Quality of Initial Teacher Education Through Longitudinal Analysis of Linked Datasets

Workforce Studies Series

Study 1: Examining performance trajectories from admission to graduation

Executive Summary

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[1] The Graduate Teacher Performance Assessment Project (GTPA®) was created by the Institute for Learning Sciences and Teacher Education, Australian Catholic University, and has been implemented in a collective of Higher Education Institutions in Australia (www.graduatetpa.com).

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Executive Summary

Introduction

Workforce studies in teacher education is an emerging area of significance in policy and practice. Teacher education research more generally is in its infancy and tends to be dominated by small scale studies. It currently lacks a robust evidence base required to examine the quality of graduates entering the teaching workforce. This observation holds for several developed countries including Australia. This is not to diminish the benefit from the Australian Professional Standards for Teachers (APSTs; AITSL, 2011) and the Program Standards (AITSL, 2015). However, until the recent requirement for mandatory competence assessment in Initial Teacher Education (ITE), the primary function of the standards has been as a common reference point for reviewing ITE programs for accreditation; a front-end process for checking the contents of program units – what is taught and assessed. This reflects how the APSTs have concentrated attention on program inputs rather than outputs: where the aspects of the standards have been taught, practised, and assessed. This focus is different, however, from candidates' demonstration of teaching competence in the final year complex performance assessment, judged against a common minimum standard. While the accepted recommendation to implement a Teaching Performance Assessment (TPA; Craven et al., 2014) has arguably the greatest potential to improve teacher education, it is also fair to say that the report, *Action Now: Classroom Ready Teachers* (Teacher Education Ministerial Advisory Group (TEMAG) Report, 2015), has had uneven impact across states and territories. Some six years after the release of the report there are pockets of culture change in teacher education rather than change at scale. There is, however, no published evidence base showing performance in ITE that spans from entry and across the preparation period and into the workforce. The project reported here is an Australian first in a series of planned workforce studies. It has been informed by the Education Council decisions (https://www.aitsl.edu.au/deliver-ite-programs/learn-about-ite-accreditation-reform/next-steps-in-initial-teacher-education-reform) regarding new evidence requirements associated with competence assessments in order to graduate, and for moderation and benchmarking activities.

Context

It is only recently that higher education institutions (HEIs) have been required to produce evidence to (i) show the quality and impact of programs on graduate preparedness for entering the teaching workforce, and (ii) demonstrate actions taken in response. This explicit valuing of, and requirement for, evidence calls for a new and different culture in teacher education wherein data are used by teacher educators and policy personnel (e.g., regulatory and employing authorities; education sectors) to inform system and local level workforce decision-making as well as HEI initiated curriculum review and program renewal. Further, while the move to TPAs is intended to leverage improvement in the quality of teaching graduates, in part through assessing professional readiness against a common standard, currently there are no agreed quality assurance processes applied in *implementing* TPAs in the field, no articulated common processes for benchmarking endorsed TPAs, and no articulated standard or agreed moderation processes for assessing professional experience in the practical programs (i.e. school-based) offered by HEIs.

Consistent with this focus on evidence of quality in teacher education, the authors share the view that "longitudinal analysis of trends in completion rates, and their value for prediction of the number and type of completions in primary, secondary and early childhood ITE programs, will be increasingly important to planning" (The Australian Institute for Teaching and School Leadership (AITSL), 2020, p.10). Additionally, we propose that analysis of individual progression pathways and factors that impact the pathways to completion is essential. A range of methodologies was chosen to inform the analysis of the linked datasets undertaken in this project. Here we note that the methodologies used include a novel application of transient event analysis that incorporates cluster analysis of temporal moments. This application has merit in profiling and visualising pathways to completion or separation for groups of individuals with similar program admission and characteristics. Results from the analysis allow close study of teacher education candidates who typify individuals in these groups to

investigate the factors that enhance and present barriers to completion. Following identification of these factors, intervention initiatives can be customised to support candidates who may otherwise be at risk of separation.

Aims and scope

The project was designed to investigate the longitudinal performance pathways of candidates enrolled in an ITE program, from admission to successful completion or separation. A related aim was to identify the factors associated with distinct trajectories of progression.

The project was undertaken (October 2020 – May 2021) as a pilot study incorporating data from a sample of 2252 candidates from two cohorts who commenced Bachelor of Education programs (4 years minimum) in 2015 and Master of Teaching programs (2 years minimum) in 2017[2]. The significance of the commencement years is that these cohorts were among the first in the country to complete a TPA by 2019. They were among the candidates who came from multiple cohorts (15 HEIs) to undertake the endorsed Graduate Teacher Performance Assessment (GTPA) as a mandatory requirement in the final year of preparation (Wyatt-Smith 2017; Wyatt-Smith et al., 2017; Wyatt-Smith et al., 2020).

The project demonstrates the application of a selected suite of methodologies well-suited to identifying patterns and relationships in the full range of preservice teacher performance progression and separation pathways in ITE programs, intended to answer the Department's questions. The findings are illustrative of the potential outcomes from application of the proposed methodology in a planned larger study, noting that 18 HEIs are undertaking the GTPA in 2021.

New ways of looking at ITE pathways

RESEARCH QUESTIONS

The project was guided by the research questions formulated by the Australian Government Department of Education, Skills and Employment, listed below. Questions 1 to 4 were examined using a range of quantitative methods. Leading teacher educators participated in online interviews and the recorded talk was transcribed in full and analysed to address questions 7 and 8. The researchers took the decision to combine quantitative and qualitative methods. This combination provided a novel opportunity for examining longitudinal performance progression data through applying quantitative methods, while bringing to bear the voices of experienced teacher educators in interpreting the data.

Q1: *What are the characteristics of the cohorts of candidates that are successfully passing key university assessments, completing ITE and transitioning into teaching? What are the characteristics of the cohorts that are not progressing?*
Q2: *What factors are related to candidates successfully becoming a teacher e.g. ATAR?*
Q3: *Are there insights into the different pathways to ITE entry and how this may affect completions?*
Q4: *Which preservice teacher characteristics are associated with the differences in performance of pre-service teachers during their teacher training?*
Q7: *What examples show how university assessments such as the GTPA are improving program delivery and supporting candidates?*
Q8: *How are higher education providers using assessment results from assessments, such as teaching performance assessments, to inform ITE program renewal?*

Two additional questions, Q5 and Q6, related to the retention of teachers in the workforce. These were out of scope for this project. Further, we note that the preservice teacher ITE program performance data had not been linked to the preservice teacher workforce data at the time the project was undertaken. The subsequent workforce study by the research team is planned for extending the investigation into the teaching workforce.

[2] This reflects that the minimum time for completion of an undergraduate ITE program is typically four years. Therefore, candidates who entered the program in semester one 2015 were scheduled to complete their GTPA competence assessment in 2018 at the earliest with some candidates completing in 2019. For a postgraduate ITE program, the minimum time for completion is typically two years, and hence the 2017 postgraduate cohort would similarly be expected to complete a GTPA in 2018 or 2019.

INNOVATION IN APPROACH: DATA LINKAGE AND ANALYTIC METHODOLOGIES

Collaboration and innovation have featured prominently throughout this work with the architectural design of information systems and tools and processes for collecting and linking disparate data sources that enabled the construction of a longitudinal preservice teacher ITE performance dataset, the first of its kind in Australia.

The data used in this project was not "pre-packaged". That is to say, none of the data components used in the investigation had been previously linked. It was therefore necessary to customise the dataset to answer the questions; source the data, develop the infrastructure for linking and storing, and select the appropriate methodologies for analysis. The discussion of approvals to secure the data began following identification of the custodians of the respective datasets in 2018.

Innovation was critical in determining the suite of analytic methodologies that would ensure high quality analysis of this unique longitudinal data capturing preservice teacher ITE performance progression. The challenge of extracting rich information from this data was met by identifying the analytic methods that were most suited to producing relevant results for addressing the research questions.

Descriptive analyses and *statistical tests of association* were used to identify the characteristics of those preservice teachers who successfully completed a program and those who separated from a program prior to completion. This approach was combined with the statistical method of *multinomial logistic regression* (Hosmer et al., 2013) to identify the reduced combination of factors that are together statistically significant in predicting successful completion of an ITE program or separation at different assessment points in the program.

Of special interest is the performance progression in key assessments of ITE candidates. Identifying patterns in performance trajectories unique to ITE programs was achieved through novel adaptation of the *transient event* method – previously utilised for analysis of longitudinal data in the physical and medical sciences (Ducros et al., 2009; Sisemore et al., 2017) – for application in the analysis of ITE performance progression data. The method was used to identify a profile of clusters of typically occurring patterns in preservice teacher performance progression including pathways to completion in, and separation from, the ITE program.

For accurate implementation, adaptation of the method was needed to reflect the actual assessment practices and policy requirements in ITE programs. This was an essential development step to accommodate the individual assessment progression. It was also essential for valid interpretation of analytic results relating to the frequency, order and timing of assessment performances. The method was further enhanced using simulation techniques to enable visualisation of the performance progression of a typical preservice teacher in each performance profile group. Due to the asynchronous nature of the timing of assessment events for candidates undertaking ITE programs, this enhanced approach has been named the *asynchronous transient event* (ATE) method – a novel approach in longitudinal education research and a considerable strength of this project.

The construction of the unique longitudinal dataset for ITE performance progression and the combination of analytic methods has provided a thorough forensic analysis and visualisation of longitudinal teacher education performance data to provide the evidence required to respond to questions 1-4. In general, system generated transactional data sets possess significantly different characteristics from data collected under controlled conditions. Data such as administrative histories, customer account records, financial accounts, trading histories, manufacturing processes, logistics data, IT process logs and student performance records, consist of multiple types of events with irregular occurrences, and different event profiles for different individuals. In contrast to controlled data collections, such as longitudinal surveys and panel data, system generated transactional data is poorly served by current analysis techniques. We have developed the ATE method specifically to fill this gap in methodology, to allow the characterisation of trajectories within many types of real-world systems using the data they already generate.

The dataset

An illustrative authentic dataset suited to the pilot study was constructed to demonstrate the methodologies required to address the research questions. The following types of entry and performance data are foundational to addressing these questions and include:

1. Basis of admission, entry performance scores including ATAR score and adjustment factors (undergraduate entry), degree completion (postgraduate entry), demographic characteristics.

2. LANTITE results for literacy and numeracy tests (1=pass, 0=fail), with the completion date of all attempts and the score for each attempt.
3. Professional experience (PEx) unit results across the program (1=pass, 0=fail), with the completion date for all PEx units and the score for each attempt.
4. Grade point average (GPA) for the academic units completed in each semester of enrolment.
5. Graduate Teacher Performance Assessment (GTPA) performance score (1=pass, 0=fail), for the first GTPA attempt.

Note: Performance data described in points 2-5 are common for both undergraduate and postgraduate cohorts.

Key Findings

Currently, Australia lacks an evidence base to show the quality of initial teacher education. The findings from this project contribute to the move to develop such an evidence base by drawing on customised and linked evidence that captures performance trajectories of program cohorts from entry to separation or completion. The discussion refers to four key assessments: (i) PEx, (ii) LANTITE, (iii) GTPA, and (iv) academic program assessments reported as GPA. The box below presents the distilled key findings that are the subject of the discussion that follows.

1. Most of the candidates who successfully completed an ITE program required one attempt to pass LANTITE (90% in Bachelor of Education (BEd) programs and 94% in Master of Teaching (MTeach) programs) and the remainder required two or more attempts.
2. Age, basis of admission and ATAR have a significant impact on pathway to ITE completion.
3. Candidates enter teacher preparation programs with diverse demographic characteristics and diverse admissions pathways. These factors impact on the timing and successful completion of key assessments culminating with the GTPA.
4. The timing and grouping of assessments are consequential for ITE outcomes. Risks of separation intensify where multiple assessments are undertaken concurrently in a single semester.
5. PEx is integral to ITE progression and failure of PEx is the main assessment barrier to program completion. Failure of a PEx most often leads to separation from the program.
6. Program matters:
    - BEd candidates who pass all PEx units and fail on the first LANTITE attempt are on a pathway to completion within 4-5 years.
    - BEd candidates who fail PEx in the fourth year at the same time as failing the first LANTITE attempt, are at risk of failing the first GTPA attempt and not completing the program within five years.
    - BEd (primary) candidates who attempt and fail LANTITE in Year 4 are at risk of failing the GTPA in the same year. Those who pass the GTPA in Year 4, typically do so after passing LANTITE in Year 3.
    - BEd (secondary) candidates are more likely to be at risk of failing the GTPA after also failing the final PEx unit.
    - MTeach candidates who pass all PEx units and fail on the first LANTITE attempt are on a pathway to completion within 2-3 years.
    - Half the candidates who separated from the MTeach program following at least one PEx attempt, *did* attempt LANTITE in the second year and *many* of these candidates passed the tests *before* separation.
7. Results from key assessments are largely underutilised for review and improvement purposes.
8. Teacher educators advised they had no prior experience of standard-setting, cross-institutional moderation and benchmarking before joining the GTPA Collective.
9. Teacher educators' data literacy remains in its infancy.
10. The key assessments considered in this report have potential to function as a suite of interlocking components of a principled system of quality assurance processes and practices. Currently, however, they appear to function as discrete or separate events with failure on any one of them experienced as consequential for progression. This finding provides an opportunity for considering targeted, point in time interventions to support candidates who experience such failure.

CANDIDATE CHARACTERISTICS AND PERFORMANCE

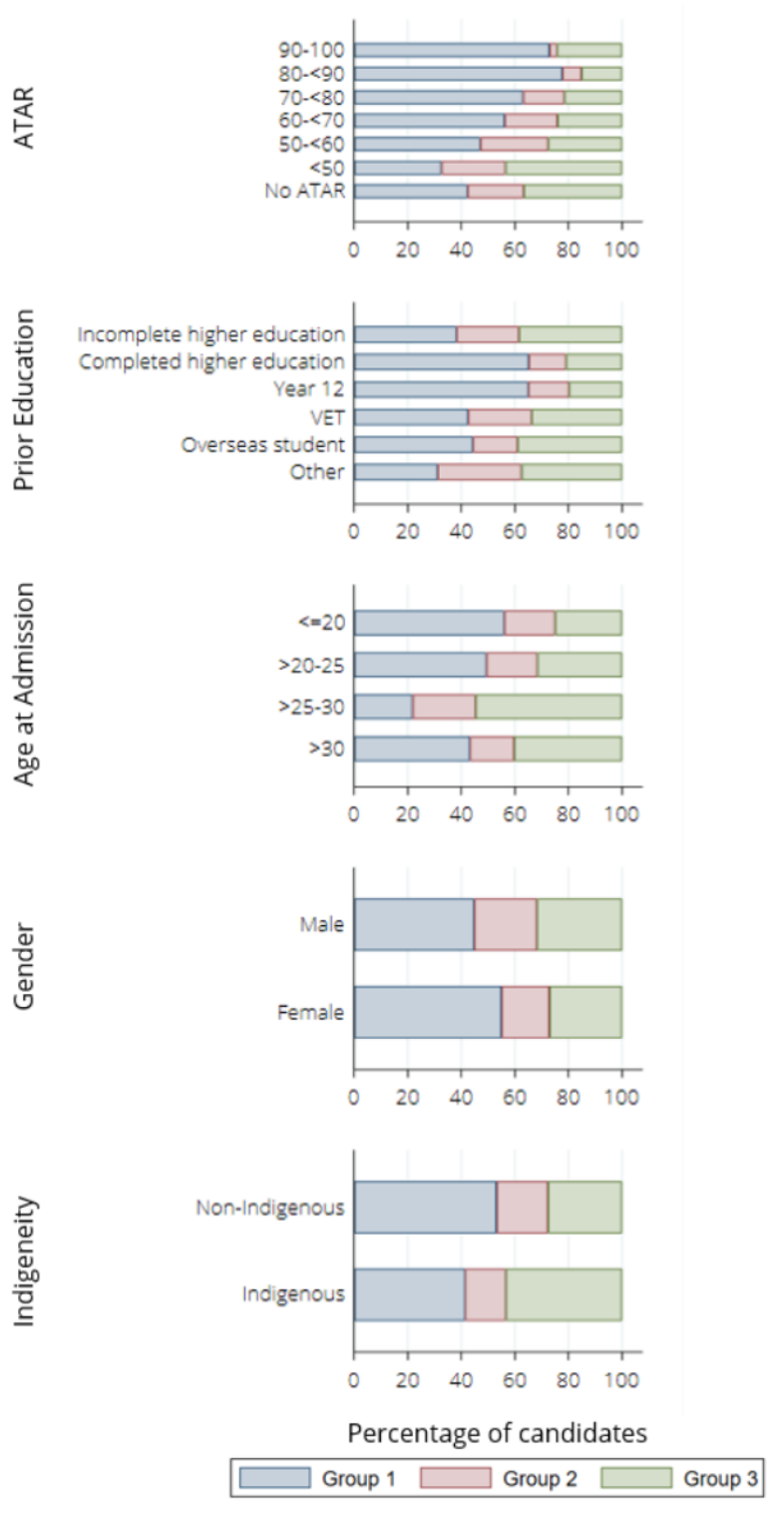

*Figure 1: Program completion (*Group 1) and separation (*Groups 2, 3) by demographic and entry characteristics for candidates in the BEd program.*

Bachelor of Education programs

Demographic (age, gender, Indigeneity, prior education) and entry characteristics (ATAR, basis of admission) were found to be significant for completion amongst the BEd cohort. In particular, females, younger candidates (<20 years at admission) and those of non-Indigenous background were most likely to complete the program (Group 1, see Figure 1). Socio-economic characteristics: socio-economic index for area (SEIFA)[3] and parent education, were also shown to be of significance for program completion.

ATAR has a significant impact on the pathway to completion: candidates admitted with an ATAR >60 were more likely to complete the program within 4 years of admission. Candidates who were admitted to the BEd program with a VET award or an incomplete higher education course were more likely to separate from the program prior to passing PEx (Group 3, see Figure 1).

Master of Teaching programs

The main characteristics associated with program completion for the MTeach program are the candidates' age and gender, with female candidates and those aged between 20 and 30 years at admission more likely to complete the program. Entry into the MTeach programs is limited to candidates with a completed higher education degree (see Figure 2).

***Group 1**: Candidates who had completed the ITE program successfully by the end of 2019.
***Group 2**: Candidates who had separated from the ITE program after undertaking at least one PEx placement.
***Group 3**: Candidates who had separated from the program prior to undertaking the first PEx placement.

[3] Socio-economic index for area. Australian Bureau of Statistics, SEIFA Technical Paper, Cat. No. 2033.0.55.001 (2016).

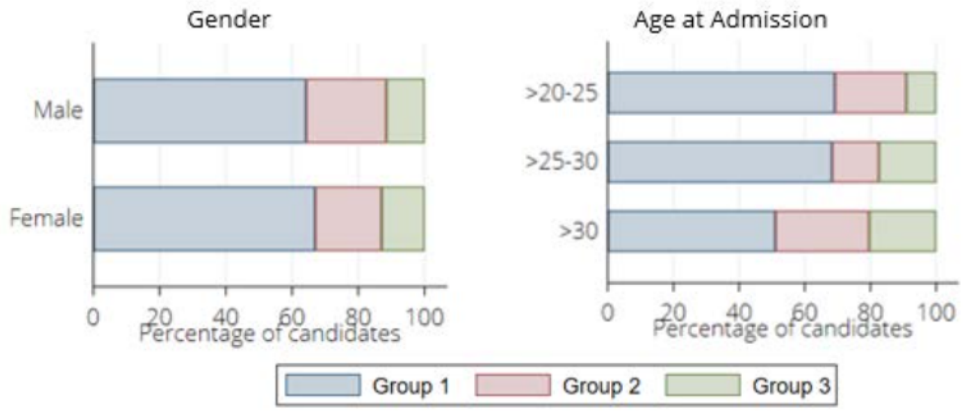

*Figure 2: Program completion (*Group 1) and separation (*Groups 2, 3) by demographic characteristics for candidates in the MTeach program.*

PERFORMANCE TRAJECTORIES FOR BACHELOR OF EDUCATION PROGRAMS

Clusters of candidates with similar performance trajectories were identified using the ATE method of analysis (see p.3). Passing all key assessments to achieve program completion is aligned with performance trajectories typical of cluster 4 (see Figure 3) whereby (i) PEx units are successfully undertaken in years 2, 3 and 4, (ii) LANTITE is successfully attempted in the second half of year 3, and (iii) the GTPA is completed in the second half of year 4. Some of these candidates may take an extra year to complete the program due to circumstances unrelated to the key assessments, a performance trajectory typical of cluster 3 (see Figure 4). These candidates typically attempt the LANTITE tests towards the end of year 4 and complete the final PEx unit and GTPA in year 5. Approximately 5% of the BEd cohort fail either LANTITE numeracy or literacy and go on to pass the test at a later attempt, passing all PEx units and the GTPA, to successfully complete the program in year 5.

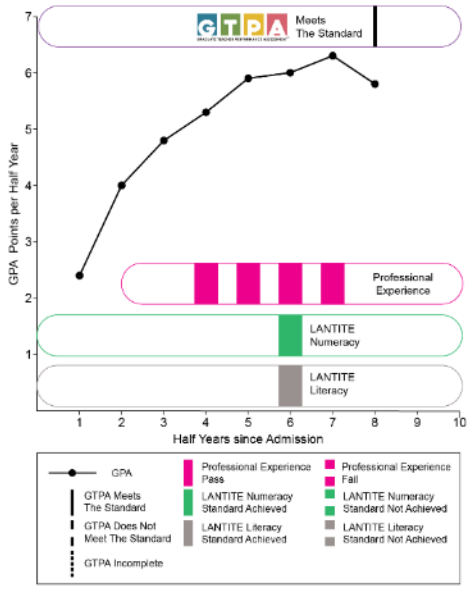

Figure 3: Illustration of a longitudinal performance trajectory for a typical candidate in Cluster 4

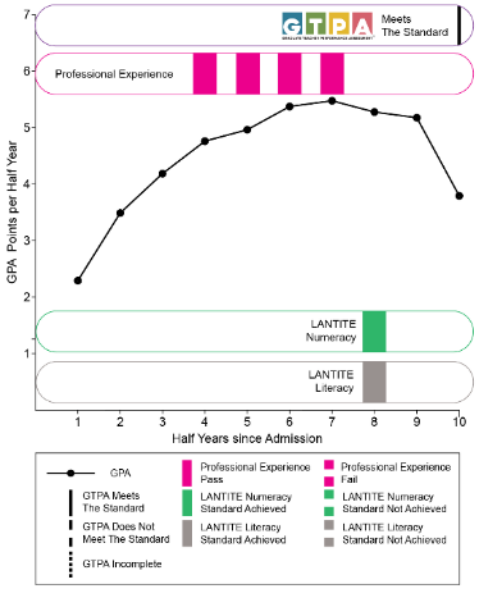

Figure 4: Illustration of a longitudinal performance trajectory for a typical candidate in Cluster 3

In the BEd programs, 24.2% of candidates separated from the program at the end of the first year before attempting any PEx units; 6% separate after failing PEx in the first half of the second year. A further 8.1% passed at least one attempted PEx unit before separating from the program, without attempting LANTITE tests or the GTPA. This performance trajectory is typical of cluster 1 where most candidates separate from the program after completing the first two years, or after failing a PEx unit in the second year or the first half of the third year (see Figure 5). Another group of candidates, who appear in cluster 2, pass two or three units of PEx if attempted but then fail the fourth PEx unit. These candidates are also likely to fail the first attempt at LANTITE and are at risk of failing the GTPA if attempted in the fourth year. The typical candidate will continue with second attempts of PEx, LANTITE and GTPA, and if they do not separate following multiple failures, continue in the program beyond 2019 (see Figure 6).

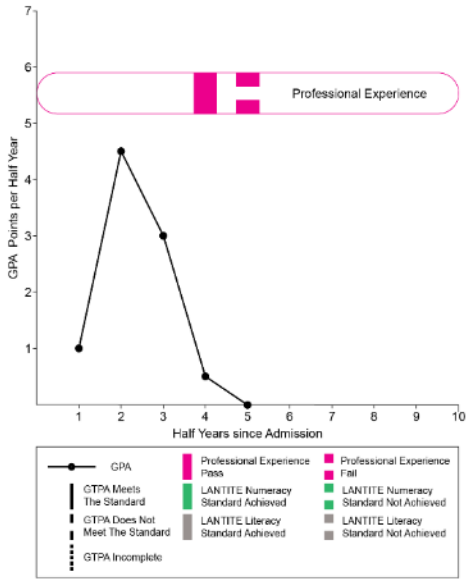

Figure 5: Illustration of a longitudinal performance trajectory for a typical candidate in Cluster 1

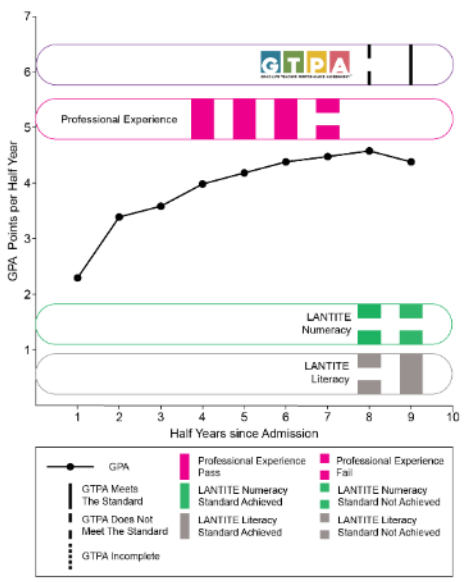

Figure 6: Illustration of a longitudinal performance trajectory for a typical candidate in Cluster 2

There are two distinct differences between the performance trajectories of candidates in the BEd (primary) and BEd (secondary) programs:

1. Candidates who separate from the BEd (primary) program after passing the first PEx, typically do so after failing the second PEx in year 2. Candidates in the BEd (secondary) program typically separate later in the program after failing the second or third PEx attempt in year 3. BEd (secondary) candidates are more persistent with PEx attempts than BEd (primary) candidates.

2. Candidates in both the BEd primary and secondary programs typically pass the GTPA in fourth year after undertaking LANTITE in third year. This provides a space in timing from assessments before attempting the GTPA. Candidates in the BEd (primary) program who fail the GTPA in fourth year typically do so after failing the first attempt at LANTITE in the first half of year 4, taking a second attempt in the latter half of year 4 while completing the GTPA. They are then required to attempt the GTPA a second time in the fifth year. Candidates in the BEd (secondary) program who fail the GTPA in fourth year typically do so after unsuccessful attempts at LANTITE earlier in the third and fourth years and also failing PEx in year 4. Failure to complete the ITE program in four years by BEd (primary) candidates is associated with failure of multiple assessment attempts of LANTITE and GTPA in fourth year. For BEd (secondary) candidates, failure to complete in four years is associated with failure of LANTITE as well as PEx and GTPA in fourth year.

PERFORMANCE TRAJECTORIES FOR MASTER OF TEACHING PROGRAMS

The dominant combination of assessment outcomes that leads to program completion by MTeach candidates (41%) within three years of admission, is aligned with performance trajectories typical of cluster 3. For these candidates, PEx units are successfully undertaken in years 1 and 2, LANTITE is successfully attempted in the first half of the second year and the GTPA is completed in the latter half of year 2 (see Figure 7). A small percentage of candidates in the cluster fail LANTITE early in the second year but pass the second attempt to complete the GTPA in year 2. Some of the candidates may take an extra year to complete the program due to circumstances unrelated to the key assessments. They attempt LANTITE towards the end of year 2 and complete the final PEx unit and the GTPA in year 3 (see Figure 8).

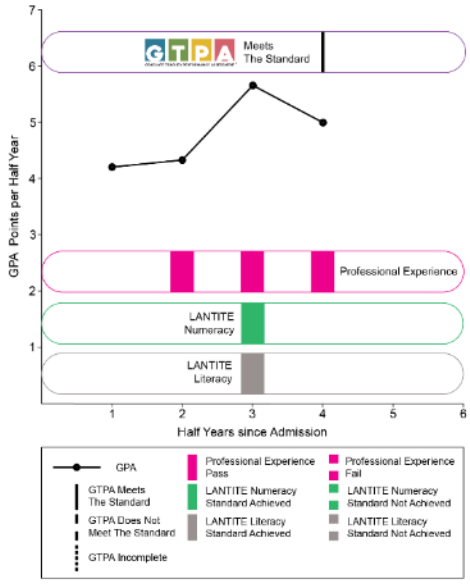

Figure 7: Illustration of a longitudinal performance trajectory for a typical candidate in Cluster 3

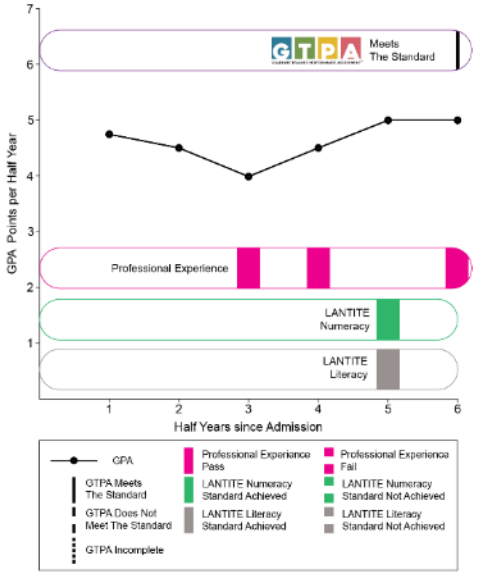

Figure 8: Illustration of a longitudinal performance trajectory for a typical candidate in Cluster 4

For the MTeach program, half the candidates who separated from the program following at least one PEx attempt, did attempt the literacy and numeracy tests (52%), and many of these candidates passed the tests before separation. This performance trajectory is typical of clusters 1 (see Figure 9) and 2 (see Figure 10). Candidates in cluster 1 typically pass the PEx unit in first year and fail in second year while also attempting and failing the LANTITE numeracy test early in the second year, with some attempting and failing the literacy test later in the second year. Candidates in cluster 2 typically pass PEx in the first and second year. If they fail LANTITE it typically occurs early in second year with success on second attempts later in the second year. Some of these candidates do not pass their first attempt of the GTPA and others have not attempted the GTPA by the end of the third year (see Figure 10).

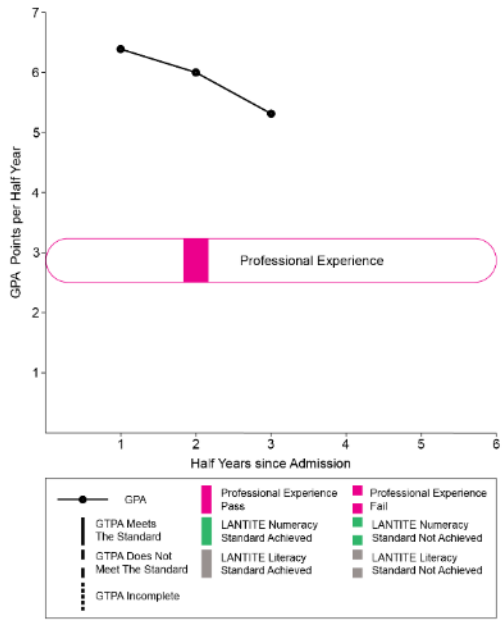

Figure 9: Illustration of a longitudinal performance trajectory for a typical candidate in Cluster 1

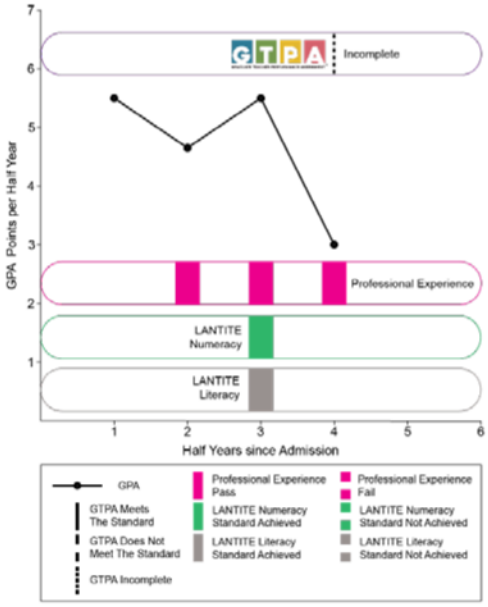

Figure 10: Illustration of a longitudinal performance trajectory for a typical candidate in Cluster 2

HOW ARE UNIVERSITY ASSESSMENTS SUCH AS THE GTPA IMPROVING PROGRAM DELIVERY AND SUPPORTING CANDIDATES

GTPA implementation

The GTPA was identified as distinctive, representing a complex authentic performance assessment of classroom readiness. It was uniformly recognised to be a mandatory competence assessment undertaken to establish professional readiness for classroom practice, with its origins traced back to the recommendations of the Teacher Education Ministerial Advisory Group (TEMAG) review, *Action now: Classroom ready teachers* (Craven et al., 2014). Teacher educators described the implementation of the GTPA in terms of *official* and *enacted* programmatic changes.

At the *official* level, changes included the introduction of the GTPA into fourth-year courses. In some cases, the courses attracted credit points though this was not always the case. At the *enacted* level, changes included the explicit introduction into teaching of what teacher educators referred to as the "metalanguage" of the GTPA and the concentrated focus on the imperative to collect evidence of student learning to inform teaching and promote growth. Most frequently mentioned was preservice teachers' assessment capabilities which was reported to be a weakness of some programs prior to the introduction of the GTPA. This is a finding consistent with the TEMAG report and findings in the research that assessment tends to be an area of weakness in teacher preparation programs (Wyatt-Smith et al., 2017). Participants also referred to the imperative of ensuring concepts in the GTPA (e.g., formative and summative assessment, moderation, differentiation, data types and teacher use of data) were embedded into courses and progressively built on over the duration of the program. In the words of one teacher educator, this type of embedding needs to occur "right from the first year of the program". They also identified that intensive workshops, video resources and other materials were essential to develop preservice teachers' understanding of the expectations of the GTPA.

In terms of program delivery… [it] has very much been, 'this is the unit that the GTPA will go in' and any idea that it might influence what happens before that has not been strongly present in the official curriculum. But in the lived and acted curriculum of [our] teacher educators… there has been significant work done by people on the ground to integrate responses to the GTPA throughout what they're doing so that there is a conscious effort… to establish the language of the GTPA as part of the language of how we talk about teaching and assessment. (Teacher Educator)

The GTPA informs the content across the entire program. So, in semester one we talk about learners and development, and as part of that, we will refer to elements of the GTPA and how you need to understand 'how learners learn effectively', 'what's the evidence', and 'how do you know what that looks like'. So, we use the language pretty much from day one and talk about the GTPA. (Dean)

Utility of the GTPA for supporting students

In regard to the benefits of GTPA implementation, teacher educators discussed how they used the GTPA instrument and the evidence that it produced to identify teaching and program improvements. The talk segments below show insights into particular areas that some participants were working on for improvement.

GTPA identifies areas for improvement

I don't think they're particularly strong in the area of feedback and I think I need to address that more deeply on the way through.

Teacher Educator

From the hundreds I have marked, I don't think that they're addressing [the integration of literacy, numeracy and general capabilities] deeply enough, I think they're paying it lip service to tick the box … I think that's an area we could improve on. (Teacher Educator)

I don't think they're particularly strong in the area of feedback and I think I need to address that more deeply on the way through. I certainly do address it, but I think I need to spend more time right from second year because they're weak at providing students with effective feedback… [And that's shown] just through the marking of the GTPAs. [So] I've been slowly embedding more around feedback in my lectures and tutorials. (Teacher Educator)

All participants made the point that preservice teachers' strengths and weaknesses are assessed through various course requirements, consistent with the Australian Professional Standards for Teachers (APSTs; AITSL, 2011). Beyond this focus on processes and inputs, the GTPA required a rigorous approach to the use of evidence in teaching and assessing.

Readiness for the profession: GTPA

Teacher educators consistently confirmed that the implementation of the GTPA directly improved support for preservice teachers to become what they referred to as "profession ready". They described the GTPA as a culminating assessment task that provides an opportunity for preservice teachers to demonstrate their learning throughout their degree program. As shown in the talk segments below, teacher educators described the GTPA as focusing attention on "what it means to be a teacher, how to work with students, how to differentiate instruction, how to assess students, how to build lessons that are practical [and] based on data" and "what [they] need to do to be a quality teacher".

GTPA provides evidence of readiness

The GTPA is an opportunity for students to demonstrate that they can bring together their learning… it is a culminating demonstration of capability.

Dean

Honestly, with feedback that I've had from students, they feel as if they are really classroom ready and [able] to step into a school, with the expectations that schools and systems have today, and they understand the process, they understand how to improve student learning using different forms of assessment and gathering the data to make a difference. The fact that the GTPA is structured in the way that it is… it's a great framework and I think we'd take ourselves back ten years if we didn't have it. (Teacher Educator)

The GTPA is about developing an attitude to teaching. Our students come out of the GTPA and say they're proud of themselves. 'I can show how I'm a teacher, I can demonstrate learning'. It adds value, it's a culminating activity that is authentic. It has all of the features of good assessment practice. It has formative components in it … it's about feedback, there's reflection involved, all of the things we want students to be actually learning [about] how to assess effectively. (Dean)

Linking theory and practice: The GTPA and PEx – The hitherto missing link

Internationally across reviews of teacher preparation programs (Carter, 2015; Craven et al., 2014; Donaldson, 2010; Furlong, 2015; Louden, 2008; Rickenbrode et al., 2018; Sahlberg et al., 2014) a widely reported observation concerns the disconnect between the academic program within the university and the practice-based component of the program, delivered in school settings. The GTPA is designed to be a competence assessment of teaching practice, and by design, draws on preservice teachers' learning gained over the course of the academic program and numerous PEx opportunities. In the words of one participant, the GTPA was "the true nexus of practice and theory".

Lifting standards

The GTPA has lifted standards like never before.

Teacher Educator

GTPA as theory-practice nexus

The PEx assessment is where a supervising teacher can tell us they 'look like a teacher'. The GTPA enables us to say they 'sound like a teacher' in terms of what they're thinking, what they're saying about their teaching and their decision making.

Teacher Educator

By contrast, where preservice teachers perceived the GTPA as "just another assessment" they were reported to have a higher probability of failing. Those who failed were described as struggling to demonstrate the required professional practices and decision-making capabilities - "the mindset of the teacher". The participant described this as showing what is involved in *being* the teacher and *doing* classroom work, accepting responsibility for student learning, connecting teaching, learning, assessing and reflecting. This stance is characterised in the talk segment below.

It's a culminating assessment task that shows what [preservice teachers] have learned throughout the four years; what it means to be a teacher; how to work with students; how to differentiate instruction; how to assess students; how to build lessons that are practical [and] based on data… [It] shows … what you need to do to be a quality teacher. (Head of School)

Participants described the GTPA as "help[ing] preservice teachers to demonstrate professional practice in a metacognitive way". They described the GTPA as "an identity affirming experience" that provides an opportunity for preservice teachers to demonstrate and recognise that "they sound like a teacher in terms of what they are thinking, what they're saying about their teaching and their decision making".

Internal and cross-institutional moderation processes for program review and renewal

Participants described the processes of internal moderation and GTPA Cross-Institutional Moderation (GTPA-CIM©) as critical to demonstrating judgement reliability and comparability across participating higher education institutions (HEIs). Fairness was associated with applying a common standard with demonstrated reliability. Participants described the GTPA as a catalyst for training activities for academic staff, including sessional staff, responsible for marking. They also confirmed that prior to their institutions joining the GTPA Collective, they had not participated in activities of cross-institutional moderation and benchmarking, with no opportunity to 'see' preservice teacher work samples in other universities. In the segment below, a participant refers to the practices that have been developed and implemented to support teacher educators to have confidence in applying the scoring rubric, explicitly connected to the APSTs. The experiences of cross-institutional moderation and reporting were described as developing teacher educator confidence in their own judgements, especially where the HEI-provided reports confirmed that the standard applied in their university was comparable to the standard applied in other HEIs in the Collective:

GTPA is the catalyst for renewed focus on moderation

The GTPA has brought moderation into sharp focus, particularly cross-campus and cross-institutional moderation… it drives the need for teacher educators to work collaboratively.

Dean

The training session and calibration activity is online. It involves a modelling [portion] on how to mark, [provision of] three samples with cognitive commentaries, and the results for these samples for the marker to review. And then a fourth mystery box sample [is given] to which they then have to submit their results via a quiz form online. I get those results, what they're saying, what their marks were and what their thoughts were. I [then] have a look and send them the cognitive commentary on the fourth sample with some [commentary]. (Teacher Educator 1)

Program renewal

The interviews brought to light how reported results from LANTITE and the GTPA are largely underutilised for improvement purposes. A key observation was that current Regulatory Authority accreditation and reaccreditation processes and timelines impacted the use of the data. Reaccreditation requires the use of data of the type provided by the GTPA. Where HEIs were not undertaking reaccreditation, there was little use made of the GTPA data for curriculum review or program renewal. The latter will require a concentrated focus on developing teacher educators' data literacy.

Advancing the nation-building work of ITE

Drawing on the findings of this report, the following suite of initiatives is identified to advance the nation-building work of ITE.

Interventions:

1. Candidates with characteristics that represent known risks for separation should be identified early in preparation programs. Interventions should be made available at the immediate point of failure on key assessments.
2. Interventions should be introduced at the end of (i) the second year of BEd programs to ensure continuing participation in school placements in third and fourth years, and (ii) the first year of MTeach programs to ensure continuing participation in school placements in the second year.
3. The effectiveness of interventions should be the subject of research to establish their impact and effectiveness in improving retention and progression.
4. 'Ghost students' are a subgroup of special interest; they appear as *enrolled but inactive.* They should be targeted for interventions and be the subject of further research.

Professional Experience:

5. Explicit attention should be given to effective methodologies for preparing ITE candidates for completion of school-based placements. HEI-school partnerships are central to this endeavour.
6. New digital platforms including simulations of classrooms should be investigated to support PEx preparation.
7. Issues of reliability and validity remain largely unaddressed in PEx assessments. The standards and quality assurance processes used to assess performance in PEx should be investigated. Agreed judgement protocols and moderation processes should be developed.

Cross-Institutional Moderation (GTPA-CIM©) and Benchmarking:

8. Incentivising groups of HEIs to work together in cross-institutional moderation to demonstrate consistency in scoring is a necessary precondition for moving to a more ambitious enterprise of benchmarking teacher education nationally. Investment in digital infrastructure and quality assurance systems and processes is also necessary. This will include establishing data custodians and data security, confidentiality and privacy expectations in order to facilitate online moderation processes at scale. The nation is not well-placed to advance an evidence base for teacher education in the absence of such provision. The GTPA Collective has initiated this work involving 18 HEIs in cross-institutional moderation and supporting some 15,000 graduates in the period 2017-2020. For further information see www.graduatetpa.com.

Research:

9. The three key assessments considered in this report (PEx, LANTITE, GTPA) should be the subject of further longitudinal investigations to examine how they contribute to the nation-building work of improving ITE. Currently, they appear to be thought of as three distinct components.
10. Detailed analyses should be undertaken of the APSTs, program standards and the evidence requirements of the key assessments to establish the demonstration of competence that each requires and the coherence of these evidence requirements. Of significance will be the research explaining the evidence base that each relies on and how they satisfy validity and reliability requirements at system and local levels.
11. There is a need for national investment in further research into longitudinal progression across HEIs. This should include LANTITE, endorsed TPAs and PEx. The research should be large scale and examine how the tests, separately and together, quality assure graduate readiness on entry to the profession and sustain public confidence in the status of the profession.

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