

School Centres for Teaching Excellence

Literature Review

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Executive summary

This literature review has drawn on published descriptions and analysis of comprehensive pre-service training models that have a systemic application.

The objectives of the review have been to identify existing local and international models of pre-service teacher training practice that contribute to a better understanding of how 'school centres for teaching excellence' might operate and where possible to provide a description of:

- the design features of these models and any key criteria that apply
- the evidence of their success (or otherwise)
- the characteristics of successful models
- the role of schools, Departments, universities in the models
- any other lessons that can be drawn from them.

These objectives have only been partially met as readily available materials describing relevant pre-service teacher training models generally do not contain all the desired information since many of the models of most interest are relatively new 'works in progress' that are built on promising practice but have not been fully documented or subjected to rigorous evaluations.

What emerges from a scanning of the literature is that both the US and UK governments are concerned with the effectiveness of university-based teacher education and are looking for models that enable trainees to integrate the educational theory and research components of training courses with substantial in-school experience of the practice of teaching.

In 2009 the US Federal Secretary of Education suggested 'America's university-based teacher preparation programs need revolutionary change – not evolutionary tinkering' and the national teacher accreditation body was engaged to restructure and rebrand teaching as a practice-based profession like medicine or nursing, with a more closely-monitored induction period and career-long professional development.

In the UK a review of teacher training conducted about a decade ago promoted the need to establish Training Schools to develop and disseminate good practice in initial teacher training (ITT), train mentors and undertake relevant research and in 2000 the first group of these training schools was established.

The research scan has revealed a range of pre-service teacher training programs in the US that are designed to provide prospective teachers with both the underlying theory of effective teaching and a year-long apprenticeship alongside a trained mentor in an urban classroom. One of the most notable programs is operated by Urban Teacher Residency United (UTRU) which runs teacher residency programs in several states. The Boston Teacher Residency (BTR) program which commenced in

2007 is one of the UTRU programs. The year long in-school component of the BTR program increases trainees' teaching responsibilities as the year progresses so that towards the end of the year trainees, supported by mentors, are expected to teach 50% of the full teaching load in the classroom and to teach every day. An evaluation of the teacher residency model of pre-service teacher training found 'promising evidence that UTRs are attracting a new pool of talented and diverse recruits, preparing them to be successful in urban classrooms, and keeping them in high-needs schools and subjects'.

Another model is provided by the Stanford Teacher Education Program (STEP) which is a small 'boutique' teacher training program run by the Stanford University School of Education. STEP places pre-service trainee teachers in semester-long classroom teaching situations under the guidance of expert cooperating teachers. Both the trainees and the guiding teachers are supported by a university supervisor. The STEP clinical teaching practicum consists of an average of 16 hours a week at the school site and a weekly seminar at Stanford. As with the residency programs referred to above, the candidates' teaching responsibilities gradually increase during the year as they continue to develop and grow. An evaluation of the STEP concluded that STEP graduates produced higher value-added achievement gains for their students than those of the other teacher education program groups and teachers from intern/alternative programs.

In 2004, San Diego-based High Tech High (HTH) became the first charter management organisation (CMO) approved to certify its own teachers. The HTH trainee teacher intern program provides the equivalent of a 120-hour pre-service program and 600 hours of training and practice over two academic years. Whilst it was observed that HTH 'has enough talent on staff to teach the intern classes and its mentor pool grows each year, as newer teachers gain experience with the HTH design principles', an evaluation of this program was not able to be located.

Another US pre-service teacher training initiative funded by the Carnegie Foundation has as one of its design principles the statement that 'education should be understood as an academically taught clinical practice profession'. Promoted under the banner of Teachers for a New Era (TNE), this initiative seeks to establish national exemplars of best practice in the field of teacher education. (This model has informed the design of the Master of Teaching program at The University of Melbourne.)

Programs selected for funding under the TNE initiative support academically taught clinical practice involving close cooperation between higher education providers and practicing schools in which Master teachers employed by teacher education providers act as clinical faculty to support the development of a clinically-based teaching practice during school placements.

The two most prominent pre-service training programs in the UK that have significantly shifted the balance between university-located and school-located teacher training are the Employment-based Initial Teacher Training (EBITT) and the

School-centred Initial Teacher Training (SCITT) programs. In 2007 there were over 100 school-centred initial teacher training (SCITT) and employment-based initial teacher training (EBITT) providers. Typically trainees within an EBITT or SCITT are provided with a 'carefully staged and appropriately supervised practical classroom experience within at least two secondary schools, which is further supported by academic study via central training'. Although aspects of these programs have been evaluated (e.g. an evaluation of the effectiveness of the 'professional mentor' is available) an overall evaluation of the effectiveness of the EBITT and SCITT models could not be found.

The use of an 'attached' or 'model' school is a feature of teacher training in some Japanese and Korean universities. For example, Tokyo Gakugei University (TGU) has 14 affiliated schools that receive around 1,400 TGU trainee teachers who 'student teach in preparation to become teachers themselves'. Only a small amount of information about the attached school model that is used by some teacher training universities in Japan and South Korea to provide students with practical experience and classroom observation opportunities was able to be located in English and no evaluation was found.

The final part of the literature review discusses three 'teacher residency' models from Australia. One is located at Edith Cowan University, another at Victoria University and the third at The University of Melbourne. The Edith Cowan University teacher residency program has only recently commenced in pilot form. It is based on a medical model that pairs university coursework with extended periods of school placement or "clinical" experience. Much of the course content will be delivered on school sites, with the rest run on the university campus in the style of a summer or winter school or delivered online.

The University of Melbourne's Master of Teaching course, which is in its second year of operation, features practicum experiences that are designed to integrate student teaching experience with course work to produce graduate teachers who are more confident and effective in their teaching. This model is built around partnership schools that provide field experience and course teaching that integrates and sequences practice and field experiences with teaching theory. Mid and end of 2008 evaluations of the Master of Teaching suggest that this model has produced teacher candidates who have the capacity to create strong links between theory and practice in teaching and who are able to use data to support their teaching practice and to intervene in student learning.

The Victoria University model described places third year pre-service teachers in a school for two days per week throughout the course of a semester. The pre-service teachers worked in action teams to develop their knowledge and understanding of: teaching and learning and strategies for success; pedagogy; the importance of data to inform teaching and learning; school culture and operations, student engagement and well-being; the importance of building strong community partnerships; and working collaboratively with colleagues and students. An evaluation of the program revealed that the 'site-based' context of the secondary school partnership provided

the opportunity for pre-service teachers better understand students and how schools and teachers work to respond to students' needs.

This literature review has been undertaken as the first task of the School Centres for Teaching Excellence project in order to provide some background into school-based pre-service training courses that are already in operation.

A synthesis of the research into pre-service teacher training suggests that:

- many teacher education programs have little impact on teacher effectiveness because the connection between what the trainee teachers do during their training, and what they are expected to be able to do once they arrive in the classroom, is not strong enough;
- the amount of time (number of days or weeks of placement), and the timing of placements impacts on pre-service teachers' confidence and ability to relate theory to practice;
- pre-service teachers who have supervised experience with graduated responsibilities appear to demonstrate improved practice and self-confidence in teaching;
- placements that are concurrent with the academic elements of the program improve pre-service teachers' understanding of the theoretical component of the teacher education program and their capacity to apply learning to practice;
- there needs to be extensive and intensely supervised clinical work integrated with course work using pedagogies linking theory and practice;
- pre-service teachers should be grouped in cohorts when on placement as this provides ongoing support and promotes collaborative learning;
- the quality of the mentor in the school assisting the pre-service teacher is of critical importance for building the pre-service teacher's subject specific pedagogy skills and general skills of lesson preparation and class management;
- in-school mentors are more effective when they receive in-service training to develop their understanding of models of teaching and effective techniques for collaborative and reflective practice;
- effective mentors are reflective and able to talk about their practice, are collaborative, and are committed to their own continuous growth and improvement;
- in-school mentors should be released from other duties so that they can effectively carry out their teacher education role;
- pre-service teacher education providers need to establish closer, proactive relationships with schools that serve diverse learners effectively and develop and model good teaching; and
- models that appear to work best build effective partnerships between pre-service teacher education providers and schools.

As already noted however, the relatively recent emergence of most of these alternative teacher training models constructed around significant in-school experience means that documentation of the various design and operational components is still rather sketchy making the task of finding strong evidence of the success or otherwise of these models somewhat problematic at this stage.

Nevertheless, the findings from this review suggest that such models are considered positively and signal ways in which effective models of this sort for Victoria can be developed and implemented as the School Centres for Teaching Excellence project unfolds.

Introduction

The Victorian Institute of Teaching (VIT) is the statutory authority that regulates and promotes the teaching profession, registers teachers for employment in Victorian schools, and accredits the programs for teacher preparation. VIT has established standards for graduating teachers and has set the minimum practicum requirement of 45 days of supervised professional practice for one-year graduate programs and 60 days for two-year programs.

VIT's eight Standards for Graduating Teachers relate to the domains of Professional Knowledge, Professional Practice and Professional Engagement. The standards are as follows:

Professional Knowledge

- Teachers know how students learn and how to teach them effectively.
- Teachers know the content they teach.
- Teachers know their students.

Professional Practice

- Teachers plan and assess for effective teaching.
- Teachers create and maintain safe and challenging learning environments.
- Teachers use a range of teaching strategies and resources to engage students in effective learning.

Professional Engagement

- Teachers reflect on, evaluate and improve their professional knowledge and practice.
- Teachers are active members of their profession.

Ure (2009) describes the different practicum placement models being used in Victorian teacher training institutions and reveals that the two dominant organisational models of supervised teaching practice are block placements and a combination of block placements and additional days in schools. Block placements range from blocks of two weeks to five weeks. Combined placements typically supplement a block placement with either an observation experience, a partnership project or a field project.

The time pre-service teachers spend in schools varies from 45 to 74 days, taking into consideration the two day per week component and the project partnership or the field projects that some of the providers incorporate as part of the professional practice experience. Pre-service teachers in a one-year training program may spend between 45 (the minimum requirement) and 60 days, and those in a two-year program may spend between 60 (the minimum requirement) and 75 days

Research in the United States cited by Barber and Mourshed (2007) reveals that many teacher education programs have little impact on teacher effectiveness because 'the connection between what the trainee teachers do during their training, and what they

are expected to be able to do once they arrive in the classroom, is not strong enough'. These researchers observed that all of the better school systems 'had integrated practicum into their teacher training programs'.

UK research (Murray 2004) that compared the practices of teacher educators with those of nurse educators, social work educators and medical educators provides some insights from the model of teaching hospitals that might be applied to any model of pre-service education based on a teaching school model. The researcher concluded the following:

- Firstly, in teaching schools time to induct new teachers needs to be safeguarded, since this induction is part of the core mission of the institution, alongside the education of pupils.
- Secondly, the experience of medical educators indicates that it should not be automatically assumed that teaching schools can offer integrated and effective models of work to the teacher educators who work within them. The roles and functions of professional educators in these settings need to be considered carefully, allowing for a balance of first and second order teaching and engagement in scholarship.

Grossman and McDonald (2008) observe that 'university-based teacher educators leave the development of pedagogical skill in the interactive aspects of teaching almost entirely to field experiences, the component of professional education over which we have the least control' and argue that 'research in teacher education needs to return to sustained inquiry about the clinical aspects of practice and how best to develop skilled practice'.

Darling-Hammond's (2006) research revealed that the three critical components of 'stronger, more effective teacher education programs' are:

- 'tight coherence and integration among courses and between course work and clinical work in schools;
- extensive and intensely supervised clinical work integrated with course work using pedagogies linking theory and practice; and
- closer, proactive relationships with schools that serve diverse learners effectively and develop and model good teaching'.

Darling-Hammond and Bransford (2005) also stress that as practice alone 'does not make perfect, or even good, performance', 'opportunities to connect practice to expert knowledge must be built into learning experiences for teachers'.

Ure's (2009) analysis of the research into pre-service teacher training models cites researchers and commentators who present the following argument about the design of teacher education programs. The separation of the placement experience from the academic study of teaching has generated a twostep process in learning to teach which is too narrowly focused and not conducive to building skills and knowledge needed by teachers in the 21st century. Pre-service teachers need to be familiar with the realities of day-to-day teaching and engaged from the outset in the development of integrated learning experiences in which pedagogical theory is simultaneously

taught, absorbed, and put into practice. A solution to these concerns is seen to lie in a better quality school placement experience that enables pre-service teachers to better integrate theoretical and practical understandings.

Ure observes that there are four models of teacher professional learning:

- partnership and collaborative learning
- reflective learning
- clinically applied
- pedagogical content knowledge focused.

Each of these models has their advocates and detractors. However Ure suggests that the clinical model, which presents a vision of teaching as an academically taught, clinical–practice profession, ‘heralds a significant reform for the practicum and academic components of teacher education’. The goal of the extended practicum is to provide pre-service teachers with time to analyse and evaluate student development and learning, and to develop more individualised approaches to teaching and intervention in student learning. This model ‘requires more extensive experience in schools and a closer working relationship between the school and the higher education provider than was previously considered possible for a teacher education program’.

Ure also advises that at this stage ‘little research evidence has emerged about the influence of this model on learning outcomes for pre-service teachers’. This observation also applies to the other three models.

Ure indicates that available research findings conclude that:

- the amount of time (number of days or weeks of placement), and the timing of placements impacts on pre-service teachers’ confidence and ability to relate theory to practice;
- pre-service teachers who have had more time to teach in a range of settings have a stronger frame with which to interpret concepts about teaching and learning;
- pre-service teachers who have supervised experience with graduated responsibilities appear to demonstrate improved practice and self-confidence in teaching; and
- placements that are concurrent with the academic elements of the program improve pre-service teachers’ understanding of the theoretical component of the teacher education program and their capacity to apply learning to practice.

Research cited by Ure also reveals that ‘pre-service teachers typically regard placement experiences as the most valuable component of their teacher education program’; and that ‘pre-service teacher professional learning is more effective when the goals of placements align with the philosophy and practices of the placement school and when the pre-service teacher is able to put what is learned in a theoretical framework’.

Ure's own conclusions from her interviews of pre-service teachers include that:

- the experience of pre-service teachers in placements varies considerably, and that their personal attributes and those of the supervising teachers contribute to these differences;
- when the placement is short and not well integrated with the academic elements of the program pre-service teachers are unable to learn enough about the class or the learning context to develop the confidence they need to exercise autonomy in their professional learning;
- the educational content covered by on-campus subjects is usually valued highly by pre-service teachers and provides them with the insight they need to comprehend the learning context of the school placement, as well as supporting the development of professional knowledge about their teaching.
- the quality of communication between the provider and the school appears to influence how well pre-service teachers and supervising teachers are prepared for the placement and understand what is expected.
- models that create opportunities for repeated exposure to the school alongside the academic program appear to improve the capacity of pre-service teachers to integrate their learning from both sites
- pre-service teachers are more positive about a five-week block placement than they are about a three-week placement
- pre-service teachers highly value the opportunity to combine a five-week observation placement with an on-campus program prior to the three-week block placement;
- lengthy placements scheduled concurrently with on-campus classes, prior to a block placement, appear to provide the best environment to link the theory and practice components of the teacher education program;
- pre-service teachers need more opportunity to take on a teaching position where support is modified to enable them to be more independent and responsible;
- more attention needs to be given to the design of the practicum requirements in teacher education programs;
- learning expectations within the on-campus subjects and the placement components need to be designed to reflect incremental stages of early professional growth more accurately, to reduce stress and confusion, and
- pre-service teachers need more experiences that enable them to address the broader professional demands of teaching, in addition to learning to teach classes independently.

UK research (Geen and Harris 2002) into pre-service teacher training also emphasises the merit of site-based integration of theory and practice. Furthermore it suggests that the quality of the mentor in the school assisting the trainee is of critical importance for building the trainee's subject specific pedagogy skills and general skills of lesson preparation and class management. This research also observed the need for trainees' in-school mentors to receive in-service training to develop their understanding of models of teaching and effective techniques for collaborative and reflective practice. It also suggested that to be effective, mentors need to be released from other duties so that they can effectively carry out their teacher education role.

A report of the National Council for Accreditation of Teacher Education (2010) recommends 'turning teacher training "upside down" by implementing a long-term, clinically based approach, similar to the model used in doctor education'. At the report's core is the assertion that for teachers to be effective, 'teacher education must shift away from a norm which emphasises academic preparation and course work loosely linked to school-based experiences' and 'move to programs that are fully grounded in clinical practice and interwoven with academic content and professional courses'.

This report stems from the work of a Panel on Clinical Preparation and , Partnerships for Improved Student Learning in the *National Council for Accreditation of Teacher Education* (NCATE) that was charged with 'recommending scalable ways to improve in-the-classroom training and strengthen relationships between school districts and the colleges and universities that prepare their teachers'. A central idea to be considered by the NCATE panel was the restructuring and rebranding of teaching as 'a practice-based profession like medicine or nursing, with a more closely-monitored induction period — akin to a doctor's residency — and career-long professional development'.

The recently released report of the 'Blue Ribbon Panel' advises that 'teacher education programs must work in close partnership with school districts to redesign teacher preparation to better serve prospective teachers and the students they teach'.

Some of the design principles for clinically based preparation identified in the report include:

- P-12 student learning must serve as the focal point for the design and implementation of clinically based teacher preparation, and for the assessment of newly minted teachers and the programs that have prepared them.
- Clinical preparation is integrated throughout every facet of teacher education in a dynamic way.
- Candidates must practice in a collaborative culture, and be provided with rigorous peer review of their practice and their impact on student learning.
- Clinical educators and coaches must be effective practitioners, skilled in differentiating instruction, proficient in using assessment to monitor learning and provide feedback, persistent searchers for data to guide and adjust practice, and exhibitors of the skills of clinical educators.
- All candidates should have intensive embedded clinical school experiences that are structured, staffed, and financed to support candidate learning and student achievement.
- State-of-the-art technologies should be employed by preparation programs to promote enhanced productivity, greater efficiencies, and collaboration through learning communities.

- Strategic partnerships, between preparation programs, school districts, teacher unions and state policy makers, are imperative for powerful clinical preparation.

The NCATE report contends that new teachers need a repertoire of general and subject-specific practices and the understandings and judgment to engage all students in worthwhile learning. They need to have opportunities to reflect upon and think about what they do, how they make decisions, how they “theorize” their work, and how they integrate their content knowledge and pedagogical knowledge into what they do. The report claims that this can be accomplished through a combination of both school embedded practice and laboratory-type experiences. To quote the report:

‘School-embedded experiences help teachers develop content-specific and general teaching skills and provide opportunities for candidates to become active members of learning communities, develop skills and dispositions associated with teaming, and work with parents within the community.’ ‘Laboratory experiences provide prospective teachers opportunities to learn through on-line and video demonstrations, analysing case studies representing both exemplary practice and common dilemmas, and participating in peer and micro-teaching.’

A conclusion of the NCATE Report is that a clinically based approach to teacher education will ‘give aspiring teachers the opportunity to integrate theory with practice, to develop and test classroom management and pedagogical skills, to hone their use of evidence in making professional decisions about practice, and to understand and integrate the standards of their professional community’.

However, whilst there appears to be growing support for a clinically based approach to pre-service teacher education, there does not appear to be an evidence base that helps to inform decisions about:

- what constitutes an adequate amount of time in schools;
- how the time between school and the academic study of teaching should be divided;
- how the amount of time and the timing of placements influence program effectiveness.

Nevertheless, the limited evaluations that do exist point to more positive outcomes for the approach than the ‘conventional’ models that currently tend to apply. This initial literature review reports on various models of pre-service teacher training in the United States, the United Kingdom, Japan and Korea and Australia that have a significant in-school residency component or are a variation on the conventional ‘short practicum in schools’ model.

Models from the United States

The US has a small but growing coterie of pre-service teacher educators who believe that practice should be at the centre of teacher preparation. Their rationale is that teacher preparation has paid too much attention to teachers' knowledge and beliefs and not enough to the "core tasks" of the "work of teaching" (Ball & Forzani, 2009). They wish to make school-based clinical the centre of teachers' preparation in ways that are akin to the hospital-based clinical preparation of doctors.

Examples of this trend include the University of Michigan's redesigned curriculum, which centres on careful training in key practice-based tasks; the University of Washington's redesigned program, in which every course is in some way school-embedded; and Chicago's Academy for Urban School Leadership program, which integrates coursework and a yearlong teaching residency. On a larger scale, and as reported above, the National Council for the Accreditation of Teachers (NCATE) has launched a major initiative to make teacher preparation more clinically based to meet the needs of schools and also to bring about a significant change in university teacher education. This initiative promotes not simply better student teaching, but a fundamentally differently focused pre-service teacher education curriculum with practice at its centre.

The discussion that follows describes some of the more well-known models of pre-service teacher education that incorporate a strong practicum component.

Residency programs

A number of residency programs that will inform the work of the NCATE panel already exist in the US, starting with the Boston residency program initiated in 2003 and subsequently managed through Urban Teacher Residency United (UTRU). Tom Payzant, the then Boston Public Schools superintendent, established the program in part to attract more talented teachers, especially for hard to fill positions in special education, science and maths, but also to improve the quality of teachers coming out of teacher training institutions in the US.

Payzant, according to an April 22, 2010 National Public Radio (NPR) report by Claudio Sanchez, was concerned that 'most teacher training institutions focus more on content and less on practice and how people teach', and hence wondered 'why can't schools be more like teaching hospitals with seasoned teachers, just like seasoned doctors, responsible for the induction and training of the next generation of teachers?'.

The resulting Boston Teacher Residency Program, outlined in more detail below, was established and is now run jointly with Boston Public Schools and both private and government funds. It enrolls 75+ residents a year who take a full load of courses from area colleges that offer education master's degrees.

Put simply, the teacher residencies operated through UTRU, and exemplified by the early experience in Boston, are district-based teacher education programs that pair master's level education content with a rigorous full year classroom practicum. Building on the medical residency model, and drawing from the strengths of traditional as well as alternative approaches to teacher preparation, they simultaneously provide prospective teachers with both the underlying theory of effective teaching and a year-long apprenticeship alongside a trained mentor in an urban classroom.

The core principles¹ underpinning the approach are that:

- Residencies recognise the need for preparation and an extended period of well-supervised clinical practice before becoming an accredited, independent teacher.
- Residencies tightly weave education theory and classroom practice together.
- Residencies focus on learning alongside an experienced, trained mentor.
- Residencies group teacher candidates in cohorts.
- Residencies build effective partnerships.
- Residencies serve school districts.
- Residencies support Residents once they are hired as accredited teachers responsible for their own classrooms.
- Residencies establish and support differentiated career roles for veteran teachers as mentors, supervisors and instructors, while still holding their positions as classroom teachers.

The Boston Teacher Residency Program

The Boston Teacher Residency (BTR) program, which commenced in 2003, is one of the earliest residency programs established in the US. It was initiated by the Boston Public Schools and the Boston Plan for Excellence (BPE) as a response to the fifty percent turnover of new teachers within their first three years, the lack of teachers of colour, the lack of teachers equipped for urban school challenges, and a shortage of teachers certified in the hard-to-staff areas of mathematics, science, and special education.

BTR seeks to recruit 'talented college graduates, career changers and community members of all ages', and then provide them with 'the tools to make an immediate impact in the classrooms of the Boston Public Schools'. Newman (2009) observes that BTR is highly selective compared to most teacher preparation programs, accepting one in six applicants. The selection process has four stages.

The first stage is making a four-year commitment to Boston schools - one resident year followed by three years of induction. The next is the provision of a suitable résumé, essays, transcripts, and recommendations. BTR's commitment to high-need areas such as math and science also means that many candidates with impressive

¹ http://www.utrunitd.org/EE_assets/docs/Conceptual_Grounding-Core_Principles_final.pdf

grades and leadership experience are rejected as more than half of residents at the secondary level earn their certification in high-need areas. Promising applicants are then invited to a selection day at one of its host schools where over the course of the day, candidates are rated as they teach a five-minute lesson, go through two rounds of interviews, and complete a writing assessment and group problem-solving exercise. The preparation year, described below, becomes the fourth stage of the selection process.

BTR combines a year-long classroom apprenticeship with targeted master's level coursework and hence provides its residents with 'the practical learning, hands-on experience and ongoing support essential to any successful career in teaching'.

The program commences with an intensive two-month summer institute and then residents spend the entire academic year in a Boston Public Schools classroom. They work under the close guidance of an experienced mentor teacher for four days a week, while one evening and all of Friday is devoted to rigorous coursework and seminars. This combination, it is believed, 'helps Residents link classroom experience to the latest in education theory and research, all within the context of the local education environment and the district-specific goals'.

By the time the residents become accredited teachers, they already have a year of experience in their schools and a network of fellow educators on whom they can draw for support. They also receive a further three years of support from the program beyond the residency year to 'reinforce and expand upon their learning'. This comprises targeted courses and seminars, expert induction coaching, placement in collaborative clusters with schools and an active BTR alumni community.

It is worth noting the residents automatically receive a \$10,000 loan on admission to the program to cover its cost. The BTR also provides a \$11,800 stipend and eligibility for health care benefits to help with living expenses as they complete their University of Massachusetts Master's degree. At the end of the year, residents gain a Massachusetts Initial Teacher License and, should they stay in the Boston public school system, their tuition loan is forgiven at the rate of one third a year for three years. In 2007-08 approximately 90% of the BTR budget came from public funding sources — 60% from Boston Public Schools and 30% in grants from the federal AmeriCorps and Transition to Teaching programs — and the remaining 10% was from private sources.

It is also worth noting that BTR participants all pursue dual licensure either as a Teacher of English as a Second Language or a Teacher of Students with Moderate Disabilities. This is seen as increasing the knowledge base of effective practices of Residents and building Boston Public Schools capacity in these two important areas of teaching practice.

To give an indication of the size of program involved, the 2007-08 BTR program saw:

- 84% of Residents placed for one year in a classroom with a mentor in 14 schools;

- in each host school, a half time site director coordinating the school-based mentoring activities and serving as a liaison to BTR program staff;
- about 25 instructors with varied affiliations (local universities, BPS staff, consultants) teaching classes for the Residents;
- 85 Residents recruited for the incoming 2008-09 cohort;
- eight BTR induction coaches supporting 125 BTR graduates placed in BPS high-needs schools (a ratio of 1:16); and
- eight program staff administering and implementing the BTR program.

To put this in context the BPS system, according to its February 2010 Fact Sheet comprises 135 schools, with more than 56,000 students enrolled.

The Residency curriculum

The curriculum, as already indicated, combines a full year, in-school residency with master's-level coursework tailored to the instructional agenda for Boston public schools. During their practicum and seminar classes, residents learn how to collect evidence of student learning through observations, assessments and examinations of student work, and how to use this data to optimise instruction for their students. The program's 'inquiry-driven curriculum' provides Residents with ongoing opportunities to study best practices, try them out in the classroom, reflect on the results, adjust and try again. Residents are specifically asked to consider the research, rationale and data behind their decisions about curriculum and instruction. Throughout their residency year the Residents reflect on and refine their own teaching practice through collaboration with peers, mentor teachers and other practitioners, and participate in 'Grand Rounds' where they observe master teachers and then debrief together. They also regularly review and analyse videos of their own and other teachers' instruction as an important means by which to improve their own teaching in class.

As well as their in-school time, the Residents take a BTR course one afternoon a week for three hours (3.30 to 6.30 pm) and have a weekly school-based seminar for an hour and half. They also attend a full day of classes (8.30 am to 3.30 pm) each Friday through the school year and have a two-week intensive session scheduled in December when they attend class full time and do not work in schools.

Unlike the traditional one-to-one student teacher model, mentoring in the BTR to integrate the coursework lessons with daily teaching practice involves cohorts of mentor teachers who take collective responsibility for developing the capacity of all Residents in their school. Under the direction of a school site director, mentor teachers and groups of Residents who are deliberately placed in selected host schools work as a cohort in a year long collaborative exercise.

The 2009-2010 Academic Course starts with a pre-practicum in classrooms where Residents assume a variety of classroom roles, culminating in a 'lead teaching week' where the Resident co-plans and takes full responsibility for teaching four continuous lessons for one class period a day. This responsibility steadily increases to

the point in Spring when Residents are expected to teach 50% of the full teaching load in the classroom and to teach every day. Detailed advice is also provided about the focus of mentoring and activity at various stages through the residency year.

An indication of the program's impact

Aside from the fact the program has received positive feedback from administrators across the district, it already has succeeded in reversing the loss of teachers from these urban public schools. While an estimated 50% of all urban school teachers leave within their first three years, often because they are not sufficiently ready for the role, 87% of all BTR graduates are still teaching in Boston public schools.

The BTR has specifically sought to offset a lack of qualified teachers in high need areas in Boston and to prepare and support teachers of colour and of maths, science, ESL and special education for Boston Public Schools. In 2010, 36% of BTR graduates are teaching ESL or special education due to its dual licensing arrangement, and 48% are teachers of colour. In addition, over the last three years, the percentage of newly-hired BPS maths and science teachers trained by BTR grew from 10 to 60%.

In a recent survey conducted by the organisation, 85% of principals rated BTR graduates similarly or more effective than their peers with the same years of experience, and 96% would recommend hiring a BTR graduate to a colleague.

Further information on the BTR's impact is included in the discussion of the initial evaluation of Urban Teacher Residencies below.

Urban Teacher Residency United

A number of teacher residency programs operate under the umbrella of Urban Teacher Residency United (UTRU), including the BTR, which has seen the retention rate of new graduates increase from around 50 to 85%. Aside from Boston, there are other Residencies in Colorado (Denver Teacher Residency and Boettcher Teachers' Program), Memphis (Memphis Teacher Residency), Chicago (Academy for Urban School Leadership and University of Chicago, Urban Teacher Education Program), New York International School-based Teacher Apprenticeship, Recruitment and Training Program, I-Start and Hunter College Urban Teacher Residency) and Philadelphia (Philadelphia Teacher Residency).²

All Residency programs pair master's level pedagogical training and education content with a rigorous full-year classroom practicum under the supervision of expert teachers who have been trained to mentor novices. After that the implementation can differ within the broad program scope. In Boston, for instance,

² There are a number of residency programs in US states and districts that are not formally linked to the UTRU, but since they are similar in design to the ones outlined below, they are not separately discussed in this review.

Residents are placed in host schools and work alongside the same mentor for the whole year. By contrast, in Chicago, Residents switch schools or 'training academies' mid year, which gives them a chance to study under a new mentor in a different grade level and school environment. Regardless, though, the Residents all work in classrooms with mentors while they complete their coursework in curriculum, teaching and learning at partner universities as evident in the following snapshot (Berry, et al August 2008) of the program structure that the Boston and Chicago programs adopt.

Program Components		
Length of residency	13 months	12 months
Assessment tool for residents	BPS Dimensions of Effective Teaching + Massachusetts Professional Teaching Standards	Illinois Professional Teaching Standards
Program components	<p>Year 1: July-August: Classroom management and lesson planning courses, work in summer school classes or take content classes, depending on need.</p> <p>September-June: Four days a week in host school with mentor teacher; continue graduate level coursework; develop a teaching portfolio, consisting of performance-based assessments aligned with program and district standards.</p> <p>July (2nd summer): Residents complete coursework for master's degree and work toward Special Education Licensure.</p> <p>Year 2: Graduates have a full-time, paid teaching position with induction support from BTR and BPS. Complete Special Education licensure.</p>	<p>Year 1: June-August: Full-time graduate level coursework delivered by university partners</p> <p>September-June: Four days a week in training academy; continue graduate level coursework at training sites and university sites one day a week; develop a teaching portfolio, consisting of performance-based assessments aligned with program and district standards.</p> <p>February: Elementary Residents switch training academies and are assigned to a new mentor teacher.</p> <p>Year 2: Begin teaching in AUSL turnaround school or affiliate and receive coaching and induction from AUSL field coaches.</p> <p>Year 3: Coaching continues through AUSL coach</p>
Resident weekly schedule	Four days a week with a mentor teacher; classwork all-day on Fridays and one afternoon a week.	Four days a week with a mentor teacher; graduate classes held one day a week

Put simply, the Residency model offered through UTRU affiliates includes an extensive focus on preparation in ways that other teacher training programs generally do not match. Experienced teachers are paired one-on-one with Residents for the duration of the school year and are provided with ongoing support to ensure the time, resources and coaching skills needed to lead an effective classroom apprenticeship.

The residents train as part of a cohort, or peer group that provides ongoing support and collaborative learning throughout the Residency year and then beyond. At the start of the school year, residents are placed in high-need, high-functioning public schools for their apprenticeship experience and then complete their coursework as part of the cohort group. They spend the whole of the academic year in their urban public school, developing under the guidance of an experienced mentor teacher who uses a variety of coaching and conversational protocols and then progressively moving from a collaborative, co-teaching role to an increasingly demanding lead teaching role in the class.

Hands-on experience in the classroom is supplemented by the master's-level coursework designed to inform and enrich the whole apprenticeship experience. 'This deep blend of theory and practice', according to the UTRU, 'makes the Residency model a unique route into teaching, helping participants draw meaningful connections between their daily classroom work and the latest in education theory and research'.

The minimum requirement for consideration as a mentor is three years' teaching experience. All Residency programs look for mentors who are reflective and able to talk about their practice, are collaborative, and are committed to their own continuous growth and improvement. In the Chicago program, for instance, they have tended to look to National Board Certified Teachers who have 'a proven track record of knowing how to analyse their classroom practices and improve student learning'.

In recognition of the key role that mentors play, and the time and energy involved in undertaking the role, the BTR pays its mentors a \$3000 stipend, while the Chicago program provides them with a 20% annual salary supplement.

After the Residency, graduates commit to serving their district for at least three years and receive immediate assistance with job placement in a district school. They have access to an induction program that involves one-on-one consultation including classroom observation and targeted feedback for the first two years. This is supplemented by membership of an active alumni network that has a major professional development role.

Because of the growing interest in the US in the whole Residency approach, the UTRU has developed a Residency for Residencies two year program combining a series of intensive learning institutes and focused, individual consultation to help emerging programs design, develop and launch Residencies in their districts.

The Residency for Residencies Program addresses key content areas aligned to the six UTR Quality Standards of:

<i>Quality Standard</i>	<i>Content addressed</i>
UTR Program Management	<ul style="list-style-type: none"> • Strong partnership between a high-needs district, an institution of higher education and other eligible partners • Designated lead partner • Sustainable funding model • Commitment to local assessment and evaluation • Transparent, legally binding agreements between the UTR and all Residency participants
Resident recruitment and selection	<ul style="list-style-type: none"> • Alignment with district goals • Integrated approach to recruitment • Rigorous and competitive selection process

Mentor recruitment, selection and training	<ul style="list-style-type: none"> • Integrated approach to recruitment • Rigorous and competitive selection process • High-quality PD for mentors • Mentor assessment and accountability
Residency year	<ul style="list-style-type: none"> • Rigorous Resident learning standards • Rigorous and aligned coursework • Intensive classroom apprenticeship • Dynamic application of the gradual release of responsibility model • Resident assessment and accountability
Strategic placement of residents and graduates	<ul style="list-style-type: none"> • Placement of Residents in training sites • Placement of graduates in high-need schools • Grouping of Residents and graduates in cohorts
Post residency	<ul style="list-style-type: none"> • Integrated induction coach selection • High-quality PD for induction coaches • School-based one-on-one induction coaching • Ongoing professional learning community

An initial evaluation

Given the growing interest in Urban Teacher Residencies in the US, and the fact that substantial funds were allocated through the federal Higher Education Opportunity Act to develop and support UTRs, the Aspen Institute funded an evaluation by Berry, et. al (2008) which examined the Boston Teacher Residency and the Academy for Urban School Leadership in Chicago to ‘inform policy makers and practitioners about the design and financing of UTRs, the evidence of their impact and the conditions relevant to their success and sustainability’.

Even though the programs are only relatively new, the study found ‘promising evidence that UTRs are attracting a new pool of talented and diverse recruits, preparing them to be successful in urban classrooms, and keeping them in high-needs schools and subjects’. By way of example, school administrators rated UTR graduates’ skills and competencies highly and 90 to 95% of graduates are still teaching after three years. When asked to compare the effectiveness of Boston program graduates to other first-year teachers, principals rated 88% of BTR graduates as ‘significantly more effective’ and more than 94% indicated their desire to hire more BTR graduates. A Chicago principal cited described how graduates of that residency program ‘take advantage of the mentor coaches in sophisticated ways that other teachers do not; they know how to ask for and receive constructive feedback ... (and) whenever you see a teacher like that, you’ll see impact on student achievement’.

It is too early to tell whether or not the graduates are making a measurably more effective contribution to student learning outcomes, but the two programs examined in the evaluation have commissioned outside research to find this out.

Interestingly, the study also suggests that the investment made ‘in selecting, preparing and supporting Mentors who work with Residents have further developed veteran teachers themselves’. Mentors, it seems, ‘learn new instructional skills and how to spread their expertise to novices ... These new roles for experienced teachers have led to renewed enthusiasm and motivation and contributed to the retention of some teachers who might have otherwise left the classroom or district’. In addition, the leadership skills mentors develop ‘are serving as a potential pipeline to leadership positions’.

The study did not seek to suggest that all teacher preparation should adopt a teacher residencies-type approach. There is, they argued, ‘no one pathway into teaching that is likely to meet the needs of all districts or prospective teachers’. Rather, they proposed that residencies are ‘an important “third way” that policy makers, practitioners and the public should consider in their efforts to ensure that they have a teaching force that is diverse and prepared to succeed’.

The evaluation report concluded by identifying six action steps to guide any analysis of a district or system’s readiness to implement a successful program. These steps, along with the key associated issues they raise (below) can help inform the development of any School Centres for Teaching Excellence as part of this project.

<i>Action steps</i>	<i>Key considerations</i>
Assess the readiness of a school district, institution of higher education and/or a non-profit organisation to undertake the work of developing a UTR	<ul style="list-style-type: none"> • Who are the right partners to develop and implement the UTR? • What are the roles and responsibilities of each partner? • Which partner will lead the UTR and what will that entail? • To ensure effective collaboration, what issues will need to be negotiated and what new systems or structures will be needed to facilitate new ways of doing business?
Identify high-quality schools and classrooms in which to prepare Residents	<ul style="list-style-type: none"> • What schools at each level meet the quality criteria in terms of school culture and mentor quality? • How does the number of schools that meet the criteria inform the UTR start-up and development plan? • What can the UTR, its partners or the district do to build the capacity of potential future sites?
Define clear standards for high-quality teaching and support teachers’ progress towards meeting those standards	<ul style="list-style-type: none"> • What are the expectations of the UTR for Residents’ performance relative to standards at the end of the Residency year? At the end of the first/second year of teaching? • How does the status of standards in the district influence the design and delivery of the UTR program?

	<ul style="list-style-type: none"> • What are the district's expectations for the new teachers at the end of year one? In order to receive tenure? • What systems will be in place to track teachers' progress and support them in meeting expectations?
Develop teacher leaders and expand teachers' career options	<ul style="list-style-type: none"> • What teacher leadership roles does the UTR need to create to ensure the program's success? • What additional preparation and support are needed for teachers in leadership roles? Who is best positioned to provide it? • What school structures and policies must be in place to develop, implement and support new teacher leader roles in schools where they are needed? • What are possible pathways from one UTR teacher leadership role to the next (e.g. how can a talented mentor become a site director or teacher education faculty member)? • What might the pathways be for UTR graduates to assume increasingly senior teacher leadership roles within the UTR itself and in the district more broadly? • How can the UTR, districts and universities collaborate to take full advantage of emerging teacher leaders?
Collect evidence to improve programs and build political will	<ul style="list-style-type: none"> • What are the right metrics to measure UTRs' effectiveness, and what is most informative for program improvement? • How might these measures correspond (or not) to those of the district? • How can data collection be systematically embedded in program activities?
Determine how UTRs can play a broader role in strengthening a district's human capital system.	<ul style="list-style-type: none"> • What are the district policies, practices and contextual features that promote or inhibit successful implementation of a UTR? • How can the UTR best address these issues (e.g. work with the district to address these issues, create conditions for the UTR and its graduates where these issues won't arise?) • What role can and should the UTR play given the district context and overall strategic plan and the funding and capacity limitations of the UTR?

The Stanford Teacher Education Program

The Stanford Teacher Education Program (STEP) run by the Stanford University School of Education, is designed 'to foster an understanding of and commitment to research; reflection and inquiry in the classroom; collaboration across individuals, institutions and communities; a blending of theory and practice; and the effective use

of technology as a teaching and learning tool'. The program leads to a Master of Arts in Education and a preliminary California teaching credential.

The STEP for elementary schools is a small 12 month, full-time program for only about 20 candidates with access to 'top faculty and experienced cooperating teachers' which offers 'highly focused instruction interwoven with hands-on teaching experience, sustained mentoring and personalised advising'. It therefore includes 'multiple opportunities for observing, planning and practising diverse pedagogical approaches in specific clinical contexts'. More specifically, candidates are placed in semester-long classroom teaching situations under the guidance of expert cooperating teachers in local, public elementary schools, which ensure that over the year they experience both an upper and lower grade. The university supervisor also provides direct support for the candidates and their guiding teacher during the placement.

The criteria for selecting participating schools are:

- the demonstration of effective teaching and learning practices for all students;
- successful implementation of state-level academic standards;
- a commitment to the practice of teacher professional development; and
- student populations representative of the general diversity in the state.

STEP then works closely with the selected schools to develop strong partnership relationships, where the school and university communicate and collaborate in the preparation and professional development of teaching candidates as well as the school site faculty. Increasingly the schools involved are ones which already are actively engaged in school reform projects and have partnered with Stanford to combine professional training with 'cutting-edge' school-based research. The clinical teaching practicum consists of an average of 16 hours a week at the school site and a weekly seminar at Stanford. As with the Residency programs outlined above, the candidates' teaching responsibilities gradually increase during the year as they continue to develop and grow.

Cooperating teachers are expected to have at least three years of teaching experience in their area of certification and a strong commitment and willingness to mentor and support teacher candidates. Rather than being selected on the basis of self or principal nomination, cooperating teachers are selected using direct, first-hand knowledge of their classrooms and teaching practices. Along with 'solid input' from the schools, STEP faculty and supervisors look for evidence that cooperating teacher practices are consistent with the STEP vision for teaching and hence will tend to reflect what is being taught in the academic component of the program.

The actual academic program for elementary teacher candidates comprises the following:

Strands/ Courses	Summer	Pre-fall/ Fall		Winter	Spring
Curriculum & Instruction	Becoming Literate in School I (2 units)	Creative Arts in Elementary Classrooms (1 unit)	Becoming Literate in School II (2 units)	Becoming Literate in School III (3 units)	Literacy, History & Social Science (1 unit)
	Quantitative Reasoning & Mathematics I (2 units)		Quantitative Reasoning & Mathematics II (2-3 units)	Quantitative Reasoning & Mathematics III (2 units)	
		Development of Scientific Reasoning and Knowledge I (2 units)			Development of Scientific Reasoning & Knowledge II (2 units)
Social & Psychological Foundations	Educating for Equity & Democracy (2 units)	Child Development In and Beyond Schools (2 units)		Ethics in Teaching (1 unit)	
Language & Literacy			Métodos y Materiales en los Salones Bilingües (2 units) <i>BCLAD only</i>	Language Policies & Practices (2 units)	
Pedagogical Strategies	Elementary Classroom Culture & Management (1 unit)	Elementary Classroom Culture & Management (1 unit)		Supporting Students with Special Needs (2 units)	
Practicum & Student Teaching	Elementary Teaching Seminar (3 units)			Elementary Teaching Seminar (2 units)	Elementary Teaching Seminar (5 units)

A minimum of 45 units is required for the master's degree and teaching credential.

The secondary STEP program operates along similar lines, but involves a 12 month full-time placement in a single school site. The secondary program involves around 70 candidates a year.

It is interesting to note that Levine, who is cited earlier as being critical of much teacher training and a leading influence on the work of the NCATE Panel that is

outlined, endorsed the STEP (Levine, 2006) as one of four model teacher education programs in the US in a context where most are 'deeply flawed'.

In circumstances where most teacher training programs have low admission and graduation standards, and cling to what Levine views as an outdated approach to teacher education, STEP is singled out as an exemplary model because it has:

- a coherent, integrated, comprehensive and up-to-date curriculum that includes a sustained level of field experience;
- a strong connection between theory and real classroom situations;
- high graduation standards;
- commitment to the program and students from faculty and administrators; and
- recognition from important external publics, including schools that hire its graduates and experts who assess them.

More recently, Newton (April 2010) undertook a longitudinal study which examined the relationships among teacher education, teaching practices and student learning as part of the Teachers New Era reform initiative at Stanford which auspices the STEP. A sample of around 250 secondary teachers of mathematics, science, history/ social studies and English language arts along with approximately 3500 students taught by these teachers was examined from a set of six high schools in the San Francisco Bay area. The study involved a statistically-controlled value added approach which measured the average difference between actual scores and predicted scores for all students assigned to each teacher from 2005 to 2007.

While the study authors urge caution given the moderate sample size for differing programs, it was revealed that STEP graduates produced higher value-added achievement gains for their students than those of the other teacher education program groups and teachers from intern/alternative programs. In summary, the study's authors concluded that 'graduates from different teacher education programs and pathways exhibited different effectiveness in students' learning outcomes on the standardised tests'.

The STEP has adopted a series of program standards designed to ensure program quality in all aspects of STEP. The program standards relate to the following aspects of the program:

- Program Design
- Collaboration in Governing the Program
- Relationships Between Theory and Practice
- Pedagogical Thought and Reflective Practice
- Equity, Diversity and Access to the Core Curriculum for All Children
- Opportunities to Learn, Practice and Reflect on Teaching in All Subject Areas
- Preparation to Teach Reading-Language Arts
- Pedagogical Preparation for Subject-Specific Content Instruction
- Using Technology in the Classroom
- Preparation for Learning to Create a Supportive, Healthy Environment for Student Learning
- Preparation to Use Educational Ideas and Research
- Professional Perspectives Toward Student Learning and The Teaching Profession

- Preparation to Teach English Learners
- Learning to Teach Through Supervised Fieldwork
- Selection of Fieldwork Sites and Qualifications of Field Supervisors
- Candidate Qualifications for Teaching Responsibilities in the Fieldwork Sequence
- Pedagogical Assignments and Formative Assessments During the Program
- Assessment of Candidate Performance.

Each of the standard domains are supported by program elements that elaborate the standard and spell out (in a 136 page document) what the basic program requirements are in relation to each program standard domain. STEP is described as having a strong commitment to preparation for teaching that is content-based and context-responsive, with a historic emphasis on both content pedagogy and the teaching of culturally and linguistically diverse learners. The program also strongly emphasises ‘the preparation of reflective practitioners who work collaboratively with other educators to inquire into learning, refine their teaching, and solve common problems of practice’.

High Tech High (HTH) Charter School Teacher Intern Program

In 2004, San Diego-based High Tech High (HTH) became the first charter management organisation (CMO) approved to certify its own teachers. The Teacher Intern Program enables HTH to hire individuals best suited for its project based, interdisciplinary curriculum.

The California Commission on Teacher Credentialing has approved High Tech High to certify teachers in the Single Subject content areas of Mathematics, Science, English, History/Social Studies, Spanish, Mandarin, and Art; and Multiple Subject and Special Education through its Teacher Intern Program. The goal of the program is to prepare teachers to work in an environment that integrates technical and academic education while creating a sense of community engagement and responsibility. Interns earn full-time salaries and benefits as teachers in charter school classrooms while working toward their credentials.

HTH principal, Larry Rosenstock claims that the teacher intern program attracts candidates with ‘deep content knowledge who had very successful academic careers and wanted to work in an urban school at a time of profound teacher shortage’.

HTH’s Teacher Intern Program (Newman 2009) which operates in the six HTH schools is structured as follows.

- For three weeks over the summer, interns begin cost-free coursework and create a syllabus and unit of study for the beginning of the year. They participate in professional development with veteran staff at the school that hires them as official teachers of record.
- During the school year, students take a series of courses that are delivered weekly on Wednesday afternoons from 4:45 – 7:45 pm at the school.

- HTH assigns each intern a mentor, who guides and supports the trainee's development.
- In their second year, interns are prepared for the state-mandated teaching performance tasks called the California Teaching Performance Assessment (CA-TPA). They have to successfully complete four tasks - written responses to prompts and one videotaped lesson – which demonstrate they are capable of connecting state standards to effective teaching practices.
- After successfully completing the tasks, interns are recommended by the HTH Governing Board to the California Commission on Teacher Credentialing.

The intern program provides the equivalent of a 120-hour pre-service program and 600 hours of training and practice over two academic years.

The courses³ provided in the High Tech High Internship Program are as follows:

- How People Learn: Principles of Educational Psychology - candidates learn major theories, concepts, principles, and research related to adolescent development and human learning and how to create learning opportunities in their subject area to support student development, motivation and learning.
- Introduction to Teaching Methods and Content Standards - candidates will learn the skills and acquire the tools necessary to prepare for the beginning weeks of the school year.
- Equity and Diversity: Social and Cultural Foundation - candidates learn about the concept of culture, study different perspectives on teaching and learning, examine various theories of education, and identify the inequalities in academic outcomes in American education.
- Classroom Management and Assessment (Field Experience) - candidates work with their assigned Mentor Teacher to apply classroom management, lesson planning and assessment approaches.
- Teaching Methods, Curriculum Design and Classroom Settings - candidates are provided with instruction in planning and delivering curriculum in their specific content area (math, English, science, humanities, art, Spanish), and in using appropriate instructional technology in the content area.
- Teaching Practicum I - candidates apply and practice learning theories in a classroom setting in their subject area.
- Professional Portfolio Development I - candidates learn about the Teaching Performance Assessment requirements and the final exit interview, and how they relate to the Teaching Performance Expectations.
- Technology in Portfolio Development – candidates are guided in the use of technology to complete and assemble their professional teaching portfolio.
- Teaching Reading and Writing Across the Curriculum - candidates learn how to teach content-based reading and writing skills to all students.
- Teaching Practicum II – candidates working with their mentor teacher connect learning theories with subject specific pedagogical practices in the classroom.

³ http://www.hightechhigh.org/about/ShortCourseDescriptions_HTH_Intern_Program.pdf

- Technology in Instruction - candidates learn to use technology tools to prepare teaching materials, to develop curriculum, deliver instruction, evaluate student performance, and assist in course management.
- Philosophy of Education: Teaching Performance Expectations - candidates review the full range of Teaching Performance Expectations identified in the Standards for Quality and Effectiveness for Teacher Preparation Programs.
- Preparation to Teach English Language Learners - candidates learn about issues pertaining to the special needs and considerations of English learners in secondary classrooms.
- Teaching Practicum III - candidates apply and practice the learning theories covered in their teacher training sessions in a classroom setting in their subject area.
- Healthy Environments – candidates learn about methods and best practices in the physical education and health curricula.
- Assessment and Evaluation - candidates learn how social, emotional, cognitive and pedagogical factors impact students' learning outcomes.
- Professional Portfolio Development II - candidates work with a Portfolio Advisor to determine the best examples of their work to use as evidence of their professional growth.

Unlike initial teacher training courses conducted in most higher education institutes, HTH values practical coursework and HTH keeps interns in lectures for as little time as possible and maximises in school experience. While most universities determine that one unit or credit equals 10 or 15 hours of class time and 5 hours of independent work, at HTH one credit equals 5 hours of class time and 10 hours of independent work, or time with students.

In a typical semester, interns take six courses, with each course differing in credits and hours. Teaching Methods, Curriculum Design, and Classroom Settings is worth three credits and meets on just four Tuesdays from 4:15 to 7:15 PM. Technology in Portfolio Development, one credit, takes place on a Saturday from 8am to 1pm. Interns complete an accelerated course of study in one year, and 'program staff make sure that every aspect of a streamlined course directly relates to interns' work with students'.

One commentator (Newman 2009) observed that HTH is in a 'luxury position' because it has enough talent on staff to teach the intern classes and its mentor pool grows each year, as newer teachers gain experience with the HTH design principles.

Teachers for a New Era

In response to the evidence that the quality of the teacher determines student learning outcomes, the Carnegie, Annenberg and Ford Foundations have supported the Teachers for a New Era (TNE) initiative.

The TNE prospectus (Teachers for a New Era 2001) outlined three design principles that Carnegie believes characterize excellent teacher education programs:

- A teacher education program should be guided by a respect for evidence. A culture of research, inquiry, and data analysis should permeate the program. Attention needs to be paid to pupil learning gains associated with teachers who are graduates of the program.
- Faculty in the disciplines of the arts and sciences must be fully engaged in the education of prospective teachers, especially in the areas of subject matter understanding and general and liberal education.
- Education should be understood as an academically taught clinical practice profession. This requires close cooperation between colleges of education and actual practicing schools; appointment of master teachers as clinical faculty in the college of education; and a two-year residency induction period for graduates of a teacher education program, during which graduates are given mentoring and support.

A panel of advisers recommend to the funding agencies a set of institutions to be invited to submit proposals for funding under terms of the Teachers for a New Era initiative. Institutions that are selected for awards under the conditions of *Teachers for a New Era* will be 'national exemplars of best practice in the field of teacher education' and have a responsibility for dissemination of lessons learned, successful innovations, and difficulties encountered.

The criteria for selection include the following:

- The quality of the teacher education program currently in place at the institution
- The capacity of the institution to serve as an exemplar or model for other institutions
- The impact of the institution on the enterprise of teacher education
- The local or regional public policy environment that most directly affects the institution
- The capacity of the institution to engage in leadership activities to persuade other institutions to adopt successful features of the design principles
- The quality of the faculty and administration

In relation to the design principle that 'education should be understood as an academically taught clinical practice profession' the TNE Prospectus contends that:

Excellent teaching is a clinical skill. It occurs principally with clients (pupils) in clinics (classrooms or laboratories) arranged to enhance its efficacy. Just as for any clinical practice profession, there is a knowledge base for teaching that is taught and learned in traditional academic settings. This usually includes, for example, historical, philosophical, sociological, and economic foundations of education. In addition to academic study, clinical practice in schools takes place in complex public environments and entails interaction with pupils, colleagues, administrators, families and communities. Clinical education is developmental in its conception, and is designed to teach clinicians not to act upon the client, but to assist the client's growth and development. Good clinical practice keeps the client's interests as a central focus at all times. Exemplary teacher education provides for clinical education in a clinical setting.

The TNE Prospectus advises that TNE candidates 'will know how to observe and assess children's learning continuously in order to plan and implement responsive instruction' and that their 'repertoire of teaching strategies will widen over time so that children with a range of learning styles, abilities, and cultural backgrounds will have effective access to schooling'.

Programs that espouse this approach include an academically taught clinical practice involving close cooperation between higher education providers and practicing schools. Master teachers who are employed by teacher education providers act as clinical faculty to support the development of a clinically-based teaching practice during school placements.

Models from the United Kingdom

Employment-based initial teacher training (EBITT) and School-centred initial teacher training (SCITT)

Teacher Training in England has undergone significant change in recent years. A 1998 Green Paper, *Teachers - meeting the challenge of change*, proposed the establishment of Training Schools, to develop and disseminate good practice in initial teacher training (ITT), train mentors and undertake relevant research. Schools that obtained Training School status were expected to have shown good practice already in teacher training, and they received funding to achieve specific objectives which they had identified in their bids to join the program. It was envisaged that these schools, working where appropriate with initial teacher training partners in higher education and elsewhere, would develop innovative approaches to teacher training.

Ofsted (2003) advises that in December 1999, the then Department for Education and Employment (DfEE) invited schools to submit bids to become Training Schools. The first 54 Training Schools were accredited from September 2000, each school receiving up to £100,000 a year for an initial period of three years. A further group of 28 Training Schools were accredited a year later, with funding to run for two years. Since that time the number of Training Schools has increased significantly.

A further significant change to teacher training was the introduction of professional standards which gave greater responsibility to schools for initial teacher training, increased the variety of training options and gave school-based trainers a central role in initial teacher training (Training and Development Agency for Schools, 2002).

According to Evans et al (2008) each year in England about 6,000 trainee teachers qualify by undertaking an employment-based initial teacher training (EBITT) or school-centred initial teacher training (SCITT) route where training is mainly school based. The Training and Development Agency for Schools (2007) indicates that at

the beginning of 2007 there were over 100 school-centred initial teacher training (SCITT) and employment-based initial teacher training (EBITT) providers.

Collette (2007) notes that the 'rationale behind the shift in Britain to a greater role for school-based education is seen to have three bases: the strengthening of the school as the 'unit of educational responsibility'; an acknowledgement and enhancement of teachers' professionalism; and an emphasis on experiential learning. She suggests that these changes have increased the school-based component of initial teacher education and 'reflect a fundamental shift from teachers supervising students in the application of learning gained from initial teacher education courses to the teachers educating students based on their skills as practitioners'.

One provider of SCITT programs⁴ claims the following virtues for the SCITT model. 'For trainees, one of the most significant advantages of SCITT training is that they are always in a classroom environment, acquiring the knowledge and skills required for effective teaching. For schools, involvement in SCITT brings considerable benefits, since all participating teachers have to analyse their teaching as part of the process of training the next generation of teachers, and the whole school gains a new professional dimension by devising and running a course of training'.

The Cornwall School Centred Initial Teacher Training (SCITT) program is a successful model of school-based initial teacher training. Cornwall SCITT is a consortium of 16 local secondary schools, one special school, and one tertiary college that offers a one year, full time teacher training course that 'is focused on carefully staged and appropriately supervised practical classroom experience within at least two secondary schools, which is further supported by academic study via central training'. Successful graduates of the SCITT course are awarded Qualified Teacher Status together with a Professional Graduate Certificate in Education (PGCE).

During the course, trainees are required to complete written assignments, research projects and a seminar presentation, which apply the theory of teaching to practical experience in the classroom. They are also required to undertake two school placements where they are assigned an experienced subject teacher as their individual mentor who provides guidance and opportunities for them to plan, manage, deliver and assess aspects of their teaching.

The academic year is organised as follows:

- Weeks 1-20: 2 days a week on education and subject specific study, 3 days a week in school
- Weeks 20-35: Block placement in 2 institutions
- Week 36: Final week for preparation for NQT year.

Another example of an employment based route into teaching is provided by the Welsh Graduate Teacher Program (GTP) (Welsh Assembly Government, 2006). Candidates for the GTP need to hold a first degree or equivalent qualification and to

⁴ <http://www.ict-tutors.co.uk>

get into a program, a prospective trainee has to find a school which is willing to employ them as a trainee graduate or already be employed at a school that is prepared to support them through the GTP. Trainees who have been granted authorisation to undertake training for the purposes of the GTP are not qualified teachers but can teach at a school and are paid a trainees' salary. The government provides schools with training grants to help offset training and salary costs. Upon successful completion of the GTP trainees gain Qualified Teacher Status (QTS). Before a recommendation for QTS can be made, the trainee's competence must be independently assessed against QTS standards.

Schools taking on GTP trainees need to develop and gain approval for a detailed training program that enables the trainee to meet all QTS Standards by the time of the final assessment. Training activities could include:

- observation, feedback and discussions with colleagues at school;
- regular meetings with a mentor;
- attending school or LEA INSET courses, and relevant external courses;
- attending an ITT provider's taught course (for example, part of a modular postgraduate program);
- self-study using distance learning and CD-ROMs on, for example, subject knowledge or use of ICT;
- research projects and guided reading;
- visits to other schools to see models of good practice;
- support from LEA advisers on specific topics such as classroom management; and
- meetings with school governors.

A further example is provided by the SCITT program in Leeds which was initiated in 2002 and since 2004 it has trained approximately 150 teachers. Leeds SCITT is a collaboration of schools in the north of Leeds and Bradford together with Leeds Trinity and All Saints higher education institutes (HEI), working together to offer one year, full-time teacher training at the secondary level. Leeds SCITT is based on a combination of four lead and a number of associate schools. Lead schools are responsible for initial subject application tuition and teaching placement training. Associate schools provide opportunities for complementary and contrasting school-based training. The combination of lead and associate schools enables trainees to work with students from diverse cultural and socio-economic backgrounds.

In most HEI/school partnerships there are two categories of mentors: the subject or class mentor and the (usually senior) staff member who is responsible for Initial Teacher Training throughout the school. The SCITT subject mentor works most directly with the trainee teacher; negotiates an individual training program with the trainee and ensures its delivery; organises the teaching timetable, briefs and debriefs teaching episodes, provides regular feedback on progress; and judges the evidence against the 'standards for the award of QTS'. The subject mentor also liaises with the professional mentor and other teachers in the school working with the trainee and is responsible for assessing the trainee's teaching.

Typically the SCITT ‘professional mentor’ takes responsibility for ensuring the whole school is prepared to support the trainee; provides a suitable context for learning and professional development; and organises the school based professional development program. The professional mentor needs a detailed knowledge of procedures used in initial teacher education training, usually from more than one HEI or route so they can advise and support both mentors and trainees. They need to have an overview of training opportunities within and external to the school and the necessary status to be able to engage school staff at all levels in the training process. This means that the role has both a management and a leadership dimension. In many schools the professional mentor is part of the School Leadership Team.

Evans et al (2006) have examined the role of the ‘professional mentor’, or to use her term, the Senior Liaison Tutor (SLT) in relation to quality assurance issues. The researchers interviewed SCITT professional mentors and revealed the following mechanisms were being used to support the quality assurance of ITT school based training:

- Weekly meetings and discussions with mentors and trainees to gain feedback on progress
- Training sessions for mentors and trainees
- Evaluation of trainees learning through questionnaires
- Cross checking trainees attainment against QTS standards
- Observation of lessons.

Models from Japan and Korea⁵

Japanese universities with teacher education commonly have what are known as ‘attached’ and sometimes ‘model schools’. The University of Tsukuba, for instance, has both an attached elementary school and high school as part of 11 schools that are affiliated with it. Similarly the Tokyo Gakugei University (TGU) has 14 affiliated schools in which about 6,200 students are learning. In each case, a university professor is also the principal of the school, often on a rotating basis. These schools provide what the Tokyo Gakugei University describes as ‘a common education, making a special effort to observe teaching methods through practical research in connection with TGU’. Each year, these schools receive around 1,400 TGU students who ‘student teach in preparation to become teachers themselves’.

Aside from contributing to the training of graduate teachers, attached schools also host professional learning for experienced teachers, such as public lesson study sessions in mathematics for as many as 2000 teachers in school holidays conducted at Tsukuba elementary school, which are supplemented by private lesson study sessions at the school. Its companion high school produces a journal about its teaching programs for other teachers in Japan.

⁵ It should be noted that this is only a snapshot of the approach in Japan in particular, since most of the sites accessible through the relevant universities are entirely in Japanese.

As an indication of the structure of support the Tokyo Gakugei University provides, it has:

- A Centre for the Research and Support of Education Practice designed to 'promote teacher training and teaching in intimate association with the colleges, graduate schools and affiliated schools and communities, as well as conducting comprehensive and developmental support for education and research'. Amongst other sections, the Centre comprises a Department of Educational and Clinical Research and a Department of Teaching Practice and Guidance.
- A Curriculum Centre for Teachers which comprises the three sections of Curriculum Structure Research and Development, Teacher Training Research and Development, and In-Service Teacher Training Research and Development. As a national 'common-use institute', these sections provide 'opportunities for students to conduct research, develop professional skills and exchange information with the teacher training and school curriculum'.

Just as the Japanese teacher training universities have attached schools, so too does the Seoul National University of Education in South Korea. The university's attached elementary school is described as 'a front-runner in elementary education as an experimental research school for effective teaching practices and performance policy for the Ministry of Education'. The school offers:

- compulsory elementary education;
- substantial studies and activities that provide guidance for intern teachers;
- analysis and application of experimental textbooks;
- experimental application and generalisation of the curriculum;
- experimental research of various educational policies; and
- workshops for teachers to reform the classroom.

The university's attached elementary school is supplemented by:

- An Elementary Education Training Centre which provides several training courses for qualifying first and second degree elementary school teachers and vice principals, other general training courses and small group workshop programs for elementary school teachers. It also offers teachers exposure to new educational theories and technologies to be applied to classroom teaching.
- A newly-established Elementary Education Research Institute which conducts academic research and surveys into elementary education, elementary teacher education, and elementary curriculum education through a variety of seminars, academic events and workshops. The institute's work is designed to contribute to the improvement and development of elementary school teacher education, elementary education in the field and elementary curriculum education.

Models from Australia

Findings from an on-line survey (Australian Secondary Principals' Associations 2007) that was completed by 1351 teachers, all of whom had less than three years of teaching service revealed inter alia that schools were considered significantly more effective (rated from excellent to good) than universities in relation to teaching about teaching and about assessment strategies and standards.

This report included the following quotations from respondents that were considered to 'highlight some of the feelings, thoughts and reflections of the respondents about their University preparation':

- Loved uni, but Education Degrees need major overhauling to improve the quality of graduate teachers entering the profession.
- University did not give me enough practical skills or an understanding of how to program.
- I was disillusioned with my diploma of education training. I felt that the lecturers were out of touch with today's school environment. They were more concerned with the academic aspect of the degree than the practical hands on experience that could have really made my transition into teaching so much easier.
- I feel that the university system that I had did not teach me the important parts of teaching e.g. communication and behavioural management strategies. These skills were gained whilst on prac.

Whilst this survey is based on volunteered responses and thus cannot claim to be an accurate representation of the views of all new teachers, the qualitative data does indicate a strength of feeling for a more school-based and practical bias in teacher education programs.

The following descriptions of pre-service teacher education programs administered by universities in Australia illustrate different ways in which teacher education faculties are extending the school-based component of their pre-service education programs.

Edith Cowan University Teacher Residency Program

In 2009 Edith Cowan University announced that in 2010 it would pilot a teacher residency program that is 'unique' in WA and which its director, Associate Professor Tim McDonald, described as 'an innovative means to recruit, prepare and retain quality teachers ... based on a medical model that pairs university coursework with extended periods of school placement or "clinical" experience'. The move, which is aligned to the WA Department's shift toward developing 'Training Schools' as partnerships between systems, schools and universities, is supported by \$930,000 funding from the Australian Government Department of Education, Employment and Workplace Relations (DEEWR).

The university advises⁶ that the Graduate Diploma of Education Residency Mode 'immerses residents (students) in schools throughout the year' and 'provides the strongest possible academic and professional preparation for teaching. Working alongside experienced professionals throughout the course, residents:

- learn in context
- put theory into practice
- develop a richer understanding of the role of a teacher; and
- graduate with the skills and confidence to embark on a rewarding career as a teacher'.

The residency mode is also described as providing 'residents' with the opportunity to:

- become part of a school community from the start of the school year;
- develop an ongoing professional relationship with an experienced Mentor Teacher;
- enjoy the collegial support of working with your peers in a learning community;
- experience the daily life of a teacher;
- have an impact in the classroom throughout the course;
- learn to engage students and manage behaviour in real classrooms; and
- undertake academic work which is grounded in the school experience.

Program design

The Teacher Residency Program being piloted allows participating schools and teachers to work alongside university staff in determining what aspiring teachers need to know and experience. McDonald has described the program design in the following prospective terms, given it has yet to be implemented over a full year.

Much of the course content, he explained, will be delivered on school sites, with the rest run on the university campus in the style of a summer or winter school, or online. Up to ten Training Schools were expected to participate in the pilot extending to 20 the following year.

There will be 8 to 12 pre-service teacher residents per school who will be required to meet regularly with peers at other participating schools for academic tutorials. Residents will work in one school for two days a week for Terms 1 and 2, and then in a second school in Terms 3 and 4, providing a year of clinical experience, according to the calendar the university developed for 2010. (The Edith Cowan University School of Education Teacher Residency Calendar for 2010 can be viewed at: http://www.education.ecu.edu.au/data/tmp/ecu_school_of_education_teacher_.pdf.)

Residents undertake classroom teaching roles under supervision and practise what they are being taught at university, reflect on and test out new learning and generally improve their teaching skills while providing an extra resource to the school.

⁶ http://www.education.ecu.edu.au/grad_dip_residencymode.html

Each resident will have a school-based mentor for their two terms on site. Residents will meet with their mentor once a week to discuss, review and assess progress, examining student work, observation notes and individual and school achievement data. The mentor will be appointed from within the school's existing staff, selected by the university and fully endorsed by the school leadership team.

Coordination of the mentors and residents at each school will be undertaken by a part-time Site Director who is a senior member of the school's staff with a proven record of effective teaching. The Site Director will also be involved in cluster meetings, given the university is seeking to involve clusters of schools to facilitate the required meetings of residents referred to above.

The Site Director and mentors will receive professional development from university staff to prepare them for their roles, and the Site Director will offer school-based guidance to mentors. Both the Site Director and mentors will receive credit towards post-graduate qualifications at Edith Cowan University in such fields as Graduate Certificates in Professional Learning or a Master's program.

The residents' blocks of professional practice will be graded with consensus assessment determined by mentors and university colleagues, as in the on-campus course. As well as course grades, there will be performance-based assessments grounded in actual classroom experiences. For example, an assessment in lesson design could involve the resident compiling a lesson, teaching it, reviewing it with their mentor, improving it and then bringing what they have learned back to the university for discussion.

Consideration in selecting schools to participate in the program was given to the alignment of the school's philosophy and ethos with that of the Teacher Residency Program and the School of Education, the types and number of special programs and research activity taking place in the school, the capacity to identify and provide appropriately skilled mentor teachers and the capacity to provide a skilled Site Director. ECU also considered the school's commitment to release mentors and the Site Director for professional development, its ability to provide adequate professional space for residents, the size of student enrolment and the historical level of difficulty in staffing the school. The university, it should be noted, specifically sought to focus the program primarily, though not exclusively, in low socio-economic status areas in WA.

The residents are chosen for the program on the basis of the usual academic selection criteria, but supplemented by a panel interview at the university, participation in a group problem-solving activity, and in a lesson-/school-based activity. They are evaluated by means of formal observations of their teaching, portfolios they create during and after the training period, their records of planning and student performance, their lesson plans, and their reflective journals of lessons to inform future student learning and professional development. Assessors will also examine transcripts and other documentation related to meetings with mentors, records of

interviews and focus group discussions with principals, mentors, teacher educators, Site Directors and other residents.

The assessment of the residents' school readiness will cover their content knowledge, pedagogical content knowledge, general pedagogical knowledge including awareness of learners and their characteristics, skills in management and organisation, and their knowledge of curriculum, educational context, educational philosophies and teachers' tools of the trade.

The initiative, according to McDonald and the university, 'will help to develop a generation of teachers who are school-ready from day one and have the capacity to enhance the academic and social abilities of all students they teach'.

The Melbourne University Master of Teaching Model'

Melbourne University's Master of Teaching is predicated on the research findings (e.g. Darling-Hammond and Bransford 2005) that courses which include more practicum experiences, and are designed to integrate student teaching experience with course work produce graduate teachers who are more confident and effective in their teaching, and who also appear to make a longer-term commitment to teaching as a career. Consistent with the findings of the Victorian Parliament's Education and Training Committee in 2005, the model is designed to provide student teachers with opportunities that enable them to become more familiar with 'the realities of day-to-day teaching' and to engage in integrated learning experiences in which 'pedagogical theory is simultaneously taught, absorbed, and put into practice'. (p. 139)

The essential goals of the university's Master of Teaching, as outlined in its first end of year evaluation, are to 'improve coherence in teacher education and to produce graduates who are able to use data to inform their teaching'. This involves two 'significant reforms':

- the introduction of clinical teaching models using partnership schools for the delivery of field experience; and
- revised curriculum delivery at the university where theory is taught in the context of practice and field experiences are articulated and sequenced with the theory.

More specifically, the academic study provides teaching candidates with knowledge of learning and development, pedagogy, curriculum and assessment appropriate to education in the 21st century, and is integrated with continuous and long-term practical work in schools and a practicum seminar program which each support applied clinical learning by their participants.

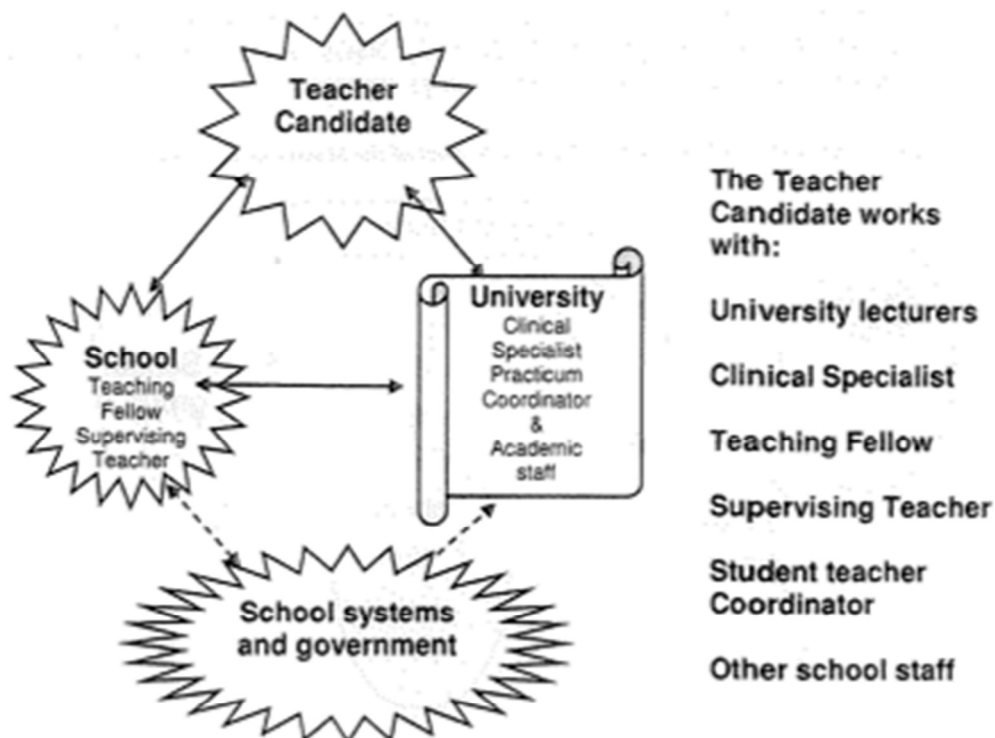
The increased emphasis on the practicum in the program is supported through the development of networks of schools called Neighbourhood Schools Groups (NSG). Principals and staff of these schools work in partnership with the university, and with each other, to produce 'a new generation of teachers' and hence also build capacity for the program, for teaching in general, and for their schools. Each NSG

school has agreed to support a cohort of teacher candidates and one school per NSG has opted to act as the lead school for the network.

In 2008, 21 NSGs, comprising 3 to 7 schools each, were needed to support both the primary and secondary training streams.

Teacher candidates' experience in the schools is supported by the appointment of key staff to ensure coherent delivery of the practicum. Clinical Specialists are drawn from a pool of academic staff and work with the candidates in their appointed schools where they facilitate a series of practicum seminars designed to link theory and practice, to focus on core skills and research-based approaches, all aligned with the professional standards for graduating teachers determined by the Victorian Institute of Teaching (2005). In addition, a Teaching Fellow, who is a highly-skilled teacher drawn from the lead schools in each NSG, is employed on a 0.5 basis to facilitate the consistent delivery of teaching experiences of candidates across the school group. Supervising Teachers in each school individually mentor a teacher candidate and a university-based Practicum Partnership Coordinator oversees the entire program.

Thus, teacher candidates are supported by both teachers in the NSG and university-based Subject Coordinators and tutors, some of whom act as the Clinical Specialists working in schools one day a week with the Teaching Fellows. The Teaching Fellows and Clinical Specialists also work with the Supervising Teachers and teacher candidates in schools as outlined in the following diagram.



Mid and end of 2008 evaluations of the Master of Teaching suggest that:

- participating primary teacher candidates 'are already demonstrating an exceptional level of competence at this stage of their course';
- candidates completing the secondary stream 'feel confident and competent in their teaching';
- the judgments regarding the capacities of both groups 'have been supported by the responses of teachers and principals in the Neighbourhood School Groups in which candidates were placed'; and
- 'university academics, Teaching Fellows, Clinical Specialists and Teacher Candidates indicate a high level of satisfaction with the design and implementation of this new course'.

In summary terms, the evaluators concluded that:

This initiative has redefined the model for the partnership between university and schools for teacher education and has engaged schools as clinical sites for teacher development. The employment of a leading teacher for a 0.5 part-time appointment to work as a Teaching Fellow in each of the Neighbourhood School Groups has created a new professional role for teachers in schools. This position has provided support for the clinical training activities of the Teacher Candidates.

The supporting activities of the Clinical Specialists from the university have provided strong support for the new partnership model. The roles and responsibilities of the Teaching Fellows and the Clinical Specialists have been supportive and complementary and together these roles have assisted the Teacher Candidates to be able to consider and attend to both the theoretical and practical aspects of teaching. In addition, Teaching Fellows are now beginning to provide professional support to the Supervising Teachers suggesting this new partnership mode is building professional support networks at other levels in schools.

The Master of Teaching has improved Teacher Candidates' capacity to create stronger links between theory and practice in teaching. The comments from Candidates, Teaching Fellows and Clinical Specialists suggest that Candidates make strong use of theory to frame and support their teaching. The survey of teachers and principals in schools supports the view that the Master of Teaching has strongly supported Candidates' professional learning across all aspects of teaching including knowledge about students and learning, planning and use of resources, teaching practices and engaging with other members of their profession.

Most significantly, the new Master of Teaching has produced Teacher Candidates who are able to use data to support their teaching practice and to intervene in student learning.

Victoria University School Partnership Model

Arnold and Edwards (2009) focused on the partnership between Victoria University and a school when conducting their research on 'site-based' teacher education. They advise that the partnership involved placing twenty-two Third Year pre-service

teachers in the school for two days per week throughout the course of a semester. This required that every Tuesday and Thursday an extra twenty-two people were on campus at the secondary school.

The pre-service teachers worked in action teams to develop their knowledge and understanding of teaching and learning and strategies for success; pedagogy; the importance of data to inform teaching and learning; school culture and operations, student engagement and well-being; the importance of building strong community partnerships and working collaboratively with colleagues and students.

Five projects were undertaken at the college. Each project was guided by a member of staff. Teams met regularly with a staff member to review, gain assistance and feedback, and to ensure that the project was on track. The five projects are outlined below.

- VCE strategies for improvement project:
 - Data collection and analysis pertaining to student engagement and motivation.
 - Development of strategies which enhance senior students' planning for success and striving for excellence during their VCE years.
- Year 9 City Experience project:
 - Development and implementation of an intensive city-based experience to scaffold students in engaging and working in the city. Enhancing student independence and interdependent learning skills.
- Junior school pedagogy project:
 - Exploration of effective pedagogy in Middle Years incorporating 'best practice' in the open learning centre and beyond. This project focussed on diverse individual needs, team teaching, student engagement, well-being and curriculum development.
- Whole-school data collection and analysis:
 - Analysis and synthesis of data related to school effectiveness. Collection of data for analysis to facilitate effective whole-school practice aimed at enhancing student outcomes.
- Year 10 Environmental and sustainability investigation:
 - Development and implementation of an inquiry based curriculum constructed around the enhancement of the school environment as a learning and teaching resource.

Whilst at the secondary school the pre-service teachers were able to access classes for observations, work with small groups of students and obtain individual interviews to gather data. Pre-service teachers also had the opportunity to implement workshops to assist with their inquiries and to gain knowledge about the school, students and staff. Staff members were free to invite pre-service teachers into classes to assist in conducting classes, events such as sport days and other activities.

The researchers observed that the 'site-based' context of the secondary school partnership provided the opportunity for pre-service teachers to be challenged to:

- know and understand the students in the diverse school community;
- adopt and integrate an environment that reflects the twenty-first century;
- take considered and well monitored risks when learning;
- determine issues related to the engagement of young people; and
- make observations about, and understand further, the democratic forces that form in the emerging change in the school community.

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