teachers and mentor teachers as well as with the visiting lecturer “hampered genuine sharing of ideas and cooperation” (p. 364).
3. There were different obligations, responsibilities and interests especially of the mentor teacher and the visiting lecturer which “in extreme cases led to alienation of the mentor teacher” (p. 365).
4. Mentors’ mentoring efficacy varied. When they lacked confidence, this inhibited student teachers’ teaching.
5. Disagreement between student teachers and mentor teachers could occur if the mentor could not integrate theory and practice, or because mentor teachers were seen to be too demanding.
6. Mentor teachers and visiting lecturers had dual and conflicting roles of support and guidance plus assessment and critique.
7. Individuals within the practicum triad had different educational perceptions.

According to Cohen et al. (2013) mentor teachers tended to focus on teaching (via an apprenticeship model) and visiting lecturers on the student teachers’ personal growth. This different focus was at odds with the stated goals of practicum and visiting lecturers understood this as limiting. Reflecting on what they had found, Cohen et al. proposed that school/tertiary relationships could take one of three approaches: the mentor teachers “functioned as proxies” (p. 371) for the ITE programme, including conducting the practicum as a research model; the ITE programme adapted to the school and inducted student teachers into realities of that school; the institutions jointly constructed the practicum “symmetrically”.

Broad and Tessaro (2010) described processes in Canada to strengthen mentor teachers’ professional knowledge through learning about giving improved feedback to student teachers, a process that also constructed student teachers as active knowledge-makers. Conversations that deconstructed lessons were video-taped to provide useful resources for ITE. The learning is not too dissimilar to that described in Anthony, et al. (2015) and Anthony and Kane (2008) which outlined strategies for thinking deeply about mathematical problems through approximations, rehearsals, coaching and mentoring.

Heck and Bacharach (2016) also reported on an institutional shift to co-teaching at St Cloud University in Minnesota. University staff prepared mentor teachers and student teachers together, bringing the pairs together before the practicum to get to know each other well, to understand their roles and responsibilities and to learn co-teaching strategies. Mentor teachers modelled and coached but student teachers were expected to plan and teach from day one. Indicators of success in adapting this model included: developing strong partnerships; providing preparation and training; defining methods (e.g., one teach, one observe; one teach, one assist; station teaching; parallel teaching; supplemental teaching; alternate or differential teaching; team teaching); allowing time for co-planning; and committing to co-teaching methodologies.

Wilson’s (2016) Master’s case study of ECE associate teachers within low socioeconomic communities led to a conceptual model of an “invited space” where “both the associate teacher and the student teacher

⁹ We have used accepted New Zealand terminology here and throughout for ease of reading.

negotiate a respectful and trusting relationship that allows them to share their identity, beliefs, values and practices, and to be prepared to move flexibly between the roles of teacher and learner” (p. i). The author wanted to know how “associate teachers can build engagement, cultural awareness and confidence for student teachers” (p. 13). She drew on concepts of *ako*, funds of knowledge and co-construction as scenarios of equal power-sharing and noted student teachers’ dispositions as potential barriers or enablers to cultural engagement. The creation of an invited space needs trust and respect, time (a longer practicum), working through expectations and tensions, for student teachers to take responsibility and use their initiative, establishing dual challenges (for student teacher and associate teacher new learning).

The studies just outlined show that mentor teachers and visiting lecturers are pivotal in providing rich learning experiences for student teachers. In the next sub-section we provide more detail about mentoring per se. This is an area of practicum that is widely regarded as needing more consideration, especially in terms of mentor PLD. We have not explored the literature on mentoring fully; the work cited below also tended to discuss other aspects of practicum.

Mentoring

In high quality practica mentor teacher (and visiting lecturer) professional learning opportunities fully prepare those involved for their roles.

In a reconceptualisation of ITE as learning community, mentoring is a “reciprocal learning relationship” (Le Cornu & Ewing, 2008) and peer mentoring is envisaged (Le Cornu, 2005). With this imperative in mind, we now turn to the quality of mentoring as an important aspect of successful learning community experiences for student teachers.

According to Ferrier-Kerr (2009):

In order for mentor teachers to ‘become reflective practitioners and facilitate reflective practice they must first re-examine their own beliefs and assumptions by examining their own learning and performance as teachers and associate teachers’. (p. 796)

Menter et al. (2010) cite six evaluation studies from the Netherlands where the authors found that mentor teachers needed PLD to “facilitate reflective learning” and to reduce the “practice shock” for student teachers that comes with “the realities of having *real students*” (p. 21, emphasis in the original). Cohen et al. (2013) identified issues for mentors whose priorities were different from the tertiary institution. Some refused to take part in PLD or to put in place requirements which resulted in limited opportunities for student teachers.

In ITE within a clinical practice model, a focus on articulating reasoning is seen as an important aspect of high quality mentoring (McLean Davies, 2017). This “visible thinking” happens when mentors:

- think out loud
- rehearse judgments with the pre-service teacher before a lesson episode
- ask the pre-service teacher to articulate their reasons for actions after a lesson episode (McLean Davies, 2017).

Le Cornu (2005) expands on the theme of collegial learning relationships in a paper that focuses on the student in the peer-mentoring partnership. Le Cornu considers that ITE programmes need to prioritise the development of “a mentoring attitude, interpersonal skills and critical reflection skills” (p. 359). A mentoring attitude is one where a student teacher values others’ learning as well as their own—an aspect of reciprocity. The interpersonal skills advocated would enable a student teacher to work with reciprocal

trust assertively with adults and students: showing empathy and understanding, and speaking and listening in ways that show student teachers value themselves and others.

According to Le Cornu, critical reflection and social justice go hand in hand. In a mentoring relationship, participants can challenge beliefs and attitudes. One potential avenue for building these critical personal skills for practicum is via peer mentoring which can begin in the tertiary environment.

Peer mentoring

Le Cornu (2005) describes peer mentoring at the University of South Australia. In the final practicum of the 4-year bachelor degree and the 18-month graduate programme, student teachers act as a peer mentor for at least one other, having weekly contact. Student teachers are expected to demonstrate the attitudinal, interpersonal and critical reflection skills explicitly taught and practised on campus. The aim is for student teachers to be able to actively participate in learning communities which are based on social justice and reciprocity.

Another Australian study (Walsh & Elmslie, 2005) also focused on pairing 100 student teachers in 48 ECE practicum sites. The researchers describe eight practices and two principles that affected the quality of peer relationships and hence indirectly the quality of the practicum. The practices were: preparation; briefing and debriefing; starting positively; creating a supportive learning environment; assessing students fairly; thinking laterally about ways that pairs could work together; ensuring adequate time for host (mentor) teachers; and considering the school/centre context. The authors suggest that replicating pairing of student teachers in other practica experiences would require attention to:

- student teachers starting together collaboratively, not competitively
- assessment practices (in this study student teachers were taught collaboratively but were assessed individually which caused friction)
- considering student teachers teaching smaller groups as “teaching”
- acknowledging that providing support for two student teachers is more work for the mentor teacher.

Principle 1 concerned the importance of student teacher compatibility and prior knowledge of each other. Principle 2 concerned the need to anticipate and affirm student teacher difference.

Desbiens et al. (2015) provided further evidence of pairing student teachers or “dyads” as a useful mechanism for improving the quality of student teacher experiences.

As the literature clearly indicates, mentoring arrangements, whether they be mentor teacher–student teacher or student teacher peer mentoring, need to be seen within their context. It is the whole school/centre that needs to support the student teacher. The following sub-section outlines research that focuses on the importance of whole school/centre support for the student teacher and the rearrangement of more traditional practica arrangements to expedite the support.

The learning community

In high quality practica the whole school or ECE setting takes responsibility for the practicum (not one mentor teacher in one classroom) and is a site of learning (a community of learning/practice) for all involved. Every aspect of the ITE programme is integrated and there is not a sense of “theory” and “practice” being enacted separately in different institutions.

Le Cornu and Ewing (2008) described how two Australian universities reconceptualised professional

experiences in learning communities. Their approach acknowledged benefits for student teacher and teacher development:

Where institutions value learning communities, student teachers have time and space structured into their professional experiences to engage in learning relationships with a range of colleagues, including their peers, mentors, other school-based colleagues and university liaison. (p. 1803)

“Reciprocal learning relationships are at the heart of our reconceptualised professional experience framework” (p. 1809). The authors framed professional experiences “around the notion of active teacher and student teacher agency in learning communities” (p. 1810). Communities of learning valued trust and reciprocity through professional conversations which were integral to ongoing professional learning. In such a community, student teachers were likely to be involved in sharing teaching and joint risk taking. Mentor teachers and visiting lecturers promoted “shared learning and joint construction” of what it means to teach (p. 1803). School–university links provided student teachers and mentor teachers with opportunities to learn together; student teachers were grouped in school sites where student teachers acted as peer mentors or critical friends to one another. In their final year, student teachers undertook a collaborative inquiry. Visiting lecturers developed “learning partnerships” where responsibility for student teachers was shared. Lecturers worked in a cluster of schools, not with one student teacher but with the school community.

The authors reported on the challenges of establishing a community of learning: timetabling, supporting school staff to move beyond “pseudo-community” (p. 1809) and philosophical differences between participants as well as power positioning.

One of the most fraught and complex aspects of practicum is the assessment of the student teacher, especially where it relates to a *final* practicum. Much of the more recent literature describes attempts to shift assessment away from more traditional university-dictated decision making to triadic assessment (visiting lecturer, mentor teacher and student teacher). In the next sub-section we identify some of the research findings about assessing or evaluating practicum.

Assessment is a shared endeavour

In high quality practica formative and summative assessment of student teachers is a negotiated, transparent and agreed process between the tertiary institution, the school/ECE setting and the student teacher.

Two New Zealand studies offer important insight into assessing student teachers on practicum. Aspden (2014) considers that “assessment decision making is a complex subjective act, that is determined through consideration of multiple evidence points, evaluated against both institutional criteria and the personal and professional expectations of the assessors” (p. 260). Authentic assessment requires good relationships between participants, knowledge of the context, alignment of the expectations of the task and greater responsibility for decision making on behalf of the associate teachers. The author challenged the concept of a single visit by the visiting lecturer and suggests that associate teachers’ roles need reconceptualising so that they can support valid and reliable assessment decision making.

Aspden’s doctorate study examined assessment in a range of ECE institutions and identified a need for more rigour and transparency in the complex assessment processes. Aspden acknowledges the challenge where members of the triad (mentor teachers, visiting lecturers and student teachers) do not share the same expectations. Assessment for student teachers is reported to be stressful but could be alleviated by involving student teachers in the assessment process early on. Teacher educators, deemed to be the “expert” by other members of the triad, also find the assessment process difficult and often strive for a

positive outcome for all involved. Associate teachers can feel compromised by being mentor and guide as well as evaluator. There is evidence that assessment is less problematic when productive relationships exist within the triad.

Aspden identified depth of positive and negative emotion as a significant theme of her research. Associate teachers identified positive relationships, identification of strengths and weaknesses, holistic assessments and shared expectations as characteristics of successful practicum assessments. She found that a difficult relationship between an associate teacher and a student teacher was the most frequently cited challenge in assessment for associate teachers. Student teachers rated not being valued in the decision making, uncertainty about assessment and a negative assessment as most common challenges. Most common challenges for teacher educators were associate teachers giving poor feedback and student teachers reacting negatively to an assessment. All members of the triad cited cultural or ethnic factors as most common with perceived issues of bias. There was also potential for inconsistent assessment outcomes and silencing of assessment participants (p. 211).

In a longitudinal study of final year practicum for third-year BEd student teachers at the University of Auckland, Haigh et al. (2013) focused on assessing student teachers' readiness to teach. The authors contend that practicum in New Zealand is problematic because there are tensions about the purposes of assessment, the part that context plays and different definitions of "good practice" (p. 4). Using a series of vignettes Haigh et al. found that assessors were as likely to choose personal as professional qualities in prioritising aspects to assess. (Dimensions were: learning as a teacher; personal qualities; relationships; knowledge and planning; enacting teaching and management; and assessment and use of evidence.) Their assessments varied considerably as did their decision-making strategies. Some of this was related to beliefs about what someone can learn once they are teaching or if a student teacher was seen to respond well to feedback.

Chick and Knight (2016, p. 14) at the New Zealand Graduate School of Education (NZGSE) submit that:

As well as observations and feedback, NZGSE tutors provide consultations with interns during practicum—sometimes in the schools but more typically after school back at the NZGSE Centre. These consultations are intern-driven and normally occur at their request. These are often deep learning conversations that are focused by the contextual reality of the current teaching practice.

Participants in teacher educator focus group in Morrison's (2016) study acknowledged changes in their own roles as stronger roles for school-based mentors were established. However, these changes were not without tensions. They considered that the assessment of student teachers was very dependent on the people making the judgements despite the need to assess student teachers against Australian Graduate Teacher Standards. Their own abilities to make sound assessment judgements were curtailed because in new partnership arrangements they were assigned little time and the main responsibility fell to mentor teachers. As in any part of the practicum experience, sound assessment of student teachers depended on the quality of relationships. Teacher educators:

felt frustrated that a partnerships approach to professional experience was being espoused in the written materials sent to educational settings but that they had little time in which to develop respectful relationships which they knew were essential for effective partnerships. (p. 119)

Caires and Almeida (2007) recommended that teacher educators better account for the impact of evaluation and assessment on student teachers and the contextual and personal factors that influence assessment.

Hascher et al. (2007) distinguished between "acting as a teacher" and "professional development" in practicum. They found that mentor teachers assessed student teachers much more positively than the student teachers rated themselves. They consider this could have a negative impact on student teachers'

development.

In Walsh and Elmslie's (2005) study of pairing ECE student teachers for practicum, assessment became a major consideration. Students worked and taught together but were assessed individually and this created tension for them and the mentor teachers. The study also alerted the university researchers to mentor teachers' ideas about assessment of student teachers and aversion to competitiveness and comparison.

Integrated assessment

A feature of clinical models of ITE is integrated assessment, where assessments are "authentically situated in practice and based on the collection and analysis of school data, rather than decontextualised, remote and contrived" (McLean Davies, 2017).

We found the following specific examples:

- The Defense of Learning approach, where teacher candidates must "use the inquiry cycle to inform their instruction throughout the semester, and then prepare and defend a presentation ... illustrating their impact on student achievement". This can include data, samples of student work, video and results of assessments. The "defense of learning" presentation is given to a panel of assessors including the mentor, other teachers, school administrators and university faculty (NCATE, 2010, p. 11).
- A "clinical praxis exam" where students must design a learning intervention, then report on how they used classroom data and research evidence to support a chosen student (McLean Davies et al., 2015).

Instructional rounds

Instructional rounds are based on medical rounds in a hospital setting where junior and senior doctors discuss cases at the patient bedside. In an education context the concept of an instructional round was developed by Elizabeth City and colleagues, to use observation to focus on improving practice. Some important features are that the focus is on the observers (rather than the observed) as learners, and a focus on instruction rather than supervision or evaluation (City, 2011).

The instructional round is a good fit with a clinical practice model of ITE. McLean Davies et al. (2015, p. 523) describe the "standard" (non-clinical) practice where a student teacher's lesson is observed and the feedback "quite often reveals more about the supervisor observing the lesson, in terms of their own pedagogical preferences, than the learning that is taking place in the classroom". An instructional round focuses on description, not judgement—what teachers are doing, saying, making and writing. In the Glasgow programme, they use "learning rounds" while students are on practica. University tutors, mentors and two other students observe a student teacher. They then discuss the implications for practice of the *observing peers*—without the student who has conducted the lesson. This emphasises the focus on observation rather than judgement (Conroy, Hulme, & Menter, 2013, cited in (McLean Davies et al., 2015, p. 524).

Our reading suggests that improved, shared and transparent assessment of student teachers, both formative and summative, is one area that could have significant impact on improving practica and student teachers' learning during and as a result of the experience. For many programmes, this would require negotiated changes of responsibility and shared understanding of the purpose of practica.

Structural arrangements optimise experiences

Student teachers need to have school/ECE experiences early in their programme.

Student teachers need to be taught how to approach early observation/immersion/relationship building in schools/ECE settings.

Fewer longer practica appear to be more useful than a series of short practica. Practica need to be long enough for genuine relationships to develop and be maintained.

There is some evidence that having a host school/ECE setting is important in terms of student teachers gaining a sense of “belonging” and “being”—both needed for their development. A contrasting experience in an additional different context also builds student teacher knowledge and skills. At least one setting must offer student/teacher diversity.

The practica need to be integrated with other courses. There is some research that identifies online programmes as ways to help with this integration.

We were asked specifically to identify any ITE practices that related to time and timing. There are at least two issues for a traditional sequential practicum—when to place the practicum (timing) and how long to make it (time). However, if the model is simultaneous, not sequential (as in field-based programmes), then different issues need to be considered.

Falkenberg and Smits (2010) identified three different approaches to practicum in Canada:

- Some programmes include a number of practicum blocks over the length of the programme, alternating coursework and practicum blocks, beginning with coursework.
- A number of current Canadian teacher education programmes alternate field experiences and course work as well, but they provide field experiences right from the start of the programme.
- Quite a different structure for the practicum-based field experiences is provided at the University of New Brunswick, where the practicum is ongoing during the whole length of the one-year BEd programme.

In Toronto, OISE has rearranged its support for student teachers on practicum under the auspices of dedicated practicum co-ordinators and the School-University Support Office. Student teachers on a graduate programme have a number of different supported practicum experiences: a transition visit to three different schools; pre-practicum experiences which are not evaluated; and preparation for practicum which includes workshops with school personnel. BEd student teachers’ final 5-week practicum is called an Internship:

The Internship is self-selecting and self-directed, providing each TC with an opportunity to complete the teacher education program with an experience that relates to their personal professional goals as a developing teacher in Ontario. Teacher Candidates are responsible for identifying their professional needs and interests, and for organizing an experience to meet these needs and interests. (Chudleigh & Gibson-Gates, cited in Falkenberg & Smits, 2010, p. 105)

In the same Canadian publication, Dillon and O’Connor (2010) concluded:

- there should be an early and extensive practicum
- practicums should generally be extensive in nature, be interspersed throughout and make up a substantial portion of an ITE programme
- practicums should be varied in nature and purpose
- practicums should eventually become more student teacher driven
- practicums must be linked with structured experiences in a programme (such as courses, seminars, online discussion groups, etc.) designed to foster student teachers’ reflection and analysis on those experiences.

Timing

Grudnoff and Williams (2010) identified that, whilst student teachers valued their practicum experiences highly, they did not always prepare them as well as they might have for teaching. The authors recommend a practicum that starts at the beginning of a school year (not just a school term) to reduce the acute stress experienced by beginning teachers in their first month of teaching.

Hirschhorn (2008) considered that in order to promote positive relationships between student teachers and the students they teach, and to improve outcomes for students, practicum should begin at the beginning of the school semester and continue throughout that semester—either as an internship or 1 or 2 days per week.

Falkenberg and Smits (2010) cite Russell (2005) who favours the “practice first, understanding later” approach because:

experience precedes understanding in learning to teach, and that it is the ‘authority of experience’ rather than the ‘authority of position’ of the teacher educator that has the greater power in addressing teacher candidates’ prior conception of teaching, developed through the ‘Apprenticeship of Observation’. (p. 6)

However, the two epistemological stances taken by Russell as well as the notion of teacher candidates’ readiness for theorizing based on the experience-first approach have to be seen in light of the arguments presented by Feiman-Nemser and Buchmann (1985). The authors discuss three “basic pitfalls of experience” arguing that caution has to be taken with the belief that “experience [is] as good a teacher of teachers as most people are inclined to think”. (p. 53)

The perspective adopted depends on what is seen to be the purpose of ITE (and practicum) and it is the determination of this (as discussed earlier in this review) that should guide timings of practicum.

Time

Wilson (2016) acknowledges the importance of time for building relationships:

One idea that foregrounds an effective way of familiarising student teachers with the disparities of teaching life experiences is for practica to be extended (Andersen & Stillman, 2013). As in the current study, an extension of time for the practicum has been identified as being positive for associate teachers, student teachers and families, since a big part of getting to know learners in the teaching environment is reliant on gaining their trust (Clarkin-Phillips & Carr, 2009). Clearly, time is one of the factors that builds trust. (p. 61)

The NZGSE (Chick & Knight, 2016, p. 14) practicum is for 6 or 7 full-time weeks of every school term. Student teachers (called interns) are placed with teachers but the teachers are not expected to be mentors. Tutors from the graduate school observe and assess the student teachers for between 10 and 20 lessons taught in each practicum. A primary student teacher will typically complete five periods of teaching practice or 33 weeks of full-time practicum. NZGSE considers the intensity of classroom experience coupled with ongoing support and critique prepares new graduates who principals consider are classroom-ready (pers. com.).

A Canadian action research initiative (Robinson & Walters, 2016) found that an extended practicum that included a pre-practicum component aided in the development of collegial personal and professional relationships between mentor teachers and student teachers and that concerns about evaluation and judgement were allayed. Student teachers spent the 10 weeks before the practicum building relationships and discussing teaching. The student teachers became familiar with the students they would teach and acclimatised to the culture of the school.

Opportunities for understanding diversity

The Council regulations for programme approval have an expectation that all student teachers will experience practica where children/students come from diverse backgrounds. The literature concurs with the importance of this experience in preparing teachers for the students they are likely to teach. Interestingly, the three studies we reviewed are in ECE settings.

Wilson's (2016) study of centres in low socioeconomic communities found that, where student teachers were not actively involving themselves in the routines of the centre and communicating with the rest of the teaching team, the children, and whānau right from the beginning, the time to grow connections slipped away. She cites Aspden (2014) who found that establishing relationships was critical to assimilating into a new community context. Wilson concluded that teachers and student teachers who addressed some of the tensions and expectations during the teaching practicum were likely to experience a more successful outcome.

Atilas, Jones, and Kim (2012) study concluded that placing ECE student teachers in an inclusive classroom improved the student teachers' self-efficacy in working with children with developmental delays or disabilities. "Classrooms with higher ratios of children with developmental delays or disabilities seem to provide more opportunities for teacher candidates to develop a stronger sense of efficacy" (p. 75). Central to the placement experience was a mentor teacher who modelled effective practice. The authors considered that this modelling should be paired with reflective practices which integrate student teachers' course work and the individual needs of diverse learners.

Lim, Maxwell, Able-Boone, and Zimmer (2009) reviewed 416 ECE bachelor degree programmes for cultural and linguistic diversity. They found that "including components of diversity in both course work and field experiences are promising strategies to address the challenges of preparing teachers to work with children and families from diverse backgrounds" (p. 65). Placing student teachers in communities unlike their own is effective in helping student teachers "see their own biases and values and attain more complex understanding of children and families from diverse backgrounds" (p. 65). The authors found that having a "Non-White Faculty" member was "positively associated with coursework on cultural diversity" (p. 72). They also found that only where programmes were located in diverse communities were they likely to provide coursework and practice on diversity.

At the University of Alberta teacher educators established a "Diversity Institute" to help prepare student teachers to better teach diverse students but found that, with time constraints, student teachers did not tend to change their identities in relation to others (Carson, 2008, p. 70):

With the exception of two professional terms, University of Alberta program is structured around a regimen of traditional fourteen-week courses in subject area disciplines as well as a few courses in the educational sciences (mainly educational psychology). The majority of the educational sciences courses—policy studies, curriculum, evaluation, etc.—are taken during the two professional terms. The 'professional terms' are so designated, because they contain field experience components: five weeks in the Introductory Professional Term (IPT), and nine weeks in the Advanced Professional Term (APT). Within this limited space allowed by the time of teaching in the program, the one full day and three half-day workshops, which constitute the Diversity Institute were inserted into the five weeks allowed for campus-based courses during the APT. In our first year of the Diversity Institute, in 2005, we ambitiously included workshops on racial, cultural, ethnic, religious, linguistic, sexual, and gender diversities... Contrary to our wishes that student teachers might come to understand their identities in relationship with the other, most continued to objectify diversity as being the property of others.

Section 5:

What features of good theory and practice integration within other parts of the ITE programme have a positive impact on outcomes for student teachers?

Our reading of the literature indicates that notions of theory and practice integration are pivotal to any discussion about practicum and as such warrant a separate chapter. Russell and McPherson (2001) see the structural divide between theory and practice as being a barrier to collaboration and to student teachers being supported to integrate theory into practice. Reid (2011) also signals the danger in this separation of theory and practice and the need for teacher educators to “highlight the connections across the gap” (p. 307).

In this section we have located articles that deal specifically with how theory and practice work in concert. They look at the tertiary input of ITE in relation to practice/practicum advocating for a seamless integration of both. Falkenberg and Smits (2010) considers the conceptualisation of a theory-practice divide to be unhelpful—in the university, student teachers experience teaching and the practice of teaching as they do in the school setting. Table 3 summarises the key ideas that follow.

TABLE 3 Features of theory and practice integration

- Notions of a theory-practice divide are unhelpful; reconceptualising learning in ITE can help overcome barriers and integrate learning.
- Creation of a “third” or “hybrid” space can help redefine responsibilities (e.g., of the school/ECE setting and the tertiary institution). The clinical practice model does this, as can embedded or sustained practica.
- Student teachers, mentor teachers and teacher educators need to be specifically taught ways of seeing, thinking and being—in the school/ECE setting and the tertiary institution. This includes deconstructing and talking about teaching and learning.
- Strategies that help student teachers learn to teach and to become a teacher (rehearsing, modelling, coaching, micro-teaching, think alouds, reflection, inquiry, representation, decomposition and approximation).
- Online learning platforms and shared portfolios can help with integration and a shared understanding of purpose and of assessment of the student teacher.

Reconceptualising theory/practice

Notions of a theory-practice divide are unhelpful; reconceptualising learning in ITE can help overcome barriers and integrate learning. Creation of a “third” or “hybrid” space can help redefine responsibilities (e.g., of the school/ECE setting and the tertiary institution). The clinical practice model does this, as can embedded or sustained practica.

Reid (2011) argues for a re-focusing of the study of teaching. She calls this “the practice turn” but cautions that this could be seen as a reverting to practices of the 1970s (practice lessons, micro-teaching). Drawing on contemporary social practice theory she suggests that teacher educators need to “disrupt the taken-for-granted idea that teaching is ‘natural’, something that novice teachers already know how to do, or only need to observe, mimic, or understand in the abstract in order to develop the skills that allow the achievement of *praxis*” (p. 304, emphasis in original). On practicum, student teachers *perform* without having had enough opportunity to *practice* (i.e., building up skills over time “with direct teaching and coaching to improve their performance”) (p. 305). At Charles Sturt University teacher educators have been deconstructing core practices and student teachers have been modelling, rehearsing and approximating with expert mentoring.

Ord and Nuttall (2016) also call for a reconceptualisation of theory/practice suggesting that embracing the concept of *embodiment* is one effective way to support student teachers to transcend theory/practice issues. They draw on Reid’s notions of the practice turn to argue that what is often described as “practice” is in fact the felt experience of becoming knowledgeable, of grasping “important concepts through their enactment in the messier, more complex reality of practice settings” (p. 359). The authors contend that teacher educators should pay attention to how “the body *feels* during the experience of learning to teach” (p. 361, emphasis in original). In the school/centre setting, student teachers should closely observe their mentor teachers and talk to them about “how they negotiate space, time, resources, concepts and feelings in the ‘real time’ of classroom practice” (p. 361).

Klein, Taylor, Onor, Strom, and Abrams (2013) describe an urban-based teacher residency as creating a “third space”. They cite Zeichner (2005) who refers to a “hybrid space” (p. 51). In this space roles and responsibilities are redefined and the teacher education knowledge base is restructured. The authors contend that, following a clinical practice model, coursework is “integrated with extensive, guided practical experience in urban classrooms” (p. 32). Mentor teachers are seen as teacher educators: they take part in research and participate in workshops alongside student teachers. There is whole education community involvement in the residency which is seen alongside the transformation of schools.

The authors document a number of challenges in the new model: lack of nimbleness within universities (e.g., regulations stifling innovation); reliance on the support of individuals; sustainability (with costs being a factor); lack of appropriate tools and resources; recruitment of student teachers and mentor teachers; and resistance to the shift to an inquiry base for teacher education. Klein et al. (2013) conclude that adopting this approach is critical for real changes to ITE to be enacted, but it is a radical shift and requires participants to create, think and act in new ways.

Integrating theory and practice

Student teachers, mentor teachers and teacher educators need to be specifically taught ways of seeing, thinking and being—in the school/ECE setting and the tertiary institution. This includes deconstructing and talking about teaching and learning.

Strategies that help student teachers learn to teach and to become a teacher (rehearsing, modelling, coaching, micro-teaching, think alouds, reflection, inquiry, representation, decomposition and approximation).

Anthony et al.'s (2015) TLRI study concerns ITE curriculum reform and the relational aspects of teaching where teacher educators and student teachers explored new activities and pedagogies that would enable student teachers to engage with authentic problems of practice. They wanted to know how student teachers would learn and then apply new learnings through practice-based inquiry. The researchers drew on Grossman et al.'s (2009) core practices (those that are understood to support high quality student learning) and on the recent discussion papers (Aitken et al., 2013) and Timperley (2013) that argue for ITE being re-framed in New Zealand to develop adaptive expertise in prospective teachers.

One key aspect of the new approach was to “experiment with modelling and coaching during rehearsal” (Anthony et al., 2015, p. 9). This involved stopping and starting university sessions to ask questions and to think aloud at particular decision-making points. Teacher educators modelled the process and then student teachers practised. The process helped student teachers to develop understanding of students’ mathematical thinking and supported student teachers to learn about culturally responsive teaching.

A Canadian case study, Goodnough, Falkenberg, and MacDonald (2016), describes four components of a programme that attempts to foster strong theory-practice relationships: the embedded practicum; the teaching and learning seminar; assessment and pedagogical approaches in courses; student teacher reflection and inquiry. Student teachers begin with a 2-week orientation practicum then undertake a series of days in school/days at the university. This allows for “gradual enculturation to the teaching profession” (p. 22). The topics for the seminar are negotiated with the mentor teachers and become the focus for the day in schools experience. Ongoing issues identified were the need for a shared vision and taking account of needs of student teachers as they develop.

G. Wilson and Anson (2006) argue for a re-examination of Schon’s understanding of reflection and advocate for the use of micro-teaching outside of the school practicum setting to “enable the exploration of theory in and through practice” (p. 356). Under the guidance of the university staff, the student teachers teach small groups of students drawn from local schools. The student teachers work in pairs with one teaching and the other video-recording the lesson. Micro-teaching is seen to fulfil a useful preliminary space between university and school practice.

Section 5: What features of good theory and practice integration within other parts of the ITE programme have a positive impact on outcomes for student teachers?

Online learning platforms and shared portfolios can help with integration and a shared understanding of purpose and of assessment of the student teacher.

Rideout, Bruinsma, Hull, and Modayil (2007) describe the effect of an online learning management system in developing a community of learners during final practicum. They found that the strongest sense of community was established where the community involved student teachers only and did not include university staff. One reason for this may have been the student teachers' greater facility with the online environment. Because there were also bi-weekly face-to-face meetings with university staff, the online system may have been redundant for assessment purposes.

Simpson (2006) examined field experience in distance education programmes, commenting that the literature is sparse. She raises issues of finding quality placements in widely spread geographical locations and ensuring high quality supervision of the practicum. Expense is a major inhibitor. Simpson discusses the use of computer mediated communication as one way of providing links between the mentor teacher, the student teacher and the teacher educator.

Grossman et al. (2009) identified common pedagogies of practice in a comparative study of clergy, teaching and clinical psychology. Their focus was on teaching practice in university courses rather than practica experiences. They showed how principles of representation, decomposition and approximation underlay a number of common pedagogies in these professional areas (e.g., use of role plays, video and case analysis). They suggest that what students learn in the university setting differs from what they learn in the field, but that this "inauthenticity has its own advantages" such as students being able to "hone their skills in a single element ... before they have to manage all the competing demands and conditions of uncertainty in actual practice" (p. 2092).

The NCATE report on transforming teacher education through clinical practice also highlighted how education could learn from medical models in integrating theory and practice:

Clinically based education programs can take some lessons in integrating laboratory experiences, embedded clinical learning and course work from medical preparation. In some programs, medical students follow a cohort of patients from the day they enter medical education to the day they complete their training. (NCATE, 2010, p. 10)

They suggest that ITE could work with virtual students, classrooms and whole schools—analysing problems, trying out solutions and getting feedback (NCATE, 2010, p. 19).

Section 6:

Practica in other professions

Other professions face the same challenges of how best to prepare people, how to connect theory with practice and maximise the practice-based learning opportunities.

Three ideas to consider for ITE practice are: signature pedagogies; providing the depth and breadth of experience to enable legitimate participation in clinical practice; and vocational thresholds where learners experience significant new learning.

Our literature scan focused on ITE but also searched for research about practica in other professions (e.g., medicine, nursing, psychology or social work). We wanted to look “through the lenses of the parallel problems and challenges of preparing people for other professions” (Shulman, 2005, p. 2). We were particularly interested in professions that Grossman et al. (2009, p. 2058) describe as involving “complex practice under conditions of uncertainty”.

The search did not generate much of direct relevance to the focus of this review—high quality practica. (The appropriation of a medical metaphor and use of practices drawing on medical education have been discussed already.)

We conclude that other professions face the same challenges of how best to prepare people, how to connect theory with practice and maximise the practice-based learning opportunities. For example, Ralph, Walker, and Wimmer (2009) surveyed engineering, teaching and nursing students’ views on the most positive and negative aspects of internship/practicum. A similar set of strengths and weaknesses were identified. Positive aspects of practica were gaining real-world professional practice, applying theory, developing and refining one’s own professional competence and self-confidence and beginning the process of being socialised into the culture of the profession. Negative aspects were inadequate mentoring, being assigned trivial or irrelevant tasks, a disjuncture between coursework and field-based experiences and problems with administration or organisation of the practicum.

We summarise three ideas from the literature on practica in other professions (including cross-professional comparisons that include teaching) that we think are useful for considering ITE.

We begin with Shulman’s (2005) discussion of “*signature pedagogies*”. These are pedagogies that are “a mode of teaching that has become inextricably identified with preparing people for a particular profession” (n.p.). The examples Shulman discusses are clinical rounds in medicine, and case analysis

in law. To be a signature pedagogy, Shulman argues a pedagogy must be distinctive, pervasive within the curriculum (from course to course) and pervasive across the pedagogy of the entire profession (in different institutions, as elements of instruction and socialisation). Shulman suggests that it is very difficult to find the signature pedagogies of teacher education, because of the variability in teacher education programmes, and students' experiences of practica. He proposes the need for a "suite of signature pedagogies that are routine, that teach people to think like, act like and be like an educator" (n.p.). Shulman's work in this area is around developing rich cases of practice.

Next we consider the balance of *depth and breadth* in professional education to afford students more *legitimate participation in clinical practice*. A qualitative study by Chen, Sheu, O'Sullivan, ten Cate, and Teherani (2014) involved first- and second-year medical students who volunteered at student-run clinics. They were exposed to patients with a limited range of anticipated diagnoses, where guidelines and protocols from which to work were available. Chen et al. conclude that students can have more "rapid early and legitimate participation in the workplace" (p. 144) by achieving depth in a narrow clinical area and then building breadth over time. This is the opposite of the standard medical education model, but Chen et al. report that two medical schools have followed this strategy. The breadth and depth aspect of ITE is out of scope for this review, but we include this study here as a reminder that this also impacts on practica.

Finally, we considered the concept of "*vocational thresholds*" (Vaughan et al., 2015b) developed from a study of apprenticeship learning experiences for General Practitioner registrars, carpentry apprentices and engineering technician cadets in New Zealand. Vaughan, Bonne, and Eyre (2015a) "developed the idea of vocational thresholds to frame the significant shifts for learner-practitioners that are ontological (about their way of being), as well as epistemological (about what, and how, they know things)" (p. 61). They built on the idea of threshold concepts (Meyer and Land, 2003, cited in Vaughan et al. (2015b)) that are concepts within a discipline that are significant for student learning.

Vocational thresholds "involve transformational learning experiences, sometimes troublesome of existing beliefs and knowledge, that open up a new set of space in which people can not only know, and do, but 'be' as practitioners" (Vaughan et al., 2015a, p. 61). They transform the way someone is as a practitioner and arise out of authentic practice. Vaughan et al. argue that "once someone has crossed a vocational threshold they see their work and its purpose in a new light. They are likely to move to a new level of capability and vocational identity that integrates what they know, what they can do, and *how they are as practitioners*" (Vaughan et al., 2015b, p. 1). While threshold experiences are personal to each individual, systemic learning arrangements—such as practica in an ITE context—"offer an important means for shifting especially meaningful experiences into a vocational threshold zone" (Vaughan et al., 2015b, p. 5). They identify three characteristic in these learning arrangements:

1. recognition and cultivation of a practice landscape where practitioners engage in a range of authentic relationships, and are inducted into a community
2. opportunities to practise and reflect through activities with real meaning, real consequences, real challenges and rewards, and space for critical reflection
3. people in designated support roles (i.e., mentors) who "focus on development of independent work and judgement through practice ... [and draw] learner-practitioners into a 'community of practice' where they [can] *inhabit the practice landscape*" (Vaughan et al., 2015b, p. 6, emphasis in original).

These are all things we have highlighted as features of high quality practica.

Section 7:

Examples of high quality programmes

A number of programmes have been identified in the research literature as providing high quality practical experiences for student teachers. The New Zealand Masters' exemplary programmes appear to draw on these programmes. Levine (2006) defines exemplary as the way they "integrate and balance academic and clinical instruction", where "field experience is sustained, begins early and provides immediate application and connection of theory to real classroom situations" and "there is a close connection between the teacher education programme and the schools in which the teachers teach, including ongoing collaboration between academic and clinical faculties" (Levine, 2006, p. 81).

Darling Hammond, cited in Dillon and O'Connor (2010), reviewed seven programmes in the US that she considered had the features necessary for successful ITE. These programmes all had a clear vision, and in relation to practicum they addressed the problems of student teachers' prior knowledge, their need to learn to *act* like a teacher and their preparation for the complexity of teaching. They also had:

- coherence and integration among university courses and between coursework and clinical work in schools
 - pedagogies were used that confronted the problems of teaching and that fostered reflection on teaching (e.g., logs/journals, research inquiries, autobiography and self-reflection, etc.)
 - the programmes integrated the traditionally separate roles of instructor, supervisor and mentor teachers through overlapping and sharing of responsibilities
 - student learning occurred in a small-scale professional community.
- practicum experiences that were strongly supervised and extensive (from 9 to 15 weeks at a time) in carefully chosen schools whose ethos echoed that of the university and whose student population was diverse
- close partnerships between schools and universities that built communities of learning and where traditional roles of visiting lecturer, mentor teacher and student teacher were disrupted and there was school renewal as well as high quality learning for student teachers.

Dillon and O'Connor (2010) cite Beck and Kosnik's (2006) review of Australian and Canadian exemplary programmes which found:

- that these programs strongly integrate their campus program and practica through several key strategies:
 - practicum experiences are spread across the entire program

- the programs not only carefully select mentor teachers, but also provide ongoing professional support for them
- relationships with schools are based on the notion of school partnerships and students are placed in schools in clusters
- the programs involve the same staff members both on campus and in the practicum schools
- students work in relatively small groups. That is, either programs are small or smaller subgroups are created within larger programs
- assignments, meetings, etc. are designed to link campus learning and school experience through an inquiry approach to learning in community. (p. 130)

The table below sets out some of the defining features of programmes deemed to be providing student teachers with high quality experiences. We have emphasised the practica aspects. Note that many of the programmes also provide strong PLD opportunities for school-based mentors and other teachers.

TABLE 4 Examples of high quality programmes

Programme, country and citation	High quality features
Master's Exemplary Programme New Zealand (Jenkins, 2016)	School-based experiences are a cornerstone of the Master's programmes: offering practical teaching experience, exposing student teachers to diverse learning contexts and providing them with the professional knowledge base required to develop adaptive expertise. The programmes have extended practicums with a focus on integrating theory and practice, and inquiry-based learning.
Oxford Internship Scheme England (Burn & Mutton, 2015)	<ul style="list-style-type: none"> • Partnership expressed in joint planning of the programme. • A single coherent programme, with explicit relationships and short time intervals between connected elements in the different contexts. • Carefully graduated learning tasks intended to permit rational analysis. • Explicit encouragement for interns to use ideas from diverse sources. • Explicit assertion by both partners that consensus is not expected. • Emphasis on testing all ideas against the different criteria valued in each context (p. 220). • Divide each week between school and university for several months then do sustained practicum. • Teaching is a process of hypothesis testing, requiring interpretation and judgement in action, not the routinised application of learning repertoires. • Importance of inquiry stance.

Programme, country and citation	High quality features
Professional Development Schools US NAPDS website	Professional Development Schools (PDS) sites are where research can be carried out collaboratively by teachers, teacher educators and researchers. Schools become sites for research. There are nine required essentials of a PDS: <ul style="list-style-type: none"> • A comprehensive mission that is broader in its outreach and scope than the mission of any partner and that furthers the education profession and its responsibility to advance equity within schools and, by potential extension, the broader community; • A school–university culture committed to the preparation of future educators that embraces their active engagement in the school community; • Ongoing and reciprocal professional development for all participants guided by need; • A shared commitment to innovative and reflective practice by all participants; • Engagement in and public sharing of the results of deliberate investigations of practice by respective participants; • An articulation agreement developed by the respective participants delineating the roles and responsibilities of all involved; • A structure that allows all participants a forum for ongoing governance, reflection, and collaboration; • Work by college/university faculty and P–12 faculty in formal roles across institutional settings; and • Dedicated and shared resources and formal rewards and recognition structures (p. 9).
The Boston Teacher Residency US (NCATE, 2010)	<ul style="list-style-type: none"> • (The Boston Teacher Residency (BTR)) programme, a partnership between the University of Massachusetts Boston, the Boston Public Schools, and the Boston Plan for Excellence, places teacher “residents” under the guidance of an experienced mentor teacher in a local school. • For a year, residents take on increasing responsibility in the school while taking graduate-level coursework and attending seminars and earning a salary. • The programme culminates in an MA in Teaching and an entry-level teaching licence. • More than eight in 10 (84 percent) teachers in the programme stay in Boston Public Schools after 3 years, compared to the national average for urban school districts, which is 50 percent. Virtually all (96 percent) principals surveyed in Boston Public Schools would recommend hiring a BTR teacher.

Programme, country and citation	High quality features
INTIME US (NCATE, 2010)	<p>Integrating New Technologies Into the Methods of Education (INTIME) helps prospective teachers acquire crucial skills by observing online and video demonstrations, analysing case studies representing both exemplary practice and common dilemmas and participating in peer- and micro-teaching.</p> <p>Emporia State University (ESU)</p> <ul style="list-style-type: none"> • There are three critical elements—the curriculum, the clinical programme and partnerships—that make the programme work. Block II and III courses are 100 percent field-based, held on-site at PDS. The PDS, a union between a university and a school, is modelled after the teaching hospital. • For the school district, participation brings professional development for teachers, chances to train and hire successful interns, access to expertise from university faculty and an additional person in the classroom to work with students. The university benefits because its teacher education programme is rooted in the schools, the clinical and academic curriculums are integrated, students receive better preparation for the classroom and faculty are intimately involved in the schools, which is far from the norm. • All elementary teacher education students are required to spend their senior year as an intern in a PDS. During their first semester in the PDS they spend 2 full days and 3 half-days each week in the classroom, and the remainder of their time taking site-based methods courses. As the semester progresses, students spend more and more time at the PDS. • Together, teachers and professors built the programme, defining what teachers needed to know and the mechanisms for assessing their competence in those areas. Both the school district and ESU invest time, resources and human capital to make this initiative work.
Baylor University US (NCATE, 2010)	<ul style="list-style-type: none"> • Baylor University has worked closely with the Waco Independent School District to establish a partnership programme that provides an intensive clinical experience for prospective teachers in an urban setting. • The partnership has a highly developed governance structure, which includes a jointly managed co-ordinating council responsible for practical planning and implementation of the partnership and an oversight council responsible for providing broad policy and operational leadership for the partnership. • The shared funding strategy requires that the university and the school district provide equal financial and human resource support.

Programme, country and citation	High quality features
<p>Teachers for a New Era (Carnegie Corporation of New York, 2006)</p>	<ul style="list-style-type: none"> • Teachers for a New Era (TNE) is a landmark initiative designed to strengthen K–12 teaching by developing excellent teacher education programmes. The initiative establishes three guiding principles as critical in the redesign of programmes that prepare teachers: Decisions Driven by Evidence; Engagement with the Arts and Sciences; and Teaching as an Academically Taught Clinical Practice Profession. • The Stanford Teacher Education Program (STEP) is working to improve teacher preparation and K–12 pupil learning through professional development school relationships with Partner Schools and through programme and curriculum reforms across the university. • STEP cultivates teacher leaders who share a set of core values that includes a commitment to social justice, an understanding of the strengths and needs of a diverse student population and a dedication to equity and academic excellence for all students. The programme takes an approach to teaching and learning that is sensitive to the family, community and political contexts of education, focused on the needs and development of diverse learners and grounded in the study of subject matter that enables inquiry, critical thinking and high student achievement.
<p>Alverno College 4-year undergraduate programme (Levine, 2006)</p>	<ul style="list-style-type: none"> • The teacher education programme relies on extensive field work. Prior to student teaching, Alverno students complete a minimum of 100 hours of field work divided into four different experiences, one taken each semester of the sophomore and junior years. The final field experience takes place in an urban school and students are required to teach eight lessons. In this fourth field experience, Alverno undergraduates assess their students before and after they teach in order to gauge how much of a difference they have made. • After the fourth field experience, and prior to student teaching, the Alverno students must assemble a portfolio (including a video record of their teaching performance) that is evaluated by the student, the faculty and external assessors including local principals, assistant superintendents, alumni and other educators with whom the college has relationships. • Student teaching, which follows, involves two 9-week placements in at least one urban school. Students are expected to manage the classroom for 5 weeks during each placement. As in the earlier field work, they keep logs, engage in self-assessment, produce lesson plans and participate in a weekly seminar.
<p>The Curry School University of Virginia 5-year programme (Levine, 2006)</p>	<ul style="list-style-type: none"> • By the time Curry students complete the fourth year of the programme, they have had as many as six field experiences and up to 90 hours in the field. In their final year, fifth-year students, who are now working on a Master’s degree, spend the fall term student teaching full-time in order to see how a teacher sets up a classroom and establishes expectations at the beginning of the school year. • They spend the second semester taking a capstone course on issues in education and working on a research project based on a classroom problem or issue identified during the fall with the aid of a clinical instructor and their university supervisor. • Curry places students in a variety of P–12 schools in the region. Its focus is on choosing classroom teachers who model good teaching, rather than working with a particular school. Teachers apply to the education school to be clinical instructors (co-operating teachers) for Curry students and their applications are carefully reviewed.

Programme, country and citation	High quality features
Melbourne Master of Teaching Australia McLean Davies et al. (2013) Burn and Mutton (2015)	<ul style="list-style-type: none"> • Pre-service teachers are immersed into classrooms in partner schools and supported by a network of school experts (teaching fellows) and university-based experts (clinical specialist situated in school part-time to provide feedback to student teachers and to work with mentor teachers) to develop skills of clinical reasoning (Burn & Mutton, p. 222). • Schools and centres are arranged in local partnership groups (called networks in the early childhood stream). Each of these groups/networks incorporates six to eight different institutions or centres. In the secondary and primary streams, one of the institutions in the group is nominated as the “base” school. In the early childhood/early years stream, centres are grouped within local government municipality networks. • The university provides funding for one staff member at this school/centre, called a teaching fellow, to be released from 50 percent of their regular duties to work across the partnership group/network with Master of Teaching candidates and mentor [supervising] teachers for the placement days each week, to ensure the coherent and consistent delivery of the placement. • The teaching fellow has a variety of roles, central to which is initiating discussion and reflection with teacher candidates in relation to their developing ability to use data to identify and address the learning needs of individual students, as well as developing an understanding of interventionist practice.
The Queensland University of Technology’s School Community Integrated Learning pathway Australia Teacher Education Ministerial Advisory Group (2014)	<ul style="list-style-type: none"> • The Queensland University of Technology’s School Community Integrated Learning pathway is offered to final-year Bachelor of Education (Primary) pre-service teachers. • Participants volunteer at a school one day per week during each semester and three days per week during university break. This leads into the formal 4-week professional experience placement and continues throughout the year. • By spending dedicated time in a focus classroom, which becomes their class during the placement, pre-service teachers have the opportunity to be involved in the development of students over an extended period of time. • Participating pre-service teachers also experience being a part of a school community by joining in extra-curricular activities such as sports days, fetes, meetings and professional learning days.
The Down South initiative Australia Teacher Education Ministerial Advisory Group (2014)	<ul style="list-style-type: none"> • The Down South initiative established by the Canberra campus of the Australian Catholic University immerses pre-service secondary teachers in schools. • The partnership brings together university academics, school staff, pre-service teachers and secondary school students to create a dynamic community of practice for professional experience, teaching, learning and research. • The pre-service teachers are given opportunities to engage in authentic learning experiences that reflect the reality of the everyday classroom across a range of school settings (p. 31).

Programme, country and citation	High quality features
National Institute of Education Singapore (Morris & Paterson, 2013, p. 5)	<ul style="list-style-type: none"> • National Institute of Education (NIE) focuses on the application of theory to the classroom and student learning. • Trainee teachers have 22–24 weeks of practicum in schools. Practicum time is important but so is quality. The trainee teacher’s NIE supervisor works with the school and the trainee teacher is assessed by the NIE supervisor and the school. There is good gate-keeping in place—students are failed if they don’t meet the standards. • The school in which a trainee teacher is posted to during their training is the same school they spend their first 2 years teaching, providing a continuation of the support structure for a beginner teacher. • Every test and assignment must have a school-based application. There are no theoretical assignments.
Finland (Morris & Paterson, 2013, p. 37)	<ul style="list-style-type: none"> • The eight universities that offer teacher training each own one or two schools that function as normal schools but specialise in training teachers, similar to New Zealand’s old system of attaching “normal” schools to training colleges. • The success of Finland’s education system can be partly attributed to the amount of time trainee teachers spend in practical training and the quality of this training. • In addition, 90 to 95 percent of faculty of education staff (at the University of Helsinki at least) have teaching backgrounds in addition to research training (PhD), meaning they have practical and rich school experiences to teach from. • In Helsinki, training happens in four distinct phases, with trainee teachers given increasing amounts of independence. In the first session at the beginning of the school year, trainees spend a week observing teaching, almost like an ethnography, reflecting on their observations in small groups. In the second session, basic practice, they do supervised lessons and learn how to teach specific content. In the third session, field practice, trainee teachers are sent to municipal schools contracted to supervise students for 3 weeks. The fourth and final session, advanced practice, is back in the training school attached to the university.

In conclusion

The literature review has revealed many similarities in the suggestions for ongoing improvement of practica and practice in ITE. High quality programmes have all of the characteristics identified in the research and in exemplary programmes summarised in the above table. As a result of our reading we have concluded that there is no point in tinkering with practicum arrangements if fundamental ideas about ITE are not addressed. This will require collaboration of all parties involved in the preparation of new teachers and shared acceptance of responsibility.

Appendix 1:

Recommendations for practicum

C. Wilson (2016, pp. 88–90)

Recommendations for associate teachers

1: Articulate practice

- Be specific and share the reasons why you practise in the way you do in your setting and space.
- Ensure your thoughts around teaching and learning are transparent.
- Be open to discussing the ways in which you communicate and interact within your learning community.
- Ensure you are clear in articulating your practice throughout many different learning and teaching situations.

2: Identify and focus on specific dispositions and practices

- Create an open climate, and a willingness to listen to others.
- Adopt a flexible mind-set within your role and practice to allow for diverse ideas and new generational thinking around teaching and learning.
- Support a climate where there is a constant interchange of roles from teacher to learner and vice versa.

3: Accept and set challenges

- Be prepared to step out of your comfort zone.
- Consider new and diverse ways of working.
- Encourage clear communication and articulation of practice from student teachers.
- Make your expectations clear.

Recommendations for student teachers

- 1: Develop trust and respect
 - Be prepared for and be aware of encountering unfamiliar teaching/learning environments on practicum and the need to respond appropriately.
 - Go to the practicum with an open mind and the knowledge that every place or space has their own specific and particular uniqueness around the ways in which they operate.
 - Remain humble and non-judgemental before and during the practicum.
 - Discuss concerns, challenges and thoughts with your associate teacher first before you act.
- 2: Show responsibility and initiative
 - Make the initial contact with associate teachers.
 - Find out information about the setting and ask questions, on the first contact visit, around the philosophy and practices of the setting.
 - Find out what the expectations are from the associate teacher.
 - Be clear in your expectations of the associate teacher.
 - Listen and watch first, then ask questions.
 - Be professional and constructive with offering and challenging new ideas.
 - Communicate your ideas and thoughts clearly.
- 3: Develop awareness of your own identity
 - Understand who you are, where you come from and know your own perspectives/ideas around teaching and learning.
 - Be open to understanding and looking at other perspectives on cultural and professional identity.
 - Try to relate and communicate with others without compromising your own identity or that of others.

Recommendations for Initial Teacher Education providers

- 1: Address issues related to time
 - Extend the time allocated for teaching practicum experiences.
 - Consider implementing time management strategies into the programme to prepare student teachers for practicum.
 - Communicate clearly with associate teachers around expectations of time and workload for the practicum.
- 2: Increase focus on dispositional training
 - Consider implementing more curriculum structure around communication and how student teachers can be assertive during practicum.
 - Consider implementing more curriculum content around the soft knowledge aspects of the teaching practice (e.g., being flexible or being open; consider what these look like in practice).
 - Consider implementing curriculum content that explores the complex nature of networking, making cohesive connections and working within a team whilst on practicum.

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