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Formative performance assessment in preservice teacher education – working through the black boxes

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ABSTRACT

Teaching performance assessments (TPA) are a trending feature of initial teacher education. Founded in the United States of America, TPAs have emerged in the Australian context as a capstone assessment of preservice teacher competence. However, the inclusion of the TPA in initial teacher education places additional pressure on tertiary institutions to prepare their graduates for the rigour of the test alongside the rigour of the classroom. This paper examines the ways in which preservice teachers may best be prepared for both the test and the teaching profession, exploring notions of the TPA and teacher quality, and the tensions between theory and practice. It does so in the context of part-time and distance initial teacher education, where the gap between university and the classroom, theory and practice is magnified. *PrExConnex* is introduced as one way in which preservice teachers can be appropriately scaffolded in learning how to negotiate the TPA during professional experience, whilst also being supported in becoming professionals, engaging in professional dialogue and reflective practice. Here, we leverage the metaphor of the classroom as a "black box;" the complex space in which connections occur between teacher and school inputs and student educational output.

Introduction

Attributed with "corrective potential" (Donovan & Cannon, 2018, p. 5), teaching performance assessments (TPAs) are high stakes initial teacher education assessments valued as a means to standardise teacher education provision and provide quality assurance for a teacher education sector that is under immense political scrutiny (Department of Education, 2021). Teaching performance assessments afford preservice teachers PSTs) the opportunity to practice and articulate teachers' everyday activities as well as bring theory and practice together in a reflective manner. At its heart, a TPA is a tool that assesses " ... the practical skills and knowledge of pre-service teachers" (Australian Institute for Teaching and School Leadership AITSL, 2017b, p. 17) to "emphasise, measure and support the skills and knowledge that all teachers need from Day 1 in the classroom" (Pearson Education, 2021, online). The TPA as a culminating assessment of preservice teacher competence is new to Australia's education policy landscape, first introduced

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after the Teacher Education Ministerial Advisory Group (TEMAG) review (Craven et al., 2014) into teacher education quality in Australia. In this article we discuss the Australian socio-political teacher education context, with its emphasis on improving teacher quality Australian Institute for Teaching and School Leadership (AITSL, (2017a); Australian Government Department of Education and Training (DET (2015), accountability for student attainment (Lingard et al., 2017) and the classroom readiness of teachers (Craven et al., 2014; DET, 2015), to engage with the notion of preservice teacher assessment and consider how theory and practice can be brokered in a robust and purposeful way. We introduce *PrExConnex* – a series of tasks undertaken during professional experiences that connect what is learned at university with classroom teaching – as one means by which PSTs may be supported in negotiating educational theory, classroom practice and the TPA in the "black box" of the classroom (Parr & Timperley, 2010).

The development of TPAs reflect new technologies of accountability put in place to measure the quality of students coming into teacher education and to ensure that only those PSTs who can demonstrate classroom readiness graduate (Klassen & Kim, 2017). However, emphasis on a capstone assessment as a gatekeeper to graduation and future employment means PSTs must learn how to navigate this unique assessment type at the same time that they learn how to navigate the classroom. The guiding question of this conceptual paper, then, is: How can formative assessment support preservice teachers develop the skills and knowledge required for them to be successful when undertaking a summative teaching performance assessment?

Formative assessment focuses on the promotion of student learning as well as provision of information on students' levels of performance. As researchers and teacher educators we work at an Australian university that is charged with implementing a TPA with our students. We are interested in formative assessment that enables students to access opportunities to improve, so that our emphasis is on the process of learning to be reflective, thoughtful and effective teachers. Moreover, we see the need for our teacher education students to gain the feedback they need to be discerning judges of their own teaching practice. Preservice teachers, even those credentialed to graduate, are at an important formative stage of professional practice. It is appropriate for there to be an emphasis on the development of teaching practice through mentoring from experienced educators, and engagement with the complexities of teaching in education settings in both universities and schools. However, our particular context is one in which the majority of our students are studying at a distance and part-time, and while a full-time student might study for a year before applying that learning to the classroom, the part-time student may experience a bigger gap. So, the ways in which we support students in becoming teachers must bear in mind potentially extended temporal gaps between learning at university and opportunities for practice in classrooms.

Despite the laudable aim of ensuring graduate teachers are classroom ready, TPAs are not without critique, articulated most notably in literature focusing on the north American (especially US) context where TPAs are well established in the form of the edTPA. To ensure their students meet the grade teacher education providers must prepare their students for this high-stakes assessment, and fine examples of doing just this are found in literature (e.g., Burns et al., 2015). However, when institutions focus too intently on preparing students for standardised assessments, they run the risk of undermining the validity of the assessment (by inflating student test scores based on test preparation

rather than student learning and attainment of outcomes) at the same time as placing students under undue pressure (Plank & Condliffe, 2013). Further, teacher education programs may be "co-opted" (Stacey et al., 2020) and reduced to teaching that which is assessable by a TPA, risking "privileging the teaching practices of the dominant culture" at the expense of critical thinking (Dover et al., 2015) and other skills and knowledges that are not so easily assessed. Teaching performance assessments, then, may emphasise "those parameters that can be controlled by policy-makers . . . broad structural arrangements and teacher education regulations" (Burn et al., 2017, p. 116). The reification of teaching, learning, pedagogy and assessment over the sociology and philosophy of education, and in particular critical approaches that address equity and social justice, is a risk inherent in the design of TPAs where value is placed on PSTs' capacity for planning, teaching and assessing above other aspects of teacher education, as is the case in for the edTPA in the U.S.A (Pearson Education, 2021, online).

In Australia, the TPA has a singular emphasis on the display of skills reflecting classroom teaching practice including planning, teaching, assessing and reflecting (AITSL, 2017a), the latter of which distinguishes the TPA from its US counterpart (among other things). It is recommended that initial teacher education program design is informed by the presence of the TPA (AITSL, 2017a), which seeds the potential for the TPA to dictate program design, rather than founding program design on that which is known to be good teacher education. Yet, the Australian Institute for Teaching and School Leadership (AITSL), the governing body mandating the TPA in initial teacher education, also requires initial teacher education programs to instil in their preservice teachers an understanding of the educational impact of the linguistic, cultural, religious and socioeconomic backgrounds of their students; this is articulated in the Australian Professional Standards for Teachers (Australian Institute for Teaching and School Leadership AITSL, 2011). State jurisdictional governing bodies further emphasise and mandate the inclusion of sociology in initial teacher education programs; for instance, the NSW Education Standards Authority NESA) requires initial teacher education providers to demonstrate that their programs develop knowledge within PSTs regarding "the likely impacts that disability may have on a student's access to and participation in learning" (NSW Education Standards Authority NESA, 2017, p. 11), the "underlying social . . . implications of ICT" (NESA, 2017, p. 7), the "impact of cultural and linguistic factors on the performance of students in schools" as well as knowledge of ". . . multiculturalism as a social policy response to cultural and linguistic diversity, and its influence on policy and legislation in the areas of migration, citizenship, anti-discrimination and human rights" (NESA, 2017, p. 13). Arguably, as a result, Australian initial teacher education programs are somewhat buffered against the risk of the TPA reducing initial teacher education to a focus on pedagogy at the exclusion of sociology and philosophy. Nevertheless, in preparing PSTs for both the teaching profession and the TPA, it is worth bearing in mind the finite capacity of an ITE program to deliver all that it needs to, and that there are always competing demands in education. In response, the approach taken in our context is to emphasise links between theory and practice in professional experiences so that PSTs have opportunities to enact this professional practice knowledge in the classroom in a time-sensitive fashion. Our way of developing this connection, *PrExConnex*, is the focus of the latter part of this article.

In the following sections, we proceed with an overview of the Australian initial teacher education (ITE) policy context, and provide an account of the background to the introduction of TPAs in Australia. We then outline our approach, *PrExConnex*, to embedding a suite of teaching practices into preservice teacher education courses. *PrExConnex* serves to provide preservice teachers (PSTs) with formative assessment opportunities that prepare them to meet the requirements of TPAs, whilst strengthening connections between theory and practice, which is particularly important for part-time students. To explicate the development of formative and scaffolded *PrExConnex* tasks, we discuss how teacher educators can be placed in a position where they are expected to be accountable for practices that span multiple "black boxes" (an inexplicable void). While acknowledging the extant and pertinent critiques of TPAs overall, we highlight the need to prepare teachers to undertake this high-stakes assessment through a formative, scaffolded lead up to the summative TPA.

Australian initial teacher education (ITE) policy context: the emergence of the TPA

In Australia there has been intensified regulation in teacher education courses over the last decade with critiques levelled about the number of education providers and calls for "rigorous assessments of readiness for full entry to the profession" (Ingvarson & Rowley, 2017, p. 191). The Australian teacher education policy context places emphasis on: the improvement of teacher quality DET (2015); DET (2015); processes of accountability across the system that leverage student attainment (Lingard et al., 2017); and, the preparation of teachers so they are effective from their first day in the classroom DET (2015); Craven et al. (2014). In the last five years this drive to ensure quality has resulted in a new layer of scrutiny that regulates the work of teacher educators. In 2014, The Teacher Education Ministerial Advisory Group (TEMAG) formulated a critique of the quality of Australian ITE programs (Craven et al., 2014). The Australian Government's response to the TEMAG report was to tighten regulatory control over the teacher education sector by introducing the "Students First" policy (DET, 2015). This policy reported a need for "stronger quality assurance of teacher education courses" and "robust assessment of graduates to ensure classroom readiness" (DET, 2015, pp. 7–8).

To inform the Australian Institute for Teaching and School Leadership's initial review of the implementation of the "Students First" policy, Loudon (2015) undertook a sector scan that was commissioned to outline the use of standardised assessments in ITE. He identified a range of assessment that could be used to gauge PST "quality," including four assessment types: basic skills, content knowledge, pedagogical knowledge and performance assessments. Loudon's (2015) recommendation was to adopt an approach similar to the U.S.A's development of the edTPA. Currently, the Australian federal regulatory authority, AITSL, mandates requirements in teacher education programs regarding what is taught, practiced and assessed. A TPA now forms the capstone assessment of all PST education courses, designed and administered by individual institutions or consortia. TPAs are characterised as tools

> used to assess the practical skills and knowledge of pre-service teachers. Pre-service teachers collect evidence of practice to complete a TPA in the final year of their initial teacher

education program. It is assessed by ITE providers, and is a requirement for graduation.

Australian Institute for Teaching and School Leadership (AITSL, 2017b), p. 17).

There are three broad approaches to assessing teacher quality referred to in literature, and the TPA in Australia can be understood as accommodating all of them. Firstly, there is the assessment of observable characteristics of PSTs, which can include classroom walk-throughs and structured observations of teaching (Milanowski, 2011). Among other evidences of construct validity, that is, that the "TPA measures the actual practices of teaching," the TPA may include classroom observations as evidence of teaching (AITSL, 2017a, p. 3). The second approach to assessing teacher quality is assessment of classroom teaching in relation to professional standards (Sachs, 2016), and indeed the TPA assesses the attainment of the Australian Professional Standards for Teachers at the graduate level (AITSL, 2017a, p. 1). Finally, assessment of teacher quality may determine if there is a causal link forged between teaching practice and students' learning (Rockoff, 2004). While this last inclusion is seen to be problematic, especially when evaluation is based on effect estimates that are premised on students' test scores, (Baker et al., 2010), the TPA is positioned positively as "a key mechanism by which programs can demonstrate pre-service teachers' impact on student learning" AITSL (2017a), p. 1).

The move to increase regulations, where universities and teacher education providers in particular incorporate sophisticated measurement-oriented mechanisms, is designed to ensure accountability for productivity (Bradley et al., 2008). However, one concern raised is that the emergence of the TPA in Australia is a further move towards standardi-sation and potential encroachment on the agency of both academic institutions and teacher educators to evaluate PSTs readiness for practice (Price et al., 2017). Certainly, the TEMAG recommendations legitimate frameworks for high-stakes evaluations and ongoing surveillance and audit, and such practices are normalised through an ongoing discourse of deficit. For instance, in 2015 the Australian Government Department of Education and Training alluded to a gap between the knowledge and skills with which ITE institutions prepare their teacher education students and "those that are needed for new teachers to thrive in the classroom" (DET, 2015, p. 8). This positioning persists, with the previous Federal Minister for Education and Youth (Department of Education, 2021, online) stating "some teachers are still graduating from their courses insufficiently pre-pared to teach in a classroom either because there has been too much focus on theory at the expense of practice, or because evidence-based teaching methods are not taught." While mobilising a powerful and important argument for a quality agenda and associated changes to ITE provision, this artificial binary between theory and practice "reinforces a picture of initial teacher education removed from the realities of the classroom, making use of the age-old (and perhaps dangerous) dichotomy of classroom and 'ivory tower'" (Mockler, 2017, p. 7).

Understandably, as with the introduction of any standardised high stakes assessment, there are a range of responses to the implementation of TPAs. As teaching performance assessments in Australia have only been introduced over the last five years, it is still to be seen if the tertiary sector response to TPAs will echo the response of Australian schools to the introduction of NAPLAN (the Australia-wide standardised test of numeracy and literacy in school students) whereby teachers honed their teaching to focus on students passing the assessment (Thompson & Cook, 2014). Certainly, in the U.S.A, students

undertaking the edTPA state that "[academics] 'taught to the test' by developing materials specifically and only for the edTPA" (Au, 2013, p. 25). On the academic side of the coin, Price et al. (2017, p. 33) observes that U.S.A ITE program providers are in a state of "reactionary reform" or "shock" and describes three kinds of responses to the U.S.A edTPA beyond teaching to the test, which are somewhat paralleled in the Australian context for the TPA. Firstly, there is *accommodation*, or a capitulation to the initiative that has become law. In Australia, PST education providers have necessarily accommodated the TPA to maintain their status as accredited providers of initial teacher education.

Secondly, there is *resistance*, including constructive resistance by teacher educator activists (Price et al., 2017). A small number of teacher educators continue to challenge the edTPA and, although they may not amend the law, they aim to change its conditions (An, 2016; Olson & Rao, 2017). Donovan and Cannon (2018, p. 20) for instance, advocate that "teacher education programs develop pedagogical strategies that subvert the edTPA." Finally, there are *critical analyses*. Teacher educators highlight the negative "harmful" effects on children, parents, and schools (Price et al., 2017). This is a tenet in the work of Tuck and Gorlewski (2016, p. 200), who argue that the edTPA instantiates "racist ordering." Further, they state "[a]s measures of learning become increasingly standardised, what it means to be an educated person contracts" (Tuck & Gorlewski, 2016, p. 201). Given the potential consequences, the importance for looking at alternative, and context appropriate, practices is highlighted. In Australia, perhaps owing to the relatively recent appearance of the TPA, resistance is yet to be reported in literature, although pockets of academic critique of the TPA are emerging (e.g., Stacey et al., 2020), complementing more robust and longstanding critique of the oversight of ITE more generally (e.g., Charteris & Dargusch, 2018; du Plessis et al., 2020). Regardless of context, balancing approaches to standardisation in professional practice, and developing appropriate indicators of readiness and authentic measures for accountability remain ongoing sites of academic interest and debate. In our *accommodation* of the TPA with regards to PST preparation via *PrExConnex* as proposed in this article, the critiques of the edTPA and initial teacher education more broadly were kept in mind in striving for balance while negotiating theory and practice.

Integrating theory and practice

Notwithstanding critiques of the format and composition of TPAs, the authors of this article concur with the view that practice is always intertwined with theory, and moreover "practice is theory-in-action" (Adie & Wyatt-Smith, 2020, p. 271). Further, the ability to orchestrate theory in action develops in PSTs throughout the series of professional experiences undertaken across an ITE program. Each instance of practice provides opportunities to develop professional competencies and also, in the current context, develop skills needed for navigating the TPA. Historically, praxis in teacher education has involved in-school professional experience in the form of an initial observation practicum, teaching practicums and sometimes an internship, where theory meets practice. However, although the in-school professional experience is considered a crucial aspect of teacher education students' preparation for effective teaching (Jones & Ryan, 2014), it is not unproblematic. The university and schooling contexts are sometimes "seen as separate worlds" (Standal et al., 2014, p. 167) in which teacher education students' experiences can

be "fragmented" (Standal et al., 2014, p. 167) by a disconnect between theoretical work and practical application (Grudnoff et al., 2017), and experienced more intensely by students studying part-time. There may be disparate stakeholder perceptions and expectations and a need for more effective communication and common understandings (Brown & Danaher, 2008). Further, time pressures may limit reflection to "what to do next," rather than encouraging reflection on their rationale for particular pedagogies and critique of their purposes for taking specific actions (Jones & Ryan, 2014). Overcoming such barriers is key to ensuring the quality of ITE programs, and ultimately improving classroom practice and the learning outcomes of school students.

It can be both difficult and problematic to map the causal relationship between the quality of program offered by ITE providers and student learning outcomes in schools (Brett et al., 2016). Here, the metaphor of the black box, first used to describe classrooms (Timperley et al., 2007), captures causality between teacher education, the quality of graduates and the impact of graduates on their students' learning outcomes. As a "black box" (Timperley et al., 2007) the classroom is a space in which there is knowledge of inputs (policies, funding, teacher professional development), and there are expectations for outputs and outcomes (e.g., students' skills, knowledge, and dispositions, well-being). The black box contains, and often conceals, the complex layering of connections between input and output, cause and effect. On the other hand, looking inside the black box and closely examining connections allows to be better understood; revealing the mysteries of the black boxes of educator practices suggests classroom practices for effective student learning are both knowable and potentially definable (Black & Wiliam, 1998).

The black box metaphor extends to teacher professional learning, including ITE, but it becomes more complex as more interactions occur. When both teachers and students are learners, and learning is occurring across several contexts, there are many points at which black boxes may be in operation (Parr & Timperley, 2010; Timperley et al., 2007) and many points at which connections between inputs and outcomes may be understood. Building on Parr and Timperley (2010), Figure 1 illustrates the black boxes between preservice teacher education and the complexity around the provision of preservice teacher education, as well as between the enactment of preservice teacher practice and the impact on student outcomes.

Here, Black Box #1 is the space in which connections between university learning/theory and classroom practice are first made and tested by PSTs. In Black Box #2, both student learners and PSTs are making connections to inform their learning – student learners connect previous and new understandings and skills, while PSTs interpret student learner outputs and connect this with their own previous understandings about teaching to inform the reflective work undertaken in Black Box #3.

Given that PSTs must prove their impact on student learning as part of the TPA (AITSL, 2017a), it follows that TPA performance is dependent on interpreting and articulating the connections made in these multiple black boxes of professional practice. Further, to better reveal connections to PSTs as novice teachers, opportunities for professional dialogue are warranted. Indeed, it has been argued that becoming profession-ready is an existential learning process and PSTs' practicum identities are constituted according to the practice architectures of the specific contexts of education settings (Charteris & Dargusch, 2018). It is therefore appropriate for supervising teachers and PSTs to have
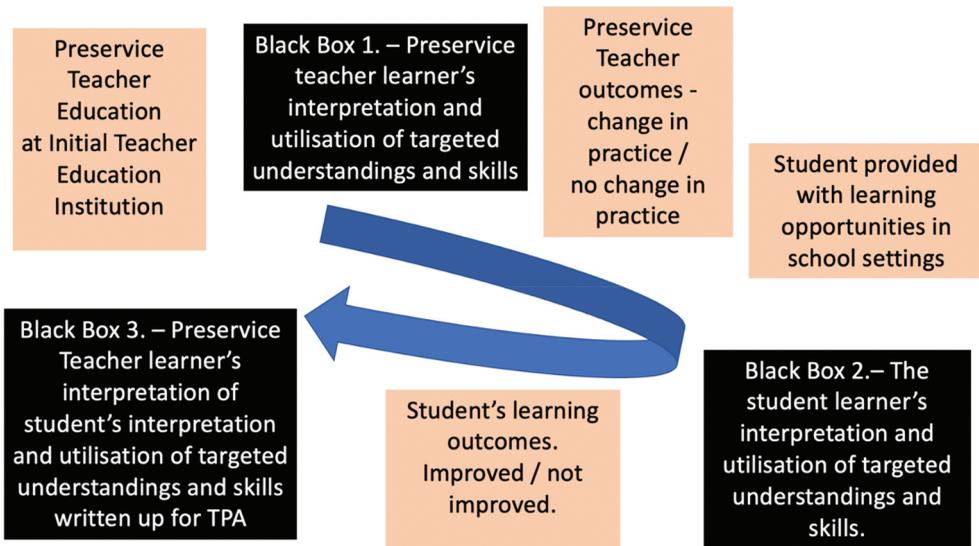
Figure 1. Teaching performance assessments and the black boxes of teacher education, teacher practice and student learning (adapted from Parr & Timperley, 2010).

professional practice conversations that explore the black boxes of practice and this can be scaffolded through specific tasks developed by ITE institutions. As such, professional dialogue informs *PrExConnex*, as will be discussed overleaf.

Professional practice conversations between supervising teachers and PSTs incorporate processes that transcend monologic approaches to feedback that are premised on information transmission. Dialogic feedback processes allow for PSTs and supervising teachers to explore perceptions and existing knowledge that inform practice (Charteris, 2015). This permits a formative approach to the Black Boxes where there is an exploration of how PSTs interpret pedagogy, express understandings, and make links with emerging skills. Moreover, there is scope to promote formative practice through linking PST's professional experience and classroom based reflective practice with university-based course content; this, again, informs the design of *PrExConnex*, detailed below.

Incorporating purposeful formative assessment in preservice teacher education courses: *PrExconnex*

Throughout Australian initial teacher education programs, teacher educators work with preservice teachers to develop the skills and knowledges needed to be successful classroom practitioners. While the TPA is necessarily a capstone of this work, as it is such a high-stakes assessment piece, AITSL (2017a), p. 5) cautions against the TPA being a "bolt on" to an ITE program. Rather, PSTs need support throughout the years of their ITE programs in developing the teaching skills and knowledges, as well as in completing this assessment type, in order to prepare for the TPA. Yet, as established earlier, there are tensions between preparing students for classroom practice and their capstone assessment, the relative value of theory versus practice, and the skills and knowledge that are assessed versus those that *should* be assessed.

To resolve these tensions, and strengthen ties between theory and practice, we have developed a series of tasks undertaken during professional experiences, referred to collectively as *PrExConnex*, that conceptualise and realise the black boxes of professional experience for the PSTs at our university. The founding principles of *PrExConnex* drive the design of PrExConnex tasks. First, *PrExConnex* makes explicit to PSTs the connections between theory and practice that inform classroom teaching, as well as the connections between practice and impact on student learning. In essence, tasks are designed to alert PSTs to these connections and/or facilitate articulation. Second *PrExConnex* is iterative. As such, tasks provide PSTs with progressive opportunities and support in the earlier years of their courses to practice and develop the skills ultimately needed for successful completion of the TPA alongside becoming classroom ready for entering the teaching profession. Third, *PrExConnex* is formative, providing feedback and opportunities for reflection, as well as incorporating structured dialogue (the fourth principal of PrExConnex) as outlined in the previous section. The fifth *PrExConnex* principle is that the pedagogical approach taken to create authentic tasks that have strong links to the teaching profession and classroom practice. In this, *PrExConnex* tasks uphold the AITSL tenet of authentic classroom practice that underpins the TPA (AITSL, 2017a). Finally, *PrExConnex* tasks complement the repertoire of learning experiences encountered during professional experience, and foreshadow aspects of professional practice that are addressed specifically in the TPA.

To support PSTs as they negotiate Black Box #1 between university learning and classroom practice (Figure 1), *PrExConnex* tasks are embedded in specific units of study throughout the ITE program. Importantly, as our PSTs are often undertaking part-time study, *PrExConnex* tasks are enacted during professional experiences irrespective of when professional experience is undertaken in relation to when other units of study are completed. For instance, imagine a unit of study that develops in TESs an understanding of theoretical underpinnings of learning in science and its application to learning sequences. The *PrExConnex* task asks students to take what was learned about developing learning sequences and apply it during the next professional experience, which may occur after significant time has passed. To strengthen the connection between theory and practice, professional experience materials reiterate the ideas explored in the unit and what should be applied during professional experience.

Another fundamental dimension of *PrExConnex* tasks is that they ask PSTs to engage in structured professional dialogue with their mentor teachers. Again, this action is critical to making visible the connections in Black Box #1 between university learning/theory and classroom practice and also in Black Box #3 between improved classroom practice and student learning. For example, one *PrExConnex* task scaffolds second year students in discussing assessment and moderation with their mentor teachers during a structured professional dialogue. The following questions guide the dialogue:

- What data do teachers gather in your school and how do they use it to inform their teaching and support student learning?
- What processes of moderation do teachers use to ensure that their judgements about student assessment are accurate?

Engaging in professional dialogue facilitates the attainment of new understandings about teaching practices which lead to improved learning outcomes for students. However,

engaging in dialogue on its own is not sufficient, as it can unhelpfully reinforce current beliefs if not carefully managed (Timperley et al., 2007). Alternatively, successful professional dialogue is that which tests ideas and challenges problematic beliefs (Timperley et al., 2007), and promote an *enquiry habit of mind* through which professionals use "enquiry and reflection to think about where you are, where you are going, how you will get there, and then turn around and rethink the whole process to see how well it is working and make adjustments" (Katz & Earl, 2010, p. 31). To maximise the potential of professional dialogues between PSTs and their supervising teachers, questions have been carefully constructed to allow the testing of ideas as PSTs mature in terms of professional growth. Third-year PSTs ask the following questions of teaching colleagues across the school in a third task:

- What do you think about the schools' policies on classroom behaviour management, ICT and bullying? Do they work and are they effective?
- If you could change any aspect of them, what would that be and why?

A fourth *PrExConnex* task asks students to plan and evaluate a lesson sequence that targets the needs of a case study student. This third-year task is a similar but more highly structured version of a task undertaken in the TPA. Further, the task supports the development of reflection and teaching judgement and skill – both valued in the TPA (AITSL, 2017a) and supportive of an enquiry habit of mind (Katz & Earl, 2010) – by providing explicit evaluation prompts:

• What does the assessment tell you about your case study student's attainment of the learning goal and the differentiation strategies you used?

- (a) Based on your interpretation of assessment data, what modifications did you make in your lesson sequence? Why?
- (b) Based on your interpretation of assessment data, what are the next steps in learning for your case study student? Why?
- (c) In answering "why," consider what you know of the literature about learning theories and teaching practices.

The evaluation prompts give PSTs the opportunity for a "deep dive" into Black Box #2, alongside student learners, to interpret their learning and thus inform the reflective work undertaken in Black Box #3 as the next steps in teaching are determined in light of what is understood of Black Box #1. The second- and third-year *PrExConnex* tasks increase in sophistication to scaffold PSTs both in moving towards classroom readiness and preparing for the TPA, as seen in Table 1. PSTs move through the three Black Boxes in a spiral fashion in preparation for the final professional experience and TPA.

In all instances, these formative tasks support TESs in learning how to navigate the assessment demands of the TPA as much as meeting the demands of the classroom.

Overall, both *PrExConnex* and the TPA are regarded as an investment in capacity building over time, in contrast to the stand-alone demonstration of course outcomes by which the capstone is often characterised. PSTs are not therefore reproducing or replicating; rather they are dialogically, theoretically and practically engaged over an extended period. Arguably this approach makes space for a confidence building and theoretically

Table 1. The progression of *PrExconnex* tasks across the years of an initial teacher education course.

	Black Box #1 (example tasks)	Black Box #2 (example tasks)	Black Box #3 (example tasks)	
Year 2	**Task #1** Plan and implement Science learning sequence *Theory -> Practice*	**Task #1 (continued)** Interpret student assessment data from lesson sequence *PST as learner in Black Box #2*		*Scaffolding level decreases over time*
	Task #2 Structured professional dialogue about moderation *Theory -> Practice*		**Task #2 (continued)** Structured professional dialogue about using assessment to inform teaching *Improved practice -> Improved student learning*	
Year 3			**Task #3** Structured professional dialogue *Practice -> Students learning*	
	Task #4 Plan and implement differentiated lesson sequence *Theory -> Practice*	**Task #4 (continued)** Interpret student assessment data from lesson sequence *PST as learner in Black Box #2*	**Task #4 (continued)** Evaluate lesson sequence *Improving practice -> improved student learning*	*Task sophistication increases over time*
Year 4	**TPA** Plan and Teach *Theory -> Practice*	**TPA** Assess *PST as learner in Black Box #2*	**TPA** Reflect *Improving practice -> improved student learning*	
	PSTs move between Black Boxes during each professional experience			

informed practice. This debate is, however, an ongoing one with advocates for the capstone experience continuing to explore possibilities for authentic and meaningful cumulative assessments (Kirkscey et al., 2021).

Conclusion

There have been shifts in teacher education from an emphasis on deregulation and professionalisation to a policy discourse of effectiveness (Cochran-Smith et al., 2018). Although the emphasis on qualifications and credentialing has been dismissed a passé agenda (Cochran-

Smith et al., 2018), it is still present in Australian teacher education and juxtaposes the rhetoric of effectiveness. In the international literature on teaching performance assessments there are both arguments for quality and quality assurance (Ingvarson & Rowley, 2017) and critiques of neoliberal instrumentalism associated with PST assessment (Dover & Shultz, 2016), although critique is less apparent in the Australian context at least partly due to the value still placed on educational sociology in initial teacher education. Within this political milieu teacher education providers are challenged to ensure that PSTs are provided with timely and relevant formative support, such as assessment opportunities that build towards the requirements of this high-stakes capstone assessment. In response, we have provided a theoretical rationale for *PrExConnex* as a suite of formative assessments that assist preservice teachers prepare for professional practice as well as the TPA, locating this conceptual article in the Australian initial teacher education (ITE) policy context.

In this article, we have explored the multiple contemporary challenges of initial teacher education and the implementation of Teaching Performance Assessments. That the development of learning sequences is learned about in a curriculum unit and then practiced or applied during professional experience is not revolutionary and constitutes normal professional experience. However, making explicit the connections between the theoretical understandings developed in units of study at university and classroom practice of professional experience opens the lid on the black boxes of PST professional learning. It calls on PSTs to enact theory in practice, as opposed to learning theory (at university) and then doing practice (in schools). As such, *PrExConnex* tasks position PSTs as individuals who are "... 'thinking professionals, [and] intellectual workers' (Gramsci, 1971), rather than treating them as technicians who merely need to be taught what to do and then subjected to compliance measures to ensure that they do it." (Timperley et al., 2007, p.xii).

PrExConnex has been designed to build knowledge and skills progressively, while simultaneous making authentic connections between practice in the classroom and theories of learning and teaching. While complex, the process pays attention to the details of building of a repertoire of learning experiences, the logical alignment with the units of study, and the genuine and agile professionalism expected of new teachers. In this article, we have provided an account of the implementation of *PrExConnex* and detailed how, as a formative assessment solution, it can support PSTs with the skills and knowledge required for them to undertake successful teaching performance assessments. By implementing these formative assessments with timely support from ITE institutions, and a dialogue with supervising teachers which focuses on professional growth, many of the difficulties and sources of fragmentation associated with teaching performance assessments can be mitigated.

Disclosure statement

Notes on contributors

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