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*Corresponding author: Nish Belford, Faculty of Education, Monash University, Building 6, 19 Ancora Imparo Way, Clayton Campus, Melbourne 3800, Australia
E-mail: nish.belford@monash.edu

TEACHER EDUCATION & DEVELOPMENT | RESEARCH ARTICLE

Research-informed 'immersive' professional learning with pre-service teachers in schools

Nish Belford[1]*, Libby Tudball[1] and Sarika Kewalramani[1]

Abstract: Research-informed immersive professional learning in schools is another avenue for pre-service teachers (PSTs) to develop their understanding and reflection about theories, methods, and practices of teaching and learning. From a collaborative research project that aimed at developing the intercultural capabilities of Prep level students in a primary school, in this paper, as teacher educators, we examine the views of four PSTs involved in this project. The findings draw upon the opportunities and affordances PSTs identified from this in-school "immersive" and situated teaching experience in; bridging the incongruences of the theory/practice divide; reflecting on their teaching practices; and in improving their teacher efficacy, agency, and relational agency. From a reflexive stance, as teacher educators, we further discuss the implications of this collaborative research with PSTs in closing the gap of the theory/practice divide between university-based learning and teaching practices in schools. We also discuss the mentioned affordances as emphasised by the PSTs towards the improvement of their teacher efficacy, agency, and relational agency. The paper concludes on further strengthening of university-school collaborative research partnerships. It highlights research-informed projects

ABOUT THE AUTHORS

Dr Nish Belford has teaching and research experience in educational inquiries in teacher education within the arts. Her recent research project involved a collaborative partnership with a primary school in offering pre-service mentorship in using creative visual arts pedagogies to promote the intercultural capability of young children.

Associate Prof. Libby Tudball has a wide research experience in school and teacher education related to interweaving themes of values and citizenship, internationalisation, and sustainability. Her work reflects her passion for developing high-quality education that draws on modern life while at the same time prepares young people as active and informed participants in their local and global communities.

Dr Sarika Kewalramani has been involved in research studies with primary and secondary public schools. Her current roles as an early year's science lecturer in the science curriculum, pedagogy and, instructional and inquiry-based practices have extended her experiences into cross-curriculum teaching and research.

PUBLIC INTEREST STATEMENT

Teacher educators and five preservice teachers collaboratively worked with a primary school on a research project that aimed to promote the intercultural capability of young children. From this university-school partnership, there were several outcomes. This paper examines preservice teachers' (PSTs) experience with immersive learning and mentoring being involved in this research project. PSTs commented on their learning opportunities in bridging theory with practice and reflective teaching to improve their confidence and preparedness for teaching. As teacher efficacy beliefs relate to teacher behaviour, aspirations and motivation as teachers invest efforts in teaching and their future careers. In this regard, PSTs described authentic and dynamic teaching and mentoring experiences through this research project in school environments to significantly improve their teacher efficacy, agency and relational agency with others. This paper also highlights the need for more and closer research partnerships with schools and research-based learning experiences involving the collaboration of PSTs to further empower their professional learning and development.

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to offer PSTs opportunities for situated teaching experiences from guided mentorship as another avenue for "immersive" professional learning in schools.

Subjects: Teacher Education & Training; Primary Education - Teacher Education & Training; Initial Teacher Training; Newly QualifiedTeachers; Teacher Training; Teachers & Teacher Education

Keywords: Bridging the theory/practice divide between university-based learning and teaching practices in schools; pre-service teachers; research-informed immersive professional learning in schools; relational agency; teacher efficacy and agency

1. Introduction

Research-informed immersive professional learning can provide richer and more varied learning opportunities for novice teachers with more avenues to reflect individually and collectively on "theories, methods, and practices of teaching and learning (pedagogy)" (Crichton & Carter, 2017, p. 26). Pre-service teachers (PSTs) can gather distinct experiences with research-informed teaching "immersive" experiences in schools, beyond other field related-experiences such as university coursework (e.g research-based assignments with data collection in schools) and teaching practicums. As teacher educators, we examine the perspectives of four PSTs who participated and collaborated with us on a research project in a primary school. PSTs were involved in the planning and teaching of an integrated unit of work focussing on cross-disciplinary art learning activities with Prep level students in their foundation year of primary schooling which has a full-time program and a defined curriculum. In particular, in this paper, we examine PST's views and insights as they identified the opportunities and affordances of this immersive and situated in-school teaching experience to; (a) offer them more authentic opportunities in integrating theory with practice and reflect on their teaching practices; (b) improve their teacher efficacy, agency and relational agency from guided mentorship. As teacher educators, we take a reflexive stance in discussing the PSTs views, to situate how this research-informed immersive experience in a school helped them to bridge the incongruences of a theory/practice divide between university-based learning and school placements. We further discuss the affordances the PSTs identified to discuss their engagement to reflection on teaching practices, and an improvement of their teacher efficacy, agency, and relational agency. The conclusion draws on how this work is important for us as teacher educators and reflective practitioners in revisiting different aspects of university-based teaching. We also discuss how collaborative university-school research partnerships involving PSTs in schools contributes to offering them further opportunities for immersive professional learning with more situated teaching experiences and guided mentorship.

2. Literature review

2.1. Research-based learning and research-informed immersive professional learning for PSTs in schools

Research-based learning in initial teacher education as argued in a number of studies (Bahr & Mellor, 2016; Bower, 2010; Brew, 2006) extend diverse experiences to PSTs to draw upon theoretical frameworks to inform and evidence their practice. It also helps PSTs to extrapolate, reinterpret or redefine the complexities of teaching around many contextual issues including students' circumstances, classroom environment, school, and community (Bower, 2010). Baxter and Marcia (1992) also agree that such approaches provide access to authentic learning experiences with contextual knowing, where knowledge is based on an evaluation of evidence. Bower (2010) mentions that "research-based learning is a learner-centered knowledge building exercise (p. 1), which allows PSTs to link theory with practice while engaging with contemporary research and literature in a field of inquiry which they can apply to a teaching context.

Crichton and Carter (2017) suggest that research-informed immersive professional learning support novice teachers "to practice, reflect on skills and experiences necessary to develop their professional discernment" (p. 26). Research-informed experiences in schools play a prominent role in PST's

Figure 1. Workshop style teaching in school—Day 1.

professional learning, but there are distinct approaches within different countries. For instance, the teacher education model in Finland has more extensive partnerships between universities and schools in focussing on a "spiral sequence of theoretical knowledge, practical training and research-oriented enquiry for teaching" (Sahlberg, 2012, p. 12). Hence, research-based thinking becomes part of theoretical and practice-based aspects within teacher education programs (Kansanen, 2014).

In Australia, PSTs are more likely to be engaged in research on their learning and practice if they are enrolled in an Honours embedded four year degree or a graduate Masters of Teaching and the Australian Quality Framework (AQF) outlines requirements for embedding and evidencing research across such courses (Tertiary Education Quality and Standards Agency, 2017). Graduates at this level are expected to have specialised knowledge and skills from research practices as part of their professional practice and further learning. Immersive programs in schools supported by teaching academies have encouraged school-university partnerships to offer immersive preparation experiences for PSTs (Victorian State Government, 2017). However, such immersive programs are mostly described as part of PSTs professional experience rather than research focused initiatives (Allsopp, DeMarie, Alvarez-McHatton, & Doone, 2006; Forgasz, 2016; Tindall-Ford, Ledger, Williams, & Ambrosetti, 2018). Similarly, teaching practicum in schools offer field-related experiences to PSTs, and this experience is acknowledged to have a significant impact on their learning to teach (Adoniou, 2013; Hastings, 2010). However, school placements although offer PSTs opportunities to engage in research-based activities and classroom-based research, the constraints of limited hours for teaching, classroom observation, mentoring, feedback and reflection (Lambe, 2011; Rodman, 2010) can impact their learning experiences from such initiatives.

Grogan and Andrews (2002) concur that university scholars are more apt to conduct rigorous collaborative research projects with schools. Yet, university-school research partnerships are difficult to set up and challenging to manage (Allsopp et al., 2006). There are different variables such the availability of research funds, the recruitment of the schools and participants (PSTs, school-teachers, students and parents) and time commitments from all stakeholders which can affect collaborative research projects with schools. In this paper, as teacher educators/researchers we draw on PSTs' insights to also highlight some of the distinct factors and outcomes of a collaborative in-school research project with PSTs.

2.2. The theory/practice divide between university-based learning and teaching practices in schools

Beginning teachers face challenges with the theory-practice gap and more so when implementing what they have learned in university-based courses within traditional and conservative school settings (Loughran, Mitchell, Neale, & Toussaint, 2001). Although this gap is not a new concern in teacher education, only a few studies report on PST's perspectives (Cabaroglu, 2014; Serebrin, 2004) and other teacher educator's attempts to address this issue (Allen, 2009; Cheng & Tang, 2010). Allsopp et al. (2006) suggest that many teacher education programs have long-standing goals to link theory to practice for PSTs, which provides opportunities for university-school collaboration in fostering shared knowledge, professional growth, and progressive methods of instructions. However, teacher education studies attest to the disparities between theoretical learning in pre-service programs and teaching practices in schools (Cochran-Smith & Zeichner, 2005; Neville, Sherman, & Cohen, 2005). Gravett and Ramsaroop (2015) argue that schools provide an authentic environment to "test" theoretical material PSTs encounter in university-based learning. Schools also serve as a site for "applying the received knowledge" (Cochran-Smith & Lytle, 1999, p. 292) to practical situations through implementing, translating, using, adapting, and or putting into practice what PSTs have learned (Gravett & Ramsaroop, 2015). Yet, Tindall-Ford et al. (2018) mention that some immersive programs conducted through professional experience in schools only offer PSTs incidental, rather than purposeful opportunities to integrate educational theory with teaching practice.

Involvement in context-specific research projects in schools can offer PST's with better opportunities to "reflect on their development" from a "theoretical (university-based) and practical (school-based) elements of initial teacher education" (Anderson & Freebody, 2012, p. 374). Bower (2010) also agrees that PSTs can consider "the multi-faceted influences" with immersive experiences in schools and attempt "to synergistically apply relevant principles and learning frameworks from a range of areas (pedagogical perspectives, theories of learning and assessment practices and more …)" (p. 5). In this paper, we discuss PSTs views from this in-school research-informed immersive and situated teaching experience in supporting them to bridge the incongruences of the theory and practice divide they discerned from a university-based learning and other teaching experiences with school placements.

3. Context and implementation of the research project

Two teacher educators and five PSTs collaboratively worked in a research project that aimed to engage young children in creative learning activities to enhance their cultural competence and intercultural learning experiences. In this paper, we, however, include the responses from four PSTs only.

3.1. Planning workshop

The initial design and preparation of the project included a one-day planning workshop involving teacher educators and PSTs discussing, planning, and preparing a cross-disciplinary integrated unit of work based on a theme (Exploring Families). PSTs were introduced to different subject disciplines including history, geography, and intercultural capability from the Victorian curriculum, which was used to draft learning outcomes and success criteria for the creative learning activities. While the main content was on art, using an integrated learning approach there were opportunities to make connections to history and geography within the learning activities. The focus on curriculum objectives and outcomes from these disciplines and the visual arts were used while planning the creative learning activities (mostly art focused) which aimed at developing the intercultural capability in young children. PSTs drafted a unit of work, lesson plans, prepared teaching resources, and examples of teaching and learning strategies. A short reflective session concluded the planning workshop.

3.2. Intervention in schools

The research site was a primary school located in a South-Eastern suburb of Melbourne and the school opened in early 2017. The school has a highly diverse ethnic population, and the PSTs

taught the classes while the teacher educators and schoolteachers mentored them. The additional advice provided by the school principal, who was supportive of the project.

Using a workshop style intervention running over three consecutive days in June 2017, this integrated unit of work was implemented in six different classes of Prep level students in the school over three consecutive days (see figure 1). The intervention in schools involved PSTs team-teaching to two Prep level classes daily. The schoolteachers observed the PSTs and provided a daily short reflective session with them and the teacher educators. This was an opportunity to discuss written feedback from the school teachers' observations and to share views and experiences. It fostered collaborative problem-solving and reworking of the scheduled creative learning activities to better fit the allocated teaching time, and the learning skills and abilities of Prep level students.

4. Methods and analysis

This research project also examined the PST's perceptions of and the meanings they attached to this immersive learning experience in schools. The inquiry was also guided by this sub research question: *What are the views of PSTs on a research-informed immersive professional learning within a school?*

4.1. Participants and ethical considerations

Purposive sampling was used to select five PSTs from the Faculty of Education, all completing teacher training as specialist art teachers. Three of the participants were in their third year Bachelor of Education Honours Degree (for Primary and Secondary years) and two were in their first year Master of Teaching course. As part of their professional learning, they already had some knowledge of the Victorian Curriculum from years F-10 for the visual arts. An art method unit is a core unit which is part of the teacher education program for training PSTs as art specialists. Having completed this unit, participants were already conversant to content and background knowledge about key issues related to art curriculum, and teaching and learning strategies in the primary years.

Ethics clearance was approved by both the University and the Department of Education and Training Victoria, Australia to conduct this research in the school. PST's participation in and contribution to the research project was voluntary and the ethical guidelines for their participation in the research project were explicitly outlined in an explanatory statement. All participants consented to be identified by their real names in the study. For some, this participation was an opportunity to gain more teaching experience in schools, whereas others were keen on learning more about the research inquiry and its outcomes.

4.2. Data generation

Semi-structured questionnaires were used to prompt further reflection after the intervention in the schools; four of these responses from PSTs are included in this paper. For each question, the main concepts and ideas were sketched out with prompts and additional guiding questions to elicit further information and open-ended responses (Thomas, 2015). The questionnaire was pre-tested with a colleague to make sure the nature of the questions were clear and thereon some of the questions were revised for clarity (Morse, 1995). A sample of the questions is attached under each theme in the findings section and all the questions are listed in the Appendix.

4.3. Data analysis and interpretation

Being involved in this experience as teacher educators and researchers, we take an interpretive approach (Atkins, 2012; Curtis, Murphy, & Shields, 2013) in analysing and making sense of the PSTs perspectives. This approach resonates with Schwartz-Shea and Yanow (2011) understanding of contextualized meaning-making, which in this paper we try to examine from the PST's views and our interpretation of their experiences. Reflexivity refers to researcher's active consideration of and engagement with sense-making (Schwartz-Shea & Yanow, 2011) while "reporting on personal beliefs, values and biases that may shape the inquiry" (Creswell & Miller, 2000, p. 127). Whilst

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allowing a subjective interpretation with critical considerations of the participant's accounts, we were cautious in bracketing researcher's biases from our positionality in terms of our presence on the research site and in making meaning of the PST's responses in relation to research trustworthiness (Creswell & Miller, 2000).

Findings include personal insights from only four PSTs reflecting on their immersive learning experiences in schools being part of this research project. Responses to the questionnaire were categorically analysed, a process involving the researchers reading through the data while assigning codes to significant words, phrases, and ideas. From these broader categories, different themes were identified (Coffey & Atkinson, 1996). The findings includes vignettes of the PST's personal experiences (Saldana, 2011) and the discussion further analyses the implications of those experiences under the following themes: perceptions of the theory/practice divide from university-based learning to teaching practices in schools; reflection on teaching practices, enhancement of teacher efficacy and agency; and relational agency.

5. Findings

Within their responses, PSTs identified the affordances of a research-informed immersive learning experience in schools. PSTs views are presented under the following themes in this section to underline the distinctiveness of this immersive experience in comparison to their university-based learning and field-related experiences in schools.

5.1. Perceptions of the theory and practice divide—university-based learning versus teaching practices in schools

One of the key findings was about the beliefs PST's upheld about the theory and practice divide between university-based learning and teaching practices in schools are reported under the following questions:

- *How far has this research and teaching experience helped you to bridge the gap between theory and practice?—Was it an opportunity to engage in experiential learning and in strengthening knowledge of theory and curriculum with more flexibility and innovation on teaching and learning approaches?*
- *Did this research project offer you better opportunities for immersive learning, teaching and research experiences in a school environment? Please comment on how this experience was different from university-based learning?*

PSTs stressed that the hands-on experience of teaching and planning was a significant component in bridging the gap between theory and practice. For instance, Louis argued how understanding theory and practicum need to complement each other and often there are not many opportunities to explore this complementarity through active engagement in real classrooms. Louis believed that:

> By taking a hands-on practical approach to teacher education, I was able to qualify the theories and pedagogies discussed at the university. There is a distinct difference between talking and writing about teaching than participating in the act of teaching itself. In a way, both strategies, theory, and practicum supplement each other and give each other clarity. However, I do feel that being immersed in and actively engaged in the school environment was a far more enriching learning opportunity.

Michelle found this experience improved her learning and teaching skills. The dichotomies between theory and practice are often vague and ambiguous to resolve without real classroom experiences. She said the teaching experience:

> … was a huge bonus for me to explore related research and benefit my learning. The university-based learning is a bit too theoretical and sometimes very vague, being in a real school environment and having the opportunity to have all the support from different

stakeholders made me feel that I was improving on my teaching skills faster than ever. Teaching in a real classroom with real students is crucial.

Emma thought that this experience allowed her to explore new parameters of university-based learning, yet with more opportunities to explore innovative ways of teaching, including team teaching and new ideas while being supported by others. She thought that: *It was different from university learning because you could try some of the things you were learning about in university, with the support of fellow peers and teachers.*

Emma also commented on how she was able to use new facilities and school resources suggesting: *This experience gave me a hands-on opportunity to teach in an environment with new facilities.* Similarly, Jess observed the dynamics involved in open plan teaching and learning and commented:

> I learned a lot about the different learning environments and teaching strategies that schools offer. So far, I didn't have an opportunity to observe or teach in a school with open-plan learning environments and I am glad that I now have a better understanding of how these spaces can change a teacher's interaction with students. I believe participating in this project has enhanced my ability to teach in such environments in the future.

The PSTs revealed different views about their range of experiences through their interpretations of learning from their immersive experience in schools. As Cochran-Smith and Zeichner (2005) suggest, empirical evidence in demonstrating links between PSTs learning and their practices in actual classrooms is complex and challenging to estimate. We found that different variables improved knowledge building and development of skills and teaching dispositions. Participants also commented that they had fewer opportunities to discuss such approaches to practical learning within their university learning courses. Louis examined some of these considerations and said:

> As a person who benefits greatly from learning through experience, this helped me to clarify some question marks in theory. Additionally, it demonstrated great practical learning not discussed at university, and to be able to engage and adapt using those methods I felt was invaluable. Having direct feedback was great, as I was able to make adjustments during and between classes. I was also able to get clarification on how best to teach the students based on prior knowledge expressed by home teachers.

Similarly, Jess stated that:

> As this project was not a graded university unit, and thus did not require us to complete assessment tasks, we were freer to explore and develop our teaching and learning strategies through trial and error. We had the opportunity to learn through doing, and experience what the teaching profession is really like. We were, of course, supported, however, we were encouraged to experiment with different teaching strategies and learning theories we had previously acquired. This approach, for me, meant I was able to refine my practice quite significantly in a very short amount of time.

Further adding:

> As I was unfamiliar with the younger students' curriculum, identifying and implementing appropriate and important aspects of the curriculum was at first challenging. Gaining feedback from the teachers was also valuable in regard to refining my ability to interpret specific curriculum links.

The PSTs' responses indicate different ways regarding the theory and practice gap of university learning with teaching practices in schools. PSTs comments suggest the diverse nature of the student teacher's conception of theory and practice (Laursen, 2007). PSTs made clear distinctions

between their teaching experience between this in-school research-informed teaching in affording them more opportunities to reconcile the theory/practice gap. They explored different avenues in further engaging with theory, curriculum content, teaching approaches and methods while being guided and mentored by the schoolteachers and teacher educators.

Previous studies (Allen, 2009; Gravett & Ramsaroop, 2015) refer to PSTs valuing more practical knowledge in schools over theoretical knowledge from the university. PSTs also seemed to support this call as they commented on how they valued this teaching experience in enabling them to make more explicit links from theory learned at university to teaching practices in schools. With an opportunity to experiment and understand teaching methods and strategies with a cohort of Prep students within an open plan learning context, PSTs reflected on this new teaching experience and the perceived divide between theory and practice (Korthagen, 2010). In-school-based learning offered PSTs with new lenses to notice, take up and modify and innovate their teaching experience (Cabaroglu, 2014). Ovens and Tinning (2009) suggest framing PST's learning as a situated practice draws attention to the connections between participation and context of learning. Similarly, in understanding the Prep student's experiences, PSTs could discern how and why they learn. A more balanced approach in understanding student's experiences and what teachers do within class-rooms were factors PSTs emphasised on. PSTs also valued mentorship and feedback as crucial in analysing emerging issues towards improving their teaching methods. This was an important aspect of helping PSTs to work closely with the perceived disconnects between the university and school-based learning. As teacher educators, we could also see a broader exposure to socio-cultural perspectives indicating contexts of experience as significant and important for PSTs in bridging the theory-practice divide (Cabaroglu, 2014).

5.2. Reflection on teaching practices

Ovens and Tinning (2009) discuss whether the student teachers' enact reflection differently as they encounter discursive teaching and learning contexts within teacher education. With respect to this study, as teacher educators who actively promote reflection within our university-based teaching, we were keen to consider whether this particular research-informed teaching experience informed PST's understanding of how "reflective activity emerges, varies and is experienced" (Ovens & Tinning, 2009, p. 1126) as they participated in a different in-school situation. PST's responses suggest empowerment in their capacity to reflect on their teaching practices and their reflection was informed by the question below:

- *How did this project improve your construction of knowledge and teaching experience and the way you reflect on your teaching practice?*

PSTs suggested this in-school situated teaching experience to have provided them with an excellent opportunity to analyze their strengths, weaknesses, beliefs, and values about teaching and learning. When asked whether this experience has encouraged them to engage in reflection, PSTs shared different views about their teaching and learning experiences in improving their pedagogical content knowledge and teaching competencies. Emma agreed that:

> It gave me practice in organising a lesson for a group of students and to effectively teach them the concepts and ideas we had previously discussed. … [it] also gave me practice in preparing for a lesson, and what needs to be thought about in structuring activities and resources.

Louis stated:

> In general, teaching is very much a reflective practice. One which is constantly being refined and rebuilt depending on the school context. By taking time to reflect, analyse and implement new ideas; teachers can equip themselves with a wider arsenal of teaching tools and give their students a better chance of success.

It was a significant learning curve for PSTs as they adapted their pedagogical skills and improvised strategies "at the moment" to cope with weaknesses in their planning and issues during the lessons. Jess reported:

> Engaging in such a project has an array of benefits. I found that my ability to reflect on my practice efficiently and effectively was the key to enhancing my teaching. I truly believe my teaching has improved as a result of the project, but more importantly, my ability to reflect on my teaching, acknowledge changes that need to be made and alter my approach, is a skill that I will carry with me through every upcoming placement and into the teaching profession.

Michelle thought that the project had informed her understanding of integrated approaches to teaching and learning and she said that:

> This project has inspired me that teaching can be cross-disciplinary and also art can be included in so many different subjects. I am more aware of how to apply cross-disciplinary teaching and learning now, and I am looking forward to implementing it in my future teaching practice.

Costa and Kallick (2000) suggest classroom experiences reinforce self-reflection and develop meaningful experiences. Other studies demonstrate PST's engagement in a reflective activity to inform their pedagogical thinking or transfers to other situations (Gardner, 2008; Koh & Tan, 2016; Ovens & Tinning, 2009; Pedro, 2006; Pultorak, 1996). As teacher educators mentoring the PSTs on the planning and teaching for this research-informed project, we could see how they were receptive to different concerns in the planning phase and their teaching. PSTs improvised on finding solutions, adapting to different challenges and in making changes to cope with different classroom situations. Parsons and Stephenson (2005) mention reflection lead to deeper insights, which can also involve a shift in values and beliefs, with conscious decision making on learning experiences. PSTs identified this particular in-school teaching experience to extend their reflection from the evaluation of teaching competencies to pedagogical thinking and refinement of performance skills. For instance, PSTs engaged in new ways to build their own beliefs and practices (Lambe, 2011) while developing renewed skills and confidence for classroom behaviour management, delivery of lesson content and more informed understanding of young students' learning and recognition of the knowledge, skills and learning dispositions. A key aspect of the reflection process was the "situatedness" (Ovens & Tinning, 2009) of the teaching experience, more so in relation to research-informed teaching activity. PSTs dealt with unpredictable variables such as classroom management with Prep level students and also improvised ways to engage them and in assessing their learning. We were impressed with the PSTs overarching reflection on this experience as they managed to reflect and make decisions spontaneous, although as Zeichner (2010) argues it is rather difficult to expect this level of thinking in PSTs.

5.3. Improvement of teacher efficacy, agency and relational agency
Having completed the research-informed activities with different Prep classes, the PSTs' reflections on their teaching experience in terms of an enhancement of their teacher efficacy and agency is reported under these questions:

- *How will you assess your confidence, personal capabilities, and preparedness for effective teaching, being involved in this project? Has this experience improved your teacher efficacy?*
- *Did this immersive teaching experience improve your pedagogical agency? (in looking at the curriculum, and use of instructional strategies and classroom management skills) Do you feel this experience has also improved your teacher agency?*

With more teaching experience and space to process doubts and misconceptions aloud, the PSTs said this experience along with receiving mentorship and support (Rots & Aelterman, 2009) was crucial in

improving their sense of teacher efficacy. While PSTs initially felt unprepared and out of their comfort zone, they commented that feedback from the classroom teachers and university mentors increased their motivation and confidence to interact with students. Michelle, an international student, thought that: *This experience has definitely improved my efficacy in teaching art with primary school kids and my teaching skills in general. The experience has definitely helped my confidence.*

Emma articulated her view:

> The three days within the school improved my confidence in teaching and working in schools. Within a short amount of time, I was immersed in a fast-paced environment of teaching foundation year level students. This equipped me with the skills of being able to adapt to changing situations and things I may have been unprepared for. The reflection sessions at the end of the day gave me an insight into some of the things to reflect upon and how to improve.

Thomas and Mucherah (2016) suggest that direct interaction with students helps PSTs to develop their teacher efficacy. Louis also commented on how he has felt unprepared for various classroom situations, so having support was crucial in adapting and developing his teaching. He commented that:

> Having not worked previously with young students, it was important to observe and trial a number of different pedagogical strategies. Initially, when planning for the lesson, we had overestimated the student's abilities, so the language and activities were not entirely appropriate for the year levels. There were some situations that were uncommon and I had to adapt to. Additionally, the support of the cohorts home teacher, their experience and advice, proved very helpful in understanding the behaviours and nuances of the students and how to manage the class best, as well as deliver the learning content.

Jess thought that opportunities to teach the same content to different students were useful in assessing what worked and what didn't and how to improve from the previous practice. This eventually reinforced her abilities to make decisions, change, and reflect on her practice. Stating:

> As we taught the same lesson twice a day, we had the chance to examine what had worked —and what had not—from the first class and then alter the second class accordingly. Developing these skills to quickly and efficiently change lesson plans to suit students' learning capabilities better, has dramatically increased my ability to reflect on my teaching practice and enhance the lessons I am teaching. From participating in this project, I am more confident in my ability to deliver lessons in a variety of ways and to assess my capabilities and preparedness during and after every lesson I teach. While undertaking the project, I was able to refine my classroom management skills and instructional strategies from reflecting on the lesson, and from observing the students' usual teacher interact with them for the short periods of time, when we were not teaching.

PSTs comments indicate growth in their confidence and pedagogical competence and they discussed how their interaction working with Prep level students was novel, yet they had positive attitudes in working with them and others. Exploring new teaching strategies and teaching spaces was a challenge, but this was an opportunity to explore the school curriculum, team teaching, use different teaching instructions that helped to improve their practice and classroom management skills. Being under the guidance of experienced teachers and the teacher educators' mentorship with reflective debriefing sessions contributed to building confidence and in improving their teacher efficacy.

PST's found this wide exposure to learning, feedback and mentorship offered them more opportunities to reflect on content knowledge, teaching and instructional strategies used in real classroom scenarios. On professional placements in schools, they have fewer opportunities and time for guided reflection on such experiences. When asked how this experience supported them to evaluate their strengths and weaknesses as supported by mentorship and feedback, Louis stated:

By working largely independently, but with the guidance of active teachers, I was able to explore a wide range of strategies and skills. By having direct feedback I was able to make adjustments during class time, and physically see the changes in outcomes, for both classroom management and learning.

Emma's comments confirmed similar views and she mentioned:

It definitely assisted and developed my instructional and class management skills. The repetition of what we were teaching (morning and afternoon sessions) gave me an opportunity to improve upon things that didn't work out in the first instance—working on how I explained things or organised the students/resources.

PSTs' professional agency was strengthened as they were supported by teacher educators and schoolteachers to tackle and interpret problems within their teaching practice. Some studies suggest that methods such as guided practice in a group format increase chances to observe and learn from other experienced teachers (Liaw, 2009). From the mentoring, team teaching, and sharing group feedback, the participants were able to reflect on and improve their teaching and also recalibrate their assumptions about effective teaching methods and approaches (Tschannen-Moran & Hoy, 2007). Equally, providing them with autonomy, empowered their confidence and learning experiences in making informed decisions about classroom practices and issues. Greater efficacy beliefs influenced PSTs persistence to tackle issues and to develop resilience in the face of setbacks while being less critical when things didn't work as planned (Ashton, 1986).

This collaborative research project provided PSTs with opportunities to plan learning activities for young learners with the support of experienced teacher educators, and to seek advice and feedback from the classroom teachers straight after each class, so they could respond and shift their teaching strategies. We asked PSTs if what they learned from these more experienced teachers had improved their relational agency and if this interaction contributed to their professional learning and agency. They responded to the following questions:

• *What does this project tell you about collaborative research and immersive learning experiences in schools? How will you describe your experience and interaction working with teacher educators, schoolteachers, the school principal, and Prep level students in this project? How will you describe this experience in terms of your relational agency with others?*

PSTs commented that the experience offered more flexibility to gain feedback, and this helped their agency. Michelle thought:

… the support of the principal and teacher educators made me confident about what I am doing, and this was very important. The experience with Prep level students helped me with my understanding of how classroom management works in such an environment; the teacher educators and teachers taught us some strategies on how to deal with undisciplined students. That was helpful.

Jess said that the collaborative atmosphere empowered her interaction with others, which improved her pedagogical abilities. She said:

After being involved in this project, and experiencing the collaborative atmosphere, I now not only feel more confident in my teaching abilities, but also in my ability to communicate my ideas and work collaboratively with others. Without the de-briefing sessions or the discussions on the observations of other teachers and the principal had made, I do not think this project would have had such a significant effect on me. Conversations with the other participants in the project, the students' usual teachers, our teacher educator, and the school's principal were a fundamental aspect of the development and improvement of my teaching pedagogy.

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Emma shared similar views, commenting:

> This project gave me experience in a team teaching situation, which was beneficial at that
> point in my teaching career—as I had so far little experience. For me, it was beneficial to see
> a school located in suburbia, as I come from country Victoria. It allowed me to see
> a diversity of students and staff, and how various things need to be considered.

The PSTs felt their interaction with others improved their capacity to work in a team and to act and
reflect on the feedback they received.

6. Discussion

6.1. Research-informed collaborative projects in schools—a different avenue for "immersive" professional learning for PSTs

As teacher educators and researchers, we could see an "intimate relationship between research
and teaching" (Brew, 2006, p. 89) enacted through this research-informed collaborative project
involving PSTs and the school. Gaining insight into PSTs thinking and learning is a difficult task if
only assessed from university-based learning. Teacher educators often draw upon PSTs teaching
competencies from university assessment tasks (lesson plans, written assignments or projects
including teacher reflection and annotations) and observation of other activities such as peer
teaching. These activities, however, rarely offer teacher educators' a broader and substantial
understanding of PSTs thought patterns (Talanquer, Tomanek, & Novodvorsky, 2007) and critical
reflection. From this study, as teacher educators and researchers, we got further insights from
PST's distinct views, in terms of the opportunities and experiences gained from this research
project. The following sections discuss the incongruences as identified by the PSTs in bridging
the theory/practice divide from university-based learning and teaching practices in schools and
with further discussion on how PSTs had opportunities to reflect on teaching practices and improve
their teacher efficacy, agency, and relational agency.

6.2. Bridging the theory/practice divide—between university-based learning and teaching practices in schools

The incongruences of a theory/practice divide within teacher education programmes and school-
based teaching experiences are discussed in different studies (Hascher, Cocard, & Moser, 2004;
Hobson et al., 2008). Allen and Wright (2014) and Darling-Hammond (2000) in particular, underline
the tenuous links between the theoretical knowledge of teachers and their developing practice
during their pre-service and initial teaching years. For instance, university-based learning is often
described as too theoretical, rather removed from school and classroom realities and lacking in
detailed curriculum information and practical tips (Allen & Wright, 2014; Beck, Kosnik, & Rowsell,
2007; Darling-Hammond & Bransford, 2005). Of interest to this study is the fact that PSTs identified
this perceived theory/practice divide as impacting on their knowledge and teaching skills and
approaches. Besides the opportunities to mentor PSTs, as teacher educators we could observe
and discuss the challenges they spotted from "learned knowledge and theories" (Liaw, 2009,
p. 176). Most of the PSTs deemed this research project to have strengthened their knowledge of
theory and curriculum, teaching strategies with real classroom situations, besides other teaching
opportunities from practicum experiences. PSTs strongly believed they were offered with additional
and authentic opportunities to plan, teach, reflect, and collaborate with others. PSTs worked on
more hands-on tasks with planning and evaluation of teaching instructions within real classroom
situations, guided mentorship, and feedback. This was evident in the PSTs' views about ways they
approached the reviewing of some gaps between theory/practice through collaboration, team
teaching of different learning activities, use of teaching resources and to some extent evaluation
of students learning from reflective practices and guided mentorship. We suggest that greater
attention has to paid to understanding the challenges of the theory/practice gaps that PSTs face
through university-based learning and teaching practices in schools. Hence our contention about

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the scope and potentials of collaborative in-school research projects involving PSTs while offering them further immersive and situated teaching experiences.

6.3. Further opportunities for reflection on teaching practices in schools

Other studies have examined the nature of reflective practice and ways to support PSTs to develop the ability to engage in reflection (Parsons & Stephenson, 2005; Rodman, 2010). Gillies (2017) suggests that for purposive reflection to happen, there needs to be a proper setup or activity that allows such outcomes to follow. In this study, this in-school research collaborative project provided PSTs with some valued aspects of professional education and also opportunities for "reflective inquiry." This practice as Lyons (2010) mentions can be difficult and rarely "endorsed and practiced" (p. 8) through university-based learning and professional experience in schools. PSTs had closer encounters for critical reflection with more awareness and ability to monitor their own thinking, understanding, and knowledge about teaching (Parsons & Stephenson, 2005).

Classroom experiences are useful in reinforcing self-reflection and it enabled PSTs to build further meaning and understanding of their work (Costa & Kallick, 2000). As teacher educators, we agree with Ovens and Tinning (2009) that "reflection is not something acquired as a form of discrete knowledge or skill but is something that is enacted as part of discursive contexts in which student teachers find themselves"(p. 1130). From a situated teaching experience in this study, PSTs were exposed to authentic learning situations in uncovering "needed perspectives" on pedagogy and learning (Lyons, 2010, p. 8). PSTs also identified some "critical and moral-ethical dimensions of practice" and were encouraged to explore and investigate their ideas and teaching approaches through collaborative inquiries while deliberating about some of the "underlying professional purposes and possibilities" in teaching Prep students (Lyons, 2010, p. 8). PSTs also extended their insights into understanding the importance of reflection as part of their ongoing professional development.

6.4. Research-informed immersive and situated teaching experience in improving teacher efficacy, agency, and relational agency

Haberman (1995) argues that PSTs "need to be challenged and equipped with the right skills" (Thomas & Mucherah, 2016, p. 366) to face school realities. PSTs often face difficulties in negotiating their role in the classroom, especially when on their initial teaching practicums in schools. Tschannen-Moran and Hoy (2001) describe teacher's efficacy beliefs as closely linked to teacher's behaviour in classrooms and "efficacy affects the effort they invest in teaching, the goals they set, and their level of aspiration" (p. 783). Classroom practical experiences through research-informed inquiries can be another potential avenue contributing to building "teaching efficacy." Being part of this research project PSTs gained a stronger sense of efficacy through the planning, organising (Allinder, 1994) and experimenting of new ideas and teaching strategies in suiting the needs of Prep students (Stein & Wang, 1988). Liaw (2009) defines this experience as "performance accomplishment," (p. 176) which only comes from the interaction and experience while working with students and using teaching materials in real classrooms. We found the PSTs to be critically reflective on their own teaching practices while taking on board the comments and feedback from the mentors (teacher educators, school teachers, and the school principal) more positively. Given the distinct context of this situated teaching experience, with team teaching and mentorship, PSTs overcame their fears and challenges about teaching approaches, content and classroom management with much more ease and improved confidence.

Teacher agency is considered a dynamic concept that involves "an interrelation between pedagogical, relational and professional agency" all of which are part of teachers' work (Pappa, Moate, Ruohotie-Lyhty, & Eteläpelto, 2017, p. 2). Researchers argue that teacher's beliefs and values significantly shape and influence their conceptions of practical theories, their instructional strategies, and performance in the classroom (Cheng, Chan, Tang, & Cheng, 2009). From this research project, we could see PSTs engaging in authentic and dynamic experiences with teaching and learning scenarios that included more opportunities to discuss and interact with students, school-teachers, and the school environment (Thomas & Mucherah, 2016).

Edwards (2010) refers to relational agency as "aligning one's own response to newly enhanced interpretations with the responses made by other professionals while acting on them" (p. 14). In this study, we saw that after PSTs were involved in co-planning the learning activities and three full days in the school while team teaching and learning from others they had a better enactment of their relational agency from the feedback and mentoring. Edwards (2010) also underlines the need for a negotiated mutual responsibility between participants within teacher teamwork or other collaborative processes. We also observed that PSTs were more open and responsive in tuning into each others' ways of working collaboratively while focusing on the aims of the project and in using their individual strengths and resources. We concur with Edwards's (2005) arguments that "relational agency involves a capacity to offer support and to ask for support from others" (p. 168). PSTs involvement in this research project developed their professional capacity to "recognise and respond to epistemic dilemmas," and relate to challenges (Eteläpelto, 2017, pp. 189–190).

We also agree with Hopwood (2017) in suggesting that "agency renders practices responsive and emergent, as implied in the idea of partnership" (pp. 121–122). However, we are conscious that PSTs had enhanced confidence owing to mentorship, guidance, and feedback from this research project and the situated teaching and learning experience, which was significantly different to other in-school field experiences. Equally, it is important to note that the PSTs invested additional insights to meet the requirements of the project while interacting with us as teacher educators, the schoolteachers, the school principal, and the students. There are different dynamics involved within other field-related in-school experiences such as teaching practicums compared to a collaborative research project where PSTs are offered more focused mentorship. The setting and context of a situated in-school teaching and learning experience can hence, considerably influence PSTs exercise of agency, relational agency, and improvement of teacher efficacy.

6.5. Limitations of the study

As an independent study from the university course, and although involving voluntary participation, one of the limitations of the study was the possibility of PST's bias, which is more around the nature of the questions asked and their responses. However, Cohen (2018) argues whether "objective reliability" in terms of "adhering to the 'epistemic virtue' of keeping only to the canons and requirements of the research" (p. 26) can suppress the contribution of personal and subjective beliefs and values of participants and equally the reflexive and committed positions of researchers (Hammersley, 2011). Hence, the findings in this study although reflect more positive responses and appreciation of PSTs immersive learning experiences, their responses and concerns are represented in their own "voices." Similarly, as teacher educators and researchers we took a more committed position with a reflexive analysis of PSTs' perspectives, while also adding our own insights of their distinct experiences.

With only the questionnaire responses used in this paper, the absence of triangulation is a limitation to the study. However, there are various suggestions put forward to legitimise qualitative research in terms of validity, reliability, and rigour (Creswell & Miller, 2000; Tobin & Begley, 2004). The personal interpretation of PSTs' experience in the schools covered a multiplicity of views (Roulston, 2010) which bring coherence in the data and the discussion of the findings. The findings were re-examined by taking the data and interpretations back to the participants through member checking to confirm the credibility of the information from their responses. Member checking was used as a tool for a reflexive mode of knowledge production in establishing rigour (Cho & Trent, 2006; Creswell & Miller, 2000). Participants were asked if the themes and categories made sense and if their arguments were developed with sufficient evidence (Creswell & Miller, 2000). This process of member validation minimised any partiality and bias of the data with the consistency and care in the application of research practices in terms of the reliability in the analysis and conclusions and the limits of the research findings (Davies & Dodd, 2002).

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7. Conclusion

As teacher educators and researchers we had the opportunity to build our capacity in mentoring PSTs (Betlem, Clary, & Jones, 2018), while we had a better understanding of the PSTs teaching and reflective practices. Equally, we observed their thinking patterns from an immersive and situated teaching experience within real classroom situations. Research suggests for a more balanced and meaningful connection of theory and practice in teacher preparation programs (Beck et al., 2007; Darling-Hammond, 2006; Nahal, 2010). However, as teacher educators, we argue this research project offered PSTs more opportunities for authentic teaching and learning, time for reflection and engagement with research besides their university-based learning and school placements. For instance, we identified PST's engagement with teaching methods and approaches and classroom management skills which markedly helped us to understand their challenges while offering them support to bridge the incongruences of a theory/practice divide between university-based learning and teaching in schools. Anderson and Freebody (2012) reminds us, teacher educators seemingly struggle to reconcile the theory with practice of the classrooms, and PSTs, more importantly, find it difficult to translate what they have learned as "new views and theories about learning into actual teaching practices in schools" (Lunenberg, Korthagen, & Swennen, 2007, p. 586). In this respect, this project has underscored some of the tensions PSTs perceived between university-based learning and teaching practices in schools and they stated how they managed those challenges by positioning themselves within the tensions of theory/practice divide. The "connecting space between theoretical and practical elements of teaching practice" (Anderson & Freebody, 2012, p. 374) was thus explored with PSTs having an immersive and situated teaching experience as they reflected and made adjustments with different knowledge of teaching practices and modalities.

In this paper, we also highlight the affordances PSTs identified with more openings to embark on situated teaching and learning experiences within schools. PSTs emphasised how their involvement in this research improved their teacher efficacy, agency, and relational agency. As teacher educators, we learned how PSTs can think reflectively within different teaching situations and contexts and when offered guided mentorship, group, and individual discussions and reflection. As reflective practitioners, the positive insights from this research project encouraged us to further reflect on our university-based teaching. We suggest the development of reflective practices as advocated through this research-informed in-school project can be modeled to university-based teaching and learning through other learning activities and assignments. Similarly, we find this immersive experience in schools offered PSTs more opportunities to broaden their scope for accountability and invited them to challenge and contribute with ideas, team teach, observe, discuss and reflect on teaching practices and their doubts.

As this paper underlines, a collaborative research project conducted by university academics within a school while involving PSTs has several affordances for them and also different benefits and implications. University-school research partnerships create different avenues to "integrate research and practice into purposeful efforts that produce useable knowledge" (Sanzo, Myran, & Clayton, 2011, p. 298). Anderson and Freebody (2012), contend context-specific research projects in schools offer many other positive aspects in linking theory with practice and further investigation of such dimensions and avenues for reflective practices is required. In addition, further studies of teaching, research and mentoring with PSTs is recommended in looking at collaborative research avenues with school in offering PSTs other ways to develop, contribute and reflect on pedagogical thinking and teaching competencies. Hence, in promoting such research-informed immersive professional learning for PSTs, a conceptual shift is needed in considering them as a passive audience of research to considering them as active participants in a research community (Jenkins & Healey, 2009). There is a need for further research in addressing what motivates PSTs to be part of research-informed projects in schools and what are the challenges they are confronted with and the other added benefits of being part of university-school collaborative research projects. For instance, there can be a difficult balance between collegial relationships and issues of teacher autonomy in collaborative learning (Ruys, Van Keer, & Aelterman, 2014) and the other cultural dilemmas of PSTs conflicting beliefs about students and classroom contexts which are issues that were not explored in this paper.

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University-school research projects can play a significant role in offering PSTs immersive professional learning in the Australian context with more theoretical knowledge, practical training, and research-oriented inquiry for teaching (Sahlberg, 2012). From our experience with this research project, we concur with Baumfield and Butterworth (2007) and Flynn, Hunt, Johnson, and Wickman (2014) in suggesting for further collaborative efforts needed for more relevant and significant commitments to extending research in schools on behalf of teacher educators and researchers. To this end, however, a re-development of networked learning communities with stronger university-school research partnerships is required with more funding opportunities and a change in attitude towards supporting and involving PSTs in research projects where they can potentially benefit from research-informed immersive professional learning in schools.

Author details
Nish Belford[1]
E-mail: nish.belford@monash.edu
ORCID ID: http://orcid.org/0000-0002-9767-3572
Libby Tudball[1]
E-mail: Libby.Tudball@monash.edu
Sarika Kewalramani[1]
E-mail: sarika.kewalramani@monash.edu
[1] Faculty of Education, Monash University, Melbourne, Victoria, Australia.

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Appendix

- *How far has this research and teaching experience helped you to bridge the gap between theory and practice?—Was it an opportunity to engage in experiential learning and in strengthening knowledge of theory and curriculum with more flexibility and innovation on teaching and learning approaches?*

- *Did this research project offer you with better opportunities for immersive learning, teaching and research experience in a school environment? Please comment on how this experience was different from university-based learning?*

- *How did this project improve your construction of knowledge and teaching experience and the way you reflect on your teaching practice?*

- *How will you assess your confidence, personal capabilities and preparedness for effective teaching, being involved in this project? Has this experience improved your teacher efficacy?*

- *Did this immersive teaching experience improved your pedagogical agency? (in looking at the curriculum, and use of instructional strategies and classroom management skills) Do you feel this experience has also improved your teacher agency?*

- *What does this project tell you about collaborative research and immersive learning experiences in schools? How will you describe your experience and interaction working with teacher educators,school teachers, the school principal, and Prep level students in this project? How will you describe this experience in terms of your relational agency with others?*