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A School Perspective on School-Embedded Initial Teacher Education

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Abstract: School-university partnerships have been developed to invigorate initial teacher education (ITE). Such partnerships potentially offer rich educational opportunities to pre-service teachers. This paper examines integrated and school-embedded approaches to ITE in the Australian context, drawing on a case study analysis of a three-year, ITE school-university-system partnership named inSITE. inSITE is explored from the perspective of the school educators directly involved in its design and delivery. Complexity science provided the theoretical framework for inSITE and signalled its principles of holism, integration and reflective practice. The factors that contributed to and inhibited school-based initial teacher education from a school's perspective are identified. The paper concludes that, given conducive conditions, an integrated, embedded and reflective approach can address the prevailing theory-practice dualism of ITE and may offer an important third way to prepare new teachers. The challenges and opportunities for school-embedded ITE in Australia are highlighted.

Introduction

Initial Teacher Education (ITE) plays an important role in the development of individual teachers and their quality of teaching (Ingvarson et al., 2014). The type of knowledge and experiences to which pre-service teachers are exposed can be expected to have a significant impact on their subsequent practice and their contribution to the profession (Heinz & Fleming, 2019; Zeichner, 2010). O'Doherty refers to an "international wave of reform in teacher education" (p.1, 2019); and, as pedagogical approaches are shifting, so are ITE practices (OECD, 2012).

For the purposes of ITE, school-university partnerships have been developed because they "are seen as offering rich possibilities for transformative professional action" (Moss, 2008, p. 345) to better prepare new teachers for the realities of school life (Goss & Sonnemann, 2017). Although examples of innovation exist in the literature (Ingvarson et al, 2005; McLean Davies et al., 2015; Yeigh & Lynch, 2017), they are primarily explained from the perspective of universities rather than schools'; and, there are relatively few documented examples of ITE that are approached differently.

This paper seeks to address this gap. It is concerned with innovative approaches to ITE and aims to answer the following questions:

1. How can a school participate in ITE reform?; and,
2. What factors support or inhibit school engagement in the reform process?

A review of the existing literature on developments in Australian ITE is accompanied by the presentation of a case study of an innovation (the “in-School Initial Teacher Education”, or inSITE, program): a collaboration between a government high school, a university (referred to, respectively, as “The School” and “The University”) both in New South Wales (NSW) and The School’s funding body, the NSW Department of Education (DoE).

The Australian context and dominant approaches such as the conventional dualistic model of university-based theoretical knowledge supported by school-based professional-experience (Ingvarson et al., 2014; Mayer et al., 2015) are considered. The theory of Complexity Science provided the theoretical framework underpinning the project: the system’s interrelatedness transcends its individual elements. The dynamic and adaptive nature of this multi-agent, holistic, non-linear system (Ell et al., 2017; Marcondes et al., 2017) is addressed in terms of Complexity Science. This approach supported the integrated, school-embedded program design that aimed to obviate the theory-practice divide (Collins & Ting, 2017) and to better prepare pre-service teachers for the intricacies of teaching (McLean Davies et al., 2012). In conclusion, the challenges and opportunities for the future of ITE in Australia are highlighted.

Initial Teacher Education: the Australian Context

The inSITE program was introduced against the backdrop of the relevant national and state regulatory frameworks and within the context of conventional approaches to the design and delivery of pre-service education. Expectations and requirements for the quality of ITE in the broader Australian context have been made increasingly explicit at both the national and state levels, as is the case in many countries (OECD, 2012). Following the introduction of the nationally agreed Standards and Procedures by the Australian Institute for Teaching and School Leadership (AITSL), the NSW Institute of Teachers revised NSW ITE requirements (NSW Government, 2013) in 2012. A key requirement for ITE relates to the specified 60 days of professional-experience component of teacher preparation (NSW Government, 2013).

These developments have taken place amidst long-standing calls for the reform of ITE in the Australian context (Darling-Hammond, 2013; Ingvarson et al., 2014; McLean Davies et al., 2015; Yeigh & Lynch, 2017) and internationally (Fullan, 2007; Levine, 2010; Tom, 1997; Zeichner, 2014). McLean Davies and colleagues (2012) argue that, despite a thirty-year history of reviews, reports and calls for change, little has been achieved and evidence of innovation is limited. School practitioners have persistently argued that teachers enter the profession ill-equipped to deal with the rigours, complexities and the demands of school life (Manuel, 2010). Graduate teachers themselves have voiced the need for change (McLean Davis et al., 2012; Mayer et al., 2015) and have indicated the value of extended periods of time in schools over university-based theoretical studies (Goss & Sonnemann, 2017). Many ITE models worldwide are moving towards “more on preparing professionals in school settings, with an appropriate balance between theory and practice” (OECD, 2012, p. 14).

Although figures vary (AITSL, 2016), attrition rates indicate that teachers are most at risk of leaving the profession within the first five years (Ewing & Manuel, 2005). Early-career teachers’ lack of preparedness for the demands of school life is a potential factor in

this (Buchanan et al., 2013). Whilst new teachers with a growth mindset will potentially develop in their effectiveness and confidence over time (Dweck, 2012), there is also the possibility that their prospective effectiveness could be enhanced prior to entry to the profession (Henry, Bastian, & Fortner, 2011).

The prevailing approach to teacher education is dualistic. Typically, its theory-based elements are treated as discreet components and taught in the university environment, while the practical components are addressed in the school context (Collins & Ting, 2017; Ingvarson et al., 2014; Marcondes, Leite, & Ramos, 2017). It is left up to the pre-service teachers, if possible, to make the connections, presumably during the professional-experience component when facing school environment realities. In contrast and, central to inSITE's reform agenda, was the integration of these components.

There are some ITE programs in the Australian context which challenge the traditional theory-practice dualism and represent a very different approach to conventional offerings (Green, Tindall-Ford & Eady, 2019). The research-based clinical practice of the Master's program at The University of Melbourne is one such example (Darling-Hammond, 2013; Scott, Kleinhenz, Weldon, Reid, & Dinham, 2010). This model was based on using partnership schools to assist with the delivery of a rigorous theoretical curriculum "within the context of continuous and sustained professional practice" (McLean Davies et al., 2012, p. 95).

Further examples, are programs offered by the Queensland University of Technology and Central Queensland University (Yeigh & Lynch, 2017), and the School Centres for Teaching Excellence in Victoria. Each of these programs advocates a school-university partnership designed to foster collaboration centred on high-quality teacher preparation (Ingvarson et al., 2014).

In the interrelating of theory and practice, it is necessary to ensure that neither the theoretical nor the practical component is lost or devalued (Zeichner (2014). Zeichner & Bier (2013) argue that evidence from the US context shows that the consequence of devaluing the theoretical component, for example, has been increased deregulation and privatisation of teacher preparation at the expense of intellectual rigour and teacher quality. As Ingvarson et al. state, "a meaningful integration of the two experiences [is] central to improving outcomes for prospective teachers" (2014, p. 21). A report by Mayer et al. (2015), advocates for new collaborations between universities, schools and employers stating that, teacher educators "are right to be concerned that there is a persuasive political discourse that is urging a return to..."(p. 150) courses that are focussed on acquiring pedagogical skills and pedagogical content knowledge to the detriment of the theoretical basis.

Policy Responses to the Australian Context

Whilst acknowledging that Australian teachers constitute a highly skilled professional body, the Australian Federal Government's Teacher Education Ministerial Advisory Group (TEMAG) was briefed in 2014 to advise on improved ITE delivery to ensure that graduating pre-service teachers are well prepared to enter their profession (TEMAG, 2017). The 2014 TEMAG report, *Action Now: Classroom Ready Teachers*, recommends that "action to improve the quality of teachers in Australian schools must begin when they are first prepared for the profession" (p. viii), further noting that a lack of sufficient integration between the ITE providers results in a diminished effectiveness of pre-service teacher training. This especially pertains to the professional-experience component, stating that, "theory and practice in initial teacher education must be inseparable and mutually reinforced in all program components" (p. x) through mutually beneficial partnerships.

The Australian Government's (2015) response to the TEMAG 2014 report emphasised the need for Australian students to receive a world-class education vis-a-vis the strengthening of ITE to produce high-quality early career teachers. The response acknowledged that many Australian schools already provide pre-service teachers with high quality professional-experience through close school/university partnerships. It further stated that "high quality experience should be embedded in every teacher education course" (2015, p. 7). In response, the Government directed AITSL to begin progressing these recommendations through the relevant regulatory authorities (2015). Two factors later identified by AITSL (2017) as constituting "key components of quality placements" (n.p.) are strong and sustained school/ITE-provider partnerships and quality in-school experiences.

In late 2015, the NSW DoE launched the Hub School Initiative, aiming to establish university-school partnerships to reimagine, develop and implement improved ITE experiences. This action was a part of the NSW Government's 2013 *Great Teaching, Inspired Learning (GTIL)* strategy envisaging that "all teacher education students will receive high quality professional-experience as part of their teacher education programs" (p. 7). The NSW Government (2013) identified the Hub School Initiative as qualifying for Australian Commonwealth Government funding as it was designed to evolve "stronger partnerships among universities and school authorities" (p. 10) in order to, "develop arrangements for joint appointments of [classroom] teachers...for more systematic roles in the delivery of ITE programs" (p.10). The inSITE program, therefore, was situated within the Hub School Initiative to achieve these aims.

The Context of Complexity Science

Teaching is a holistic, multi-agent (e.g. teacher, students, colleagues, parents, leaders) interplay of co-learning and co-construction that sits within multiple contextual layers of school, system, policy and politics (Ell et al., 2017). These authors distinguish between teacher education being designed as either a process or a system. They describe the process as taking teacher candidates and exposing them to "teacher education experiences" (p. 328) while the system approach - with which inSITE aligns - relies on "a cluster of simultaneous interactions at multiple levels" (p. 328).

The design of the inSITE program was informed by Complexity Science and its non-linear, non-dualistic conception of phenomena and the world in which they occur (Midgley, 2000; Mingers, 2006). Consistent with this theory, the contextual and systemic whole is interrelated and transcends its individual elements; the system is complex rather than complicated. A feature of the systemic whole is its adaptive and dynamic nature that enables the emergence of new properties, behaviours and knowledge (Mason, 2008). This is analogous to the Earth being viewed as both a system in its own right and a subsystem of the Milky Way which, in turn, is a sub-system of the universe. These systems are self-referencing and have their own environment and boundaries, and yet are interdependent. This non-dualistic worldview has no theory-practice dichotomy. In the ITE context, "a complexity view of teacher education focuses on interconnections, responses to interactions, and a dynamic process of adaptation, growth, and learning" (Collins & Ting, 2017, p.5). The reality of the profession is about "enacted learning" (Begg, 1999, p. 72) through mutually influential actions, interactions and connections and is not represented by the conventional separation of theory and practice that enables neat and manageable chunks of learning defined by subjects and delivery sites.

Australia's Hawkesbury Agricultural College (HAC) implemented a ground-breaking program (1978 to 1994) evidencing the principles of complexity such as the non-dualistic

conception of theory and practice (Bawden, 2002; Bawden, 2005). The term “praxis” was co-opted to signal the property that emerges when practitioners use theory to inform practical action, and use reflection to develop new knowledge (Bawden, 2002). In this case, the interactions between the College’s students, HAC staff, farming clients and the rural community in achieved a complex, system approach to the education of the agriculture students. The practitioners – the farming clients and broader community – used a theoretical approach to inform their practice and that of the students through their interactions with the staff. Reflection on theory and practice provided some of the new knowledge. Rodgers (2002) comments on the power of reflection in the deepening of understanding of concepts, connections and relationships – about the self, students, community, environment and profession - as a meaning-making process in influencing pedagogical practice. Importantly, through the development of reflection on internal and external influences, pre-service teachers, “...have to produce new knowledge according to each new situation” (Marcondes, Leite, & Ramos, 2017, p. 330).

As a concept consistent with complexity, Bryk, Gomez, Grunow, and LeMahieu, (2015) advocate the processes of improvement science as a means to deeply understand and then respond to problems confronting education, such as the performance and attrition of new teachers. They advocate cycles of disciplined inquiry through “networked improvement communities, a paradigm that sees educators as active inquirers who are now bound together by norms and structures akin to a scientific community” (Bryk, 2015, p. 469). Applied to ITE, those networked communities include the pre-service teachers, school teachers, university educators and employers.

Complexity Science has significant implications, then, for the design of ITE programs that could be expected to:

- bridge the practical and theoretical knowledge divide;
- break down campus/site-specific boundaries to embed pre-service teachers in authentic contexts;
- question the compartmentalising of teacher knowledge into discrete courses;
- incorporate individual and social reflection as integral to learning and knowledge creation;
- disrupt the usual lecturer-student power relationships, in preference for pre-service teachers as professional educators;
- be open to dynamic cycles of on-going disciplined inquiry and development;
- build networked communities of practice;
- rely on interdependent school-universities-employer relationships, and
- require momentum for change at as many levels and through as many means as possible.

To illustrate inSITE in this light, Figure 1 (adapted from Bawden, 2002) shows inSITE as a bounded system influenced both internally and externally – an innovation in its own right and yet influenced by its internal and external environments. As an alternative innovative option within The University’s education post-graduate provisions, inSITE is depicted as an inquiring sub-system that sits both within and outside the mainstream program. Furthermore, The University’s Master of Teaching program is not a standalone provision but exists within the ITE provision in NSW, Australia - and beyond - being bounded by both policy and convention. Further, inSITE is nested within the host-school system - the subject of detailed discussion in this paper.

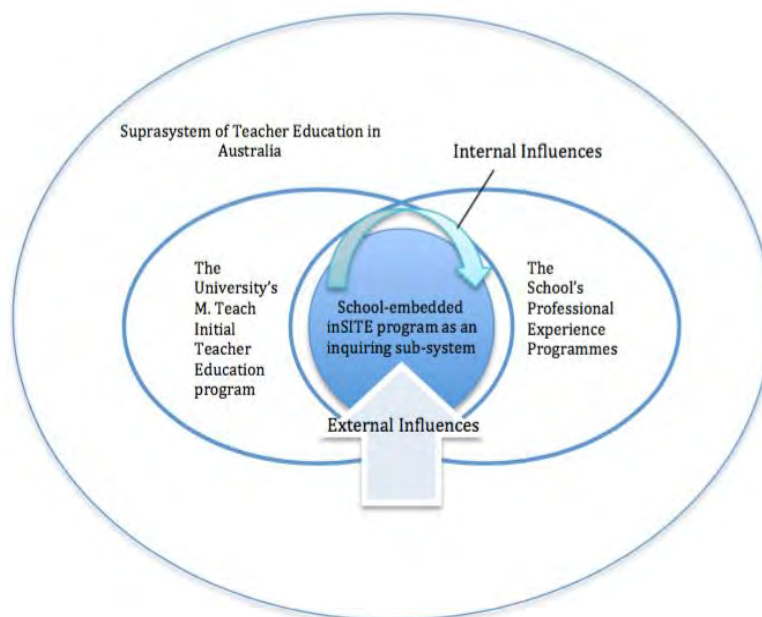


Figure 1. inSITE: A Systems Approach to Initial Teacher Education Adapted from Bawden (2002)

The inSITE Series of Program Iterations

The inSITE program, grounded in Improvement Science (Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010), was developed through a series of collaborative discussions and workshops between The School and The University. The embedding of pre-service teachers in The School's day-to-day activities to provide a rich, whole-school experience aiming to better prepare them for post-graduation employment was one common feature of the three annual, consecutive but separate inSITE iterations (successively named inSITE 16, 17 and 18). This explicitly expressed goal addressed the need to improve the integration between universities as ITE providers and schools (TEMAG, 2015), while adhering to the agreed design principles of integration, embeddedness and reflective practice: an innovative alternative to the conventional university-based ITE courses relying on short-term blocks of professional-experience which reinforce the theory-practicum dichotomy.

The embedded pre-service teachers were, as far as practicable, regarded as The School's staff. Considered as a critical step in providing a high-quality professional-experience, it also partially addressed Key Direction No. 6 of providing for ITE entrants "...to be recognised as members of the teaching profession from the beginning of their [ITE courses]" (TEMAG, 2015, p. vii). Further, the aim of the partners to co-deliver ITE subjects in which theory and practice were "mutually reinforced" (TEMAG, 2015, p. x) aligned with TEMAG's (2015) vision of university-school partners being responsible for achieving this. Additionally, inSITE realised two actions outlined in the GTIL report (2013): the employment of teachers to deliver ITE courses and the development of strong university-school partnerships.

The participating pre-service teachers, the majority of whom were from science or mathematics backgrounds, were selected via expressions of interest followed by interviews jointly conducted by The School and The University staff. The cohorts for each year comprised between 10 and 13 pre-service teachers respectively; the mentor and/or subject supervisor roles being filled by The School's teachers.

The three inSITE programs had many commonalities but some key differences must be highlighted here. For the inSITE 2016 program, pairs of pre-service teachers initially worked with a mentor/coach whose teaching discipline differed from their own, allowing the pre-service teachers to concentrate on targeted aspects of pedagogy during observational rounds and short co-teaching experiences, without being preoccupied by content delivery. As time progressed, the pre-service teachers were partnered with one or more Subject Supervising Teachers forming Communities of Practice (CoPs) (Wenger, McDermott & Snyder, 2002). Both The School and The University staff and the pre-service teachers evaluated these CoPs positively. Accordingly, this approach was included in later inSITE iterations. Two course subjects - Professional Experience and the Individual Research project - were facilitated at The School during inSITE 16.

Pre-service teachers participating in inSITE 17 embedded at The School during Semester 2, 2017, experienced the co-delivery by The School and The University staff of one subject only - Inclusive Education - on-site and integrated with classroom observations and teaching opportunities.

The Semester 2 inSITE 18 program was more closely modelled on that of inSITE 16 but incorporated selected elements of inSITE 17 with three major improvements:

- the additional, concurrent participation of two other local high schools where the pre-service teachers were embedded under the same CoPs model for at least one day per week during the semester;
- The School formed the “Hub” for the other local participating schools. For inSITE 18, flexibility on the part of The University in restructuring the Master of Teaching timetable enabled the pre-service teachers to fulfil inSITE requirements; and,
- all pre-service teachers attended one day per week at The School for the delivery of three accredited subjects by The School staff - one co-written and co-developed by The School and The University - in an integrated modality employing the educational practice of transformative learning (Mezirow, 1991).

For the integrity of the Government-funded program, each iteration was evaluated to inform future programs and maintain transparency and accountability by identifying issues within Australia’s overarching Initial Teacher Education suprasystem, the generalised university-school system and university-school-inSITE sub-systems which sit within it (see Figure 1). In response, change strategies were developed and, where appropriate, rapid *Plan-Do-Study-Act* cycles enacted to effect the change (Bryk et al., 2015). These cycles entailed planning the small-scale innovation, putting it into practice and analysing the data (the lessons learned). In the final step, reflecting on the data informed the direction of this and successive program(s). Zeichner and Bier highlight the inability in the American context to “institutionalize and sustain innovations [in ITE] that have been initially funded by ... government” (2013, p. 38)”. The inSITE project partners were aware of issues of sustainability of the model throughout each iteration. The program’s discontinuation in 2019 because of funding constraints reinforced the significance of built-in sustainability.

Case Study Research Design

To understand the experiences of a school engaged in innovative approaches to ITE, the authors conducted a follow-on study of the factors which enabled and inhibited the implementation of inSITE. This singular, school-university partnership may have similarities with other initiatives of the NSW Hub program and the wider ITE reform agenda. However, we do not know whether or not this is the case. Our approach was defined by interest in the specific case and understanding it (Creswell & Poth, 2007), and not its inherently

comparative potential (Hyett, Kenny, & Dickson-Swift, 2014). Our interest was the particularity of inSITE and The School's role in its design and implementation and the sharing of those insights, rather than in the generalisability of the research. Therefore, a case study approach was considered most suitable to describing the phenomenon and exploring the two research questions (Yin, 2014).

A case study approach enables a narrative inquiry into a phenomenon within a real-life context (Farquar, 2012) – a notion that resonated strongly with the principles and aspirations of inSITE. The research design was consistent with the program design and with its fundamental interrelationship of theory and reflective practice within authentic settings. The case study approach, therefore, provided the framing for deep reflection on practice and enabled the potential for learning and emergent knowledge.

Creswell and Poth (2007, p. 73) described a case as “a bounded system”. The boundaries drawn in this study related to the single unit (of inSITE), to the location (The School), to the industry/context (of ITE) and to the key participants (teachers with significant roles in the program). The intent of these boundaries was to facilitate *depth* of learning about and through the phenomenon and in order to act, rather than *breadth* of learning.

In case study research, it is important to acknowledge the researchers' relationship with the case (Hyett, Kenny & Dickson-Swift, 2014), and the ways in which this relationship influences the research design and process. Although the presence of the researcher in the environment influences the nature and interpretation of the case under study and subjects it to assertions of bias, it also has the advantage of facilitating reflexivity on the part of the researchers. The approach provided us a disciplined means for examining our own knowledge, feelings, behaviours and motives and then relating the experience to the broader ITE environment. As such, the embeddedness of the researchers aligned with inSITE's theoretical framing of integrated learning. We therefore regarded the research as another learning experience within the context of inSITE.

For the purpose of disclosure and methodological honesty (Wager & Kleinert, 2010), this research was conducted by four researchers, two of whom were teachers partially responsible for the design and delivery of the program. One university-based academic was a co-designer of the project and facilitated the university-school relationship. A second, independent, university-based academic conducted and coded the interviews to ensure that the interviewees felt free to express themselves openly and honestly; and, to ensure a level of objectivity in devising a data coding structure. The intention was to ensure the quality and rigour of the research by establishing its integrity (Lincoln & Guba, 1985; Guba & Lincoln, 2003) and enabling transferability and application of the research process and outcomes to other contexts, where appropriate.

Method

In order to maintain the research focus on The School's perspective and the factors that influenced school engagement in ITE reform, an organising framework was devised (see Figure 2). The framework comprised four factors deriving from two dimensions: *boundedness* with its internality and externality to the project, and *change* with its enablers and inhibitors. The boundedness relates to inSITE's embeddedness

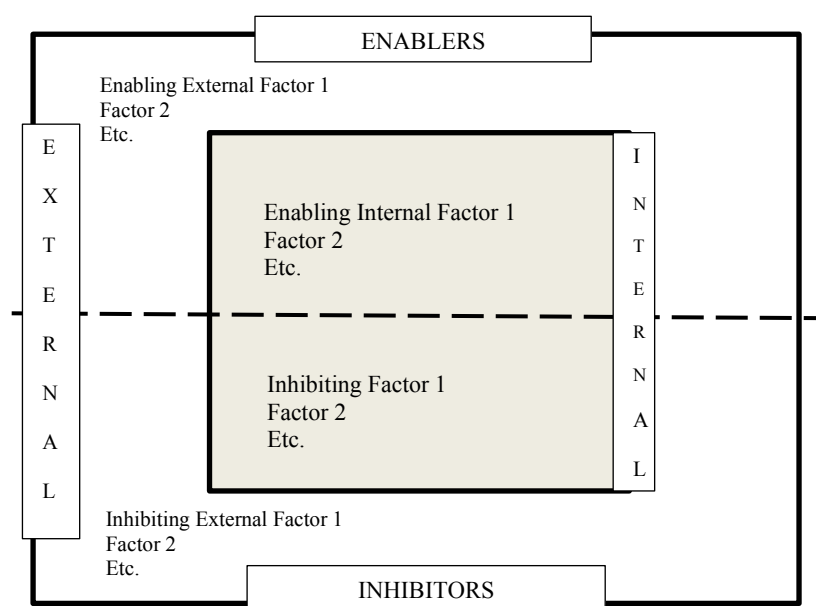


Figure 2. Model for Analysing School-based ITE Enabling and Inhibiting Factors

within The School, so that external factors are those that may, for example, emanate from policy, The University, the broader school environment, or the pre-service teachers' lives outside the program. Internal factors derive from the program itself and its school embeddedness. The change dimension relates either to the enablers which have energised, reinforced or promoted the change or the inhibitors that check, limit or prevent the change.

The empirical element of the study involved gathering data in late 2018 that reflected the perceptions of the teachers. The process was conducted through semi-structured interviews with six individual School staff, a focus group of eight supervising teachers and mentors, and four of the pre-service teachers for their views of its trajectory and effectiveness. The latter were included for purposes of triangulation, as they might have formed a view on The School perspective from their direct observation. The interviews were recorded and transcribed and verbatim notes taken. Additionally, data were also collected from the focus groups by participants recording ideas on adhesive notes according to the predetermined framework of boundedness and change. Consistent with the aims and assumptions of the case study, the study population was a criterion purposive sample (Ritchie, Lewis, & Elam, 2003), the relevant parameters, being:

- all School teachers - the majority of whom had direct involvement in the three programs; therefore, drawing on their depth of knowledge of the phenomenon. All teachers had a minimum of eight years teaching experience and included those initially reluctant to participate. Teachers are not identified as such in the reporting as identifying patterns between the teachers was beyond the scope of this paper;
- pre-service teachers in the 2018 program: potentially able to make comment on the program, school context and role; and,
- availability and willingness to participate with guaranteed anonymity.

The data gathered through the interviews and focus groups were analysed and the major themes identified and related to the framework.

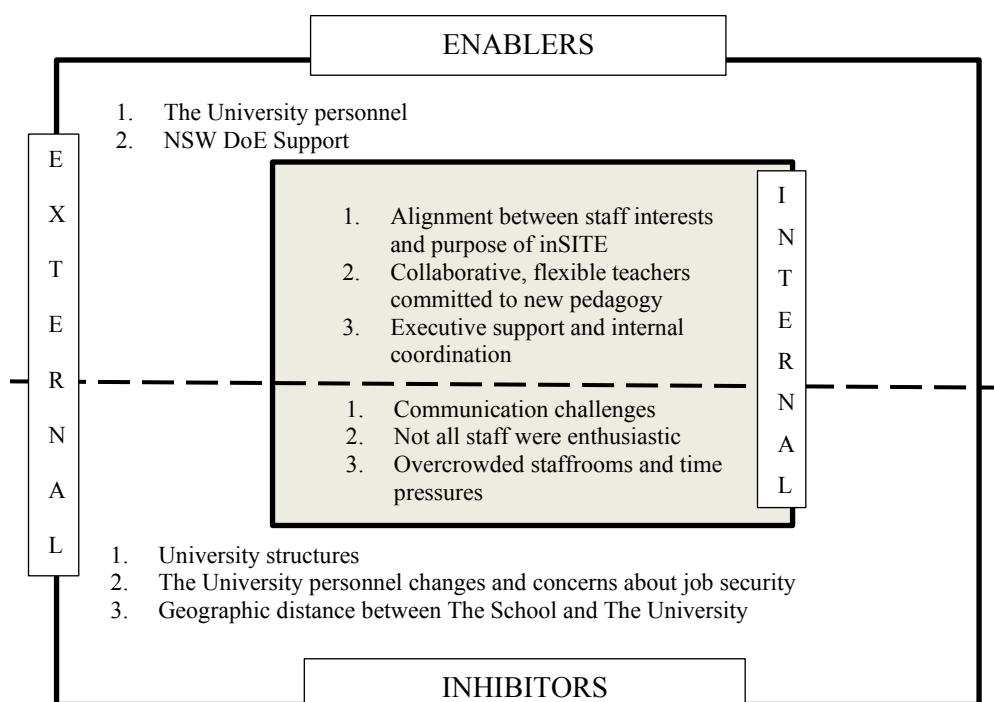


Figure 3. School-perceived actors influencing school-based engagement in ITE reform

Results

The key themes to emerge from the empirical research are illustrated in Figure 3 and are explored in depth below.

Internal Enabling Factors

Alignment between Staff Interests and Purpose of inSITE

The School had a number of passionate teachers interested in the design and implementation of the inSITE program, motivated by a personal interest in supporting more effective approaches to ITE. The purpose of inSITE thus closely aligned with the values, interests and personal experiences of a core group of staff, including members of The School’s executive. They made consistent references to the unique characteristics of The School’s culture and the altruistic intentions of its involvement in inSITE: “It was more of a contribution to a profession rather than to The School *per se*” (Teacher 1, Interview).

Reflecting on the purpose of inSITE, these teachers placed a strong emphasis on the need to improve retention rates of teachers in their first five years of employment (Ewing & Manuel, 2005), and to best prepare them for 21st century learning (Goss & Sonnemann, 2017; TEMAG, 2014) - both goals consistent with current educational aims. Informants believed this could be made possible through:

- a focus on pedagogy rather than content areas;
- creating opportunities for The University and The School to learn from each other.
- building the confidence of pre-service teachers through treating them as school staff and providing a more realistic experience of working life in a school;
- offering a supportive environment to perform real-life case studies; and,

- highlighting the extent and depth of learning that pre-service teachers receive through working in collaboration with one another.

These latter three scenarios contribute to the pre-service teacher's construction of their teacher identities through providing a strong relational element (Hogan, Reid & Furbish, 2017). Importantly, all staff members interviewed for this study felt that inSITE made great achievements towards this purpose, while recognising that some challenges were experienced for the pre-service teachers, The School, and The University.

Collaborative, Flexible Teachers Committed to New Pedagogy

The School's teachers reported a genuine feeling that its broader staff had much to offer pre-service teachers and could play an important role in building meaningful connections between The School and The University. They considered themselves to be very welcoming, collaborative, passionate and flexible: characteristics demonstrated to have provided a welcoming attitude towards pre-service teachers' participation in their classrooms and, the time and interest to allow them to practice and apply new skills. Therefore, a strong pool of enthusiastic mentors and in-faculty supervisors willing to support pre-service teachers was provided in both subject areas and pedagogy. The willingness of teachers to consider new pedagogy was reflected in their readiness to work with pre-service teachers outside of their faculty which allowed The School to direct them across a range of subject areas, despite only being able to draw on maths and science pre-service teachers.

Executive Support and Internal Coordination

In addition to a commitment to innovation and collaboration among The School mentors and supervisors, they felt that The School executive also shared these qualities and was enthusiastic to participate in an innovative approach to ITE assisting in overcoming practical obstacles - such as time and communication - in the initial stages. As the following interviewee stated: "... the executive was on-side with the whole project ... that helps because it was hard work. It was very time consuming...innovative programs take a fair bit of energy to implement" (Teacher 3, Interview).

Two members of The School's executive coordinated the program and both its teachers and the pre-service teachers recognised their significant effort, motivation and personal dedication as being crucial for the day-to-day running of inSITE.

Internal Inhibiting Factors

Communication Challenges

Most participants noted that communication was the predominant internal inhibitor. Good communication within this system was considered as critical to maintaining interest and engagement from teachers in this innovative approach, yet some School staff felt that communication was not always effective. This sometimes resulted in a lack of clarity on future activities and how they could best be supported. The inSITE coordinators, however, avoided the negative impacts of overloading – or, as one teacher described it, "bombarding" (Teacher 3, Interview) - staff with information and felt that some email communications were, perhaps, not read - for any number of reasons; a common issue of relying predominantly on email (McMurtry, 2014).

Communications between The School and the Hub schools during inSITE 18 were also reported as falling short of expectations. This, in part, was attributable to staffing changes at the other two schools which resulted in lack of clarity around their leadership responsibilities and further email issues as above.

Not All Teachers Were Enthusiastic

Compounding these communication challenges was the School Executives' perceptions that not all teachers at The School were equally enthusiastic to participate in inSITE and did not actively volunteer to supervise/mentor the pre-service teachers. Those involved in inSITE organisation acknowledged that taking-on pre-service teachers involuntarily was not ideal but could be considered as a professional development opportunity. As one interviewee said "some teachers were forced to take students and that wasn't ideal...but...[teachers] were stuck in their ways and had a negative attitude and that needed to be challenged (THS School Executive member, 2019). Limitations in the number of well-suited supervisors in particular subject-areas was also recognised in inSITE 16 and resulted in a reduced and more manageable number of pre-service teachers in any one school in the 2018 program.

Overcrowded Staffrooms and Time Pressures

Hosting pre-service teachers in a small number of faculty-based staffrooms presented a practical challenge. Although the program initially focussed on pedagogy rather than subject-area content, during the traditional "block" - stipulated by The University – tensions were strained in some faculties. As one teacher commented, [my faculty] got very overcrowded, I think there was a bit of cabin fever (Teacher 4, Interview)".

Many teachers noted the considerable time investment required for involvement as mentors, supervisors or coordinators which added to their workload. Some reported that they had less time with their own classes with an associated impact on routines. Members of The School executive noted the impact on time and resources as a particular concern.

External Enabling Factors

Personnel

Loughland and Nguyen (2018) state that "professional experience programs should prioritise strong relationships with partnership schools and endeavour to build robust learning communities of practice that include high-level academic and school staff" (p. 21). Although achieving this goal was not without challenges, participants noted the positive relationships formed between The School and The University staff as being key enablers of inSITE. One member of The School leadership team felt that "there was a genuine desire for a partnership from all the uni[versities] and [this particular one] - in terms of their philosophy around teaching and learning – it is something that would enable a brave approach" (Teacher 3, Interview). As the roles became more fully understood by all stakeholders, the developing of positive and meaningful relationships between The School and The University staff, which mutually respected the expertise of each other as either the traditional deliverers of educational theory or pedagogical practice, respectively, facilitated the sharing of the theoretical and practical contexts. This sharing of contexts, in part, resulted in the blurring at

the systems' boundaries (Ferns, Campbell, & Zegwaard, 2014) and the subsequent partial softening of the theory-practice divide (Collins & Ting, 2017; Ingvarson et al., 2014).

A particular strength noted by participants was the appointment in 2017 of a university-based research academic School/University liaison or "boundary-broker" (Koskinen, 2008, p.121). The appointee, with expertise in organisational learning, facilitated opportunities for the inSITE coordinators to enhance communication with one another and encouraged cycles of reflection and *Plan-Do-Study-Act* among supervisors, mentors and the pre-service teachers to improve inSITE delivery. Loughland and Nguyen (2018) highlight the importance of this role in ITE and Koskinen (2008) notes that "teams that engage in boundary brokering are perceived to be more effective and are more likely to achieve their goals" (p. 121).

NSW Department of Education Support

The School staff interviewees acknowledged the financial contribution of the NSW DoE - a subset of the suprasystem - which made inSITE possible. The fact that it was a DoE GTIL initiative "gave some strength and credibility to what we were doing...it was helpful to know we have The Department's support" (Teacher 2, Interview).

External Inhibiting Factors

University Structures

Several teachers reported The University system's inflexibility to amend existing practices to support the needs of The School, giving rise to perceptions among some of The School staff that "sometimes, [The University] wasn't prepared to make an allowance that would allow pre-service teachers to be more involved" (Teacher 3, Interview). Three examples of how The University's structures/processes potentially limited the program's effectiveness arose from the interview data:

- for each iteration, the assessment schedule was published well before the inSITE's planning was finalised, preventing The School organisers from ensuring close alignment between subject delivery at The School and The University's assignments;
- even in the third year of development, the rigidity of subject timetables ultimately limited the time the pre-service teachers could spend at The School;
- The University's 3-term structure against the 4-term school structure, combined with University assessment and school holiday periods, severely reduced the actual time available for course delivery at The School. The heightened competing pressures experienced by teachers, such as marking, reporting and the completion of senior syllabuses also exacerbated this tension.

In each of these examples, the interplay of tensions between the interacting systems were evident.

Communication weaknesses between The School and The University - particularly regarding university organisation but also pre-service teacher assessment - were often highlighted. There was a perceived lack of shared information between the two systems both throughout the developmental stages and the delivery of the three programs. Communications during inSITE 16 were noted by The School teachers as being particularly challenging. All of these tensions can, to varying degrees, be attributed to the complex nature - both within and between - the interacting systems and were never entirely overcome. With respect to partnerships such as this, Weerts and Sandmann (2008) contend that "successful partnerships

feature rich interpersonal exchanges, support, and sustained face-to-face contact over long period of time” (p. 82). Unfortunately, although the relationships were strengthened, the communications diminished somewhat. Possibly because, as time passed, there were fewer and fewer face-to-face exchanges between The School and The University staff in furthering ongoing planning and implementation: email communications were relied upon too heavily. The higher education professionals who took part in Chase and Clegg’s (2011) study stressed that, for complex systems such as this, face-to-face exchanges were vitally important.

Personnel Changes at the University and Perceived Concerns About Staff Job-Security

Soon after the commencement of inSITE 16, a change in The University’s leadership personnel resulted in a loss of staff who were particularly interested in the program’s aims. These personnel had demonstrated a supportive approach to inSITE’s development and were instrumental in promoting a flexible approach from within The University whilst adhering to the standards set by governing bodies (the suprasystem). This change was perceived by some of The School’s staff to result in less commitment to progressing the program’s vision. Participants primarily attributed this to the newer personnel’s lack of involvement in the design phase, which impacted on communication and the rebuilding of trust.

Also, of noteworthy concern by The School teachers was the perception of some of The University staff that the possible sustained delivery of inSITE subjects at The School by The School’s staff could ultimately impact their job-security. As Heinz and Fleming (2019) suggest, university teacher educators perhaps need to “forge new identities ... working closely with practicing teachers in and between the university and schools ... [with a sense of] ... “joint ownership” (p. 1304) of their project: more of a blending of systems.

Geographic Distance Between the School and the University

A further practical challenge experienced by The School’s teachers and pre-service teachers was the distance between The School and The University campuses. The travel time between the two on public transport consistently took over one hour. In order to allow pre-service teachers to meet the requirements of their university timetable, supervising teachers had to allow them to leave early as “we understood those pressures that they were under. They were significant for them” (Teacher 3, Interview). Pre-service teachers noted that The School’s location and public transport limitations precluded some pre-service teachers from signing-up to the program.

Limitations of the Study

The single case study approach typically presents limitations. This was a small-scale study and the experience of other schools involved in in-school ITE might yield different data. The study population included only those staff who had immediate contact with the inSITE program. Extending the sample population to include a broader range of staff may have added another perspective. However, for the purposes of the study and the time available, the in-depth knowledge of those working to design and effect change in the system was of greatest interest.

The subjectivity of the researchers has already been raised and remains a limitation, despite the inclusion of an independent researcher. Such subjectivity similarly holds in

relation to interpretation of the data gathered. Time constraints also impacted on the research as the study was conducted in 2019 at the end of the three-year program and before the contract completion of one of the researchers.

A further limitation is that the perspective sought is of The School context only. As the complexity model illustrates (see Figure 1), there were multiple contexts in which the program was embedded and, therefore, multiple voices and viewpoints that could have informed knowledge and understanding of the change process. The fact that other studies have tended to derive from the university sector does not mitigate this limitation, although it does reinforce the reason for having a school perspective on the reform process.

For these reasons, the results cannot be generalised. However, while accepting each of these as limitations, the critical purpose of the study was to share the learning from the authors' reflections, reflective of the complexity worldview that underpinned the project, with others.

Implications and Conclusions

As noted above, there is a widely held view that ITE in Australia and elsewhere needs reform so that graduating teachers come to the profession best-prepared for the practical demands and the cultural contexts of schools. At its heart, the debate has long been about tensions in the theory-practice divide and the way in which ITE is structured to reinforce this. The inSITE program was devised to explore alternative approaches to shift dualistic, linear and university focused ITE. From the perspective of The School teachers engaged in this research, school-embedded approaches to ITE have the potential to better equip pre-service teachers for the demands of the school environment and teacher practice post-graduation. The realisation of this potential, however, is likely to be dependent on school and university staff committed to the reshaping of ITE and with the ability to innovate effectively.

The data indicated that staff enthusiasm and dedication, together with their strong relationships, shared goals and vision, and mutual support were important enablers. Continual cycles of co-learning and co-construction, largely within the school system but sometimes between the systems also contributed to the success of the model's delivery.

However, this study has identified numerous challenges to attempts to destabilise the dominant paradigm. The impact of communication as an inhibiting factor was of noteworthy importance, and its impact on staff interest and engagement cannot be underestimated. From The School's perspective, building stronger partnerships between the systems and ensuring a greater presence of informed, willing and skilled change-agents in each would be major steps in overcoming some of the challenges. The crucial aim would be to achieve a better integration between the partners to reduce the theory-practice divide.

Ultimately, the key factors to the success of an innovation such as inSITE appear to be a belief in the need to reform ITE and a commitment to innovation underpinned by the means to effect change. Success in reforming ITE will rely upon the substantial contributions of each of the interdependent parts of the complex system.

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