



THE UNIVERSITY OF  
**SYDNEY**

**Bringing School Leadership to a HALT: A  
Design-based Intervention to Support the  
Development of Highly Accomplished and  
Lead Teachers in NSW Schools**

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A thesis submitted in fulfilment of the requirements for the  
degree of Doctor of Philosophy

School of Education and Social Work  
Faculty of Arts and Social Sciences  
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Australia

2025

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# Abstract

Professional development is fundamental to the advancement of the teaching profession. It can be used as a tool to drive improvement in line with professional standards, neoliberalist policies or system improvement initiatives. However, this thesis contends that professional development that listens to research and the views of participants can also foster broader, praxeological teacher growth, or the means to act in a way that contributes positively and meaningfully to wider society.

This thesis was conducted in New South Wales, Australia and reports on a Design-Based Research study that responds to the overarching research question: What are the design principles for an effective professional development program targeting professional accreditation? It also aims to address the current dearth of certified Highly Accomplished and Lead Teachers under the Australian Professional Standards for Teachers. The study produced, refined and contextualised a set of design principles for effective professional development. It also constructed a professional development program that can be used by researchers and professional developers to support future Highly Accomplished and Lead Teacher applicants.

The study consisted of four phases. A systematic literature review was conducted to produce a set of initial design principles for effective professional development, reflecting current literature. A stakeholder analysis was then undertaken to refine the design principles by incorporating the views of teachers. These revised design principles were then used to construct a professional development program. However, the program was unable to be implemented and tested due to limited participant availability. An additional stakeholder analysis was then conducted to further contextualise the design principles for Highly Accomplished or Lead Teacher applicants. It also enabled the answering of an additional research question: What factors affect teacher engagement with Highly Accomplished or Lead Teacher certification under the Australian Professional Standards for Teachers? These factors are presented in this thesis and can be used by future researchers and policy makers to strengthen teacher certification processes in Australia and beyond.

The design principles produced in this study are unique in their synthesis of research and practitioner expertise. Each iteration of the design principles makes a purposeful contribution to knowledge in the field of professional development. The initial design principles contribute a synthesis of peer-reviewed research that is both rigorous and systematic. They can be used by researchers and professional developers to design and deliver effective professional development within and beyond the teaching profession. The revised design principles build upon the initial design principles by incorporating the voice of teachers. They contribute to wider understanding of the professional development needs of teachers, as articulated by teachers. They can also be used in the production of effective professional development that is teacher-specific. The final design principles were contextualised for teachers undertaking Highly Accomplished or Lead Teacher certification but may also have applicability in the fields of broader teacher certification, middle leadership, and high-performing teachers. The overall findings of this study contribute to wider understanding of effective professional development by demonstrating a praxis-focussed solution to a teaching standards problem within current educational policy.

## List of Abbreviations

Australian Institute for Teaching and School Leadership (AITSL)  
Australian Professional Standards for Teachers (APST)  
Advanced Skills Teacher (AST)  
Centre for Education Statistics and Evaluation (CESE)  
Coronavirus disease of 2019 (COVID-19)  
Design-Based Research (DBR)  
Education Resources Information Center (ERIC)  
Highly Accomplished and Lead Teacher (HALT)  
University of Sydney Human Research Ethics Committee (HREC)  
In-Service Education and Training (INSET)  
Initial Teacher Education (ITE)  
National Assessment Program – Literacy and Numeracy (NAPLAN)  
National Board for Professional Teaching Standards (NBPTS)  
New South Wales Education Standards Authority (NESA)  
New South Wales (NSW)  
New South Wales Institute of Teachers (NSWIT)  
Organisation for Economic Co-operation and Development (OECD)  
Open Science Framework (OSF)  
Population, Exposure, Outcome (PEO)  
Progress in International Reading Study (PIRLS)  
Programme for International Student Assessment (PISA)  
Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA)  
School Excellence Framework (SEF)  
Teaching And Learning International Survey (TALIS)  
Trends in International Mathematics and Science Study (TIMMS)  
What's the Problem Represented to be (WPR)

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# Associated Publications and Presentations

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# Chapter 1

## Introduction

Acknowledging and rewarding the work of high-performing teachers has the capacity to improve teaching quality (Coggshall et al., 2011), increase teacher retention (See et al., 2020) and, in turn, improve student outcomes (Lee, 2018). In Australia, a key mechanism for this acknowledgement, is through Highly Accomplished and Lead Teacher (HALT) certification. Since 2012, certification authorities have claimed that the process “recognise[s] high quality teachers” (AITSL, 2019, p. 9) across the country, however, the number of people who have successfully attained this certification is significantly below initial expectations (Dinham et al., 2008) and national targets (Australian Government Department of Education, 2022). This thesis explores the factors that affect teacher engagement with HALT certification and utilises Design-Based Research to develop, test and evaluate an intervention, in the form of an effective professional development program, that supports teachers in undertaking the certification process. In doing this, it also produces an accompanying set of design principles for effective professional development to enable future researchers and professional developers to better support the professional growth of teachers.

This chapter explores current literature and discourse, through a traditional review of literature, to introduce and unpack some of the key concepts and assumptions of this thesis. Traditional literature reviews are useful for “developing a historical perspective in the research” (Oliver, 2012, p. 15). This review does this by framing the study, and complementing but also differentiating itself from the Graham et al. (2024) systematic literature review presented in Chapter 3 of this thesis.

## Background

### *The Profession of Teaching*

The work of teachers is multifaceted and difficult to fully articulate (Saunders, 2013). Conceptions of teaching also vary across countries, cultures and even individual teachers (Ross, 2017). This thesis discusses professional development and professional standards as mechanisms for improving teacher quality and student outcomes. In doing this, it frames teaching as a professional endeavour that is influenced by conceptions of the role of teachers in society. “Teaching” is discussed through the lens of the Australian Professional Standards for Teachers (APST). However, teaching has been occurring in Australia for millennia prior to the introduction of these standards. Aboriginal and Torres Strait Islander pedagogies and ontologies remain in the periphery of Australian educational discourse and practice (Rogers, 2015). Whilst this thesis claims no authority on this topic, it would be remiss not to acknowledge the deficit discourse that surrounds these ways of teaching and learning (Rogers, 2018), and Australia’s ongoing resistance to learning about Aboriginal and Torres Strait Islander cultures and customs (Ma Rhea et al., 2012). It is hoped that the findings of this thesis can be used by future

researchers to continue to broaden current conceptions of teaching and close the education gap between Indigenous and non-Indigenous Australian students.

Teaching is now widely established as a profession in Australia (Goodwin, 2021; White et al., 2021) but this has not always been the case. A profession differs from other occupations by undergoing “the development of formal qualifications based upon education, apprenticeship, and examinations, the emergence of regulatory bodies with powers to admit and discipline member and some degree of monopoly rights” (Davies, 2021, p. 7). Prior to the introduction of the APST, the status of teaching as a profession was still the subject of significant debate in literature:

Are we a privileged group that enjoys autonomy and self-regulation through a recognised body of knowledge gained from extensive university learning that serves the common good? Yes. Do we as a group also enjoy a high degree of public trust and relative freedom from direct on-the-job supervision? Yes (perhaps now qualified by the My School website!). Are we accountable to society through performance standards? Not yet (Rienstra, 2010, p. 21).

National adoption of the APST has seemingly settled the debate around the professional identity of teaching (Appel, 2020). However, it could be argued that the adoption of the APST sits within a wider trend towards neoliberalist educational policies and an ‘audit culture’ that can undermine that same professionalism (Groundwater-Smith & Sachs, 2002). Whilst the profession enjoys a high level of public trust in Australia (Ashiedu & Scott-Ladd, 2012) and globally (Goepel, 2012), it is also a regular feature of political debate and is subject to consistent change and reform through public policy (Mulcahy, 2011). Heffernan et al. (2019) found that this debate and the associated changes in public perception towards the teaching profession impacts teacher retention rates and can have a negative effect on the intrinsic motivation that attracts teachers to the profession to begin with. Education systems in Australia are plagued by teacher shortages (Eacott, 2024), and increasing levels of workplace stress and anxiety (Turner et al., 2021). By supporting teachers to engage with HALT certification, this thesis promotes greater recognition of high-performing teachers and contributes to the capacity of the wider profession.

### *Professional Teaching Standards as a Social Policy*

#### *History and Other Industries*

Framing teaching as a profession and regulating it through professional standards allows governments and systems to define and redefine much of the work that teachers undertake by how these standards are developed, implemented and modified. The APST are the first national set of teaching standards in Australia, but professional standards have existed in other industries and other countries for several decades. As manufacturing jobs continue to be replaced by service and knowledge-based occupations, there has been continued growth in the prevalence and complexity of professional standards in a range of industries (Voogt & Roblin, 2012). Teaching, like many other professions, now exists within a knowledge society where ideas and information function as commodities (Anderson, 2008; Dede, 2010; Halász &

Michel, 2011). As such, there is volatility in how these professions are regulated to achieve government policy goals.

In the field of education, professional standards can be traced back to 1946 with the formation of the National Commission on Teacher Education and Professional Standards in the United States of America (Call, 2018). The goal of the commission was to drive improvement in teachers and “upgrade the status of teaching as a ‘profession’” (Cochran-Smith & Zeichner, 2005, p. 74). Today, improvement is measured in a variety of ways across education systems. Teaching can be measured against teaching standards but is also commonly measured by the performance of students in standardised assessments such as the National Assessment Program - Literacy and Numeracy (NAPLAN) and international standardised assessments such as Trends in International Mathematics and Science Study (TIMSS), Progress in International Reading Study (PIRLS) and Programme for International Student Assessment (PISA). PISA, the largest international standardised assessment program is conducted by the Organisation for Economic Co-operation and Development (OECD) (Baird et al., 2011). PISA data “can offer added value to what can be accomplished through national analysis and evaluation” (OECD, 2020, p. 5). However, governments are regularly criticised for using this data to misrepresent or place undue focus on small parts of a country’s overall educational success (Dinham, 2013). It can also result in oversimplified league tables (Ewing, 2012) and encourage governments and systems to focus efforts on preparing students for standardised tests, thus narrowing curricula (Smeed, 2010).

Despite these criticisms, the number of countries participating in PISA increased from 32 to 81 between the years 2000 and 2022 (OECD, 2023a). Participating countries argue that it provides greater opportunity for low and middle income countries to assess their performance as a system (Grek, 2009) and “belong to a wider and more global network” (Addey, 2015, p. 160). Another reason for this growth is that some countries have been required to participate in PISA to access foreign aid (Chung, 2010; Lockheed, 2013). The rise in countries adopting PISA as a measure of the success of their education systems has coincided with a rise in professional teaching standards being implemented to improve testing results. However, using the results of high-stakes student testing to measure teacher quality can affect teaching practice by disincentivising broad-based student learning and, in turn, can lead to slower student growth in more general knowledge (Zakharov & Carnoy, 2021).

Australia maintains relatively high, albeit gradually declining results in international testing such as PISA in absolute terms and relative to other countries (Thomson et al., 2016). Leigh and Ryan (2008) attributes this to a decline in teacher quality across Australia in this time. However, the reasons for this are likely to be multifaceted (Skourdumbis et al., 2024). Australia’s decline in international testing results can also be examined through existing policy analysis frameworks. The Bacchi (2012) What’s the Problem Represented to be (WPR) approach looks at postulated or existing interventions and asks the user to question how the intervention problematises the situation. In this approach, “policy approaches can also be seen to constitute (or give shape to)

‘problems’” (Bacchi, 2009, p. 1). Examining professional teaching standards through the lens of the WPR approach would lead one to believe that the underlying problem is teacher quality, however a common argument in favour of teaching standards is that they “improve educational outcomes for students” (AITSL, 2011, p. 3). The link between teacher practice and student learning is highly complex (King, 2014) and not the topic of this thesis but ultimately, the implementation of professional teaching standards as a social policy to support student growth rests on two key assumptions: that *teacher quality influences student outcomes*, and that *teaching standards influence teacher quality*.

### Teacher Quality Influences Student Outcomes

The assumption that teachers affect student learning is fundamental to the existence of teaching standards and the purpose of professional development. The validity of this assumption, however, is difficult to measure and is the subject of significant research and debate. Some studies have found that high quality teaching can lead to significantly higher levels of student gain (Ambussaidi & Yang, 2019; Oppen, 2019). Whereas others suggest that the effect is minor (Grasby et al., 2020; Leino et al., 2022). Whilst this variation is significant, it is also unsurprising as the terms *teacher quality* and *student outcomes* are both subjective in nature and the way in which these terms are defined will invariably change the way in which they are measured (Potter-Schwartz, 2022; Raudenbush, 2004). Learning is also sociocultural and affected by a range of variables, both within and beyond the control of teachers (El Jihaoui et al., 2025).

In framing teaching as a profession, this thesis discusses the growth of teachers in line with the APST. There are a multitude of ways in which teacher quality can be theorised (Goodwin, 2008). For some, it is a feeling but for others, it is quantifiable and codified in professional teaching standards (Churchward & Willis, 2019). Whilst the APST are now a ubiquitous measure for teacher quality in Australia, they have also long been the subject of criticism for narrowing both the teaching curriculum (Dinham, 2011; Kennelly et al., 2011) and the definition of quality teaching (O’Sullivan, 2016; Talbot, 2016). Whilst this does not necessarily preclude the findings of this thesis to a broader definition of teacher quality, this should be considered when interpreting the findings discussed in later chapters.

The term “teacher quality” is often conflated with the term “teaching quality” but there have been calls in literature for greater care to be taken in differentiating the two terms (Husbands, 2013). *Teacher quality* refers to the performance and technical capabilities of teachers (Churchward & Willis, 2019). Fransson et al. (2018) describes it as a mega-narrative that can be used in neoliberal policy as a solution to a perceived “teacher problem”. *Teaching quality* is “a concept more aligned to the ‘what’ and ‘how’ of practice rather than the ‘who’” (Bradford et al., 2021, p. 59).

Whilst both terms have a place in discourse, confusing the two can be detrimental to the effectiveness of policies such as professional teaching standards (Delandshere & Petrosky, 2004; Kleinhenz & Ingvarson, 2007). When framed as a policy solution, teacher quality “implies that if there is a

problem with quality in schools it is a problem with the teachers themselves. In this case quality is linked directly to ‘who’ is doing the teaching” (Mockler, 2018, p. 2), whereas teaching quality “implies the quality has to do with ‘how’ a teacher is teaching. So, if there is a problem with quality it is not a problem with the teachers themselves but with the teaching methods or curriculum they are using” (Mockler, 2018, p. 2). The findings of this thesis relate specifically to “teaching quality” by these definitions but “teacher quality” remains the dominant nomenclature in literature (Mockler, 2018). As such, the terms can be read interchangeably in this thesis.

Student outcomes can also be measured in a variety of ways. This thesis does not explicitly examine student outcomes; however, they are a commonly referred to in much of the policy and research examined in its development. As such, student outcomes are largely framed, in this thesis, as academic outcomes in relation to the Australian Curriculum (Australian Curriculum Assessment and Reporting Authority, 2013), or as literacy and numeracy outcomes measured through standardised testing at national (National Assessment Program, n.d.) and international (OECD, 2024) levels.

Finally, there are a multitude of factors that affect how students learn and it is difficult to isolate the impact of individual factors (Hattie, 2003). The term impact “is not a singular or simple construct that is easily measurable. It is highly dependent on interpretations, material conditions and different ways of talking and acting within contexts” (Ryan et al., 2022, p. 39). Beyond measurements of teacher quality, other factors, relating to teachers, that influence student learning include experience (Ericsson, 2018), preparedness (Podolsky et al., 2019), status within the community (Dolton et al., 2018).

McKinsey and Company (2007) assert that “the quality of an education system cannot exceed the quality of its teachers” (p. 43). Dinham et al. (2008) also found that “whilst class size is important to a teachers’ sense of workload and ability to individualise their teaching... evidence indicates far better returns from ensuring that every classroom has a well-trained, accomplished teacher” (p. 44). It is evident that there is no one “right” way to define either *teacher* or *teaching* quality (Barnes & Cross, 2021); it can be described as a kaleidoscope that changes based on specific situations, settings and desired outcomes (Wang et al., 2011). There is, however, significant evidence that better teaching, regardless of how it is defined, leads to better student outcomes.

### Teaching Standards Influence Teacher Quality

The second assumption of professional teaching standards as a social policy is that teaching standards raise the quality of the teachers and the teaching practices that are a bound by them. The extent to which this assumption is a valid one is an important consideration for policy makers around the world who attempt to quantify and improve teacher performance (Dinham, 2015). Educational policy can be described as “statements about practice and the way things should be ... They are intended to bring about idealised solutions to diagnosed problems” (Ball, 1990, p. 22). Dinham (2013) identifies some of the other policy “solutions” to the “problem” of teacher quality that have been previously adopted by governments:

- sacking the bottom 5% of teachers whoever they are, and somehow replacing them with better teachers;
- paying teachers by results, however these are determined and measured;
- punishing and rewarding schools on the basis of performance, whatever this means;
- giving principals more autonomy and power to hire and fire;
- bonus pay for the top 10 per cent of teachers, if they can be identified;
- raising entry standards for teacher candidates;
- exit tests for teacher graduates; and
- allowing non-educators to become principals (p. 93).

These interventions are often derived with good intentions, to promote teaching as a profession for the “best and brightest” (Gore et al., 2016, p. 530). However, whilst many of these policy decisions have come and gone, professional teaching standards have become a default way to codify and manage the performance of teachers, both in Australia and around the world (Bourke & Willis, 2019). They can be theorised to achieve two key purposes; to reward those who demonstrate them, or to punish those “seen as incompetent and under threat of dismissal” (Goodwyn, 2016, p. 92).

Two distinct approaches to the implementation of professional teaching standards are dominant in literature (Bourke & Carter, 2016). A *regulatory approach* sees standards “as a managerialist tool for measuring the efficiency and effectiveness of systems, institutions and individuals” (Mahony & Hextall, 2000, p. 31). Whereas, a *developmental approach* uses standards to “provide structured opportunities for teachers’ further professional learning, aimed at improving the quality of their teaching throughout their careers” (Mahony & Hextall, 2000, p. 31). Ingvarson (2002) describes the two approaches as having the effect of “measuring” (p. 3) and “rallying” (p. 3) respectively.

A developmental approach to implementing professional teaching standards “provide[s] a regulatory mechanism upon which claims of teacher equivalence and excellence across sites might be made” (Gannon, 2012, p. 61). When implemented in this way “staff confidence [is] maintained and thus their sense of professional identity protected” (Hammersley-Fletcher & Qualter, 2010, p. 13). Being able to “experiment with the standards, provide[s] opportunities for learning and build[s] a sense of professionalism” (Mayer et al., 2005, p. 176). It also provides teachers with greater opportunity to use the standards for professional growth. Professional teaching standards are often created with developmental intent (Kraft et al., 2020), however, neoliberalist, accountability-driven ideologies give these reforms the capacity to be used for other purposes.

Regulatory approaches to the implementation of teaching standards have historically been met with resistance by the profession, being perceived as a sign of “neoliberal distrust of teachers’ judgment” (Connell, 2009, p. 220) and a “compliance-based, top-down, surveillance approach to the implementation process and misinterpretation of the standards” (Clinton et al., 2014, p. 12). Using teaching standards as an approach to performance management has also been found to be “less significant [in affecting performance] than a range of

other important considerations, these being: (i) the relationship that the teacher has with their evaluator; (ii) the skills of the evaluator; and (iii), the addition of a developmental plan post evaluation” (Barry et al., 2020, p. 19). It can also lead to other consequences, including teachers “playing the game” (Tuinamuana, 2011, p. 78) and “silently sabotaging leadership directives” (Thomas, 2004, pp. 7-8).

Another important consideration when implementing teaching standards is how they are expressed. Connell (2009) argues that teaching standards can be broadly categorised into five different types of statements:

- summaries of the educational literature that trainee teachers should have studied and absorbed (e.g. ‘Have a sound knowledge of current learning theories and of pedagogical models from which they draw their practice’);
- field-specific knowledges (e.g. ‘Be aware of the key concepts, structure and developments in their content areas’);
- generalized educational approaches (e.g. ‘Know how to integrate learning and student understanding across a number of content areas’);
- specific pieces of know-how needed to operate in a school (e.g. ‘Be aware of tools and practices for assessing, recording and reporting student learning progress to parents and other stakeholders’); and
- statements of attitudes or beliefs that teachers should hold (e.g. ‘Regard all students as capable of learning and demonstrate an understanding of, and commitment to, equity in their practice’) (Connell, 2009, p. 219).

As such, one common criticism of professional teaching standards is that they struggle to account for the range of contextual factors within and across teaching systems (Ingvarson, 2005; Loudon, 2000). Teachers tend not to see students as abstractions “but as individuals with flaws and strengths who rarely fall within the one-size fits all approach of policies and laws” (Maynard-Moody & Musheno, 2003, p. 94). Fawcett and Bal (2009) asserts that “social policies are not designed with the needs of individuals in mind” (p. 5) and when practitioners are left to implement policies with little support or guidance, unintended consequences and misinterpretations can occur. This process can be described as “street-level bureaucracy” (Lipsky, 1980, p. xi). This is evident in the majority of Australian schools, where those who manage the performance of teachers are themselves, teachers. Whilst this is fundamental to ensuring teacher voice and agency in the implementation of the APST (Kleinhenz & Ingvarson, 2004), it can also lead to an unwarranted focus on the performance of teachers that overlooks other contributing factors to student growth (Gale, 2006; Howie, 2006; Taubman, 2010).

Teaching standards now exist in most OECD countries (Centre of Study for Policies and Practices in Education Chile, 2013). However, they are by no means a panacea for teacher quality. Teaching standards have been described as a list of unconnected substantive sentences (Connell, 2009) that precludes any teaching activity that is not nominated (Clarke & Moore, 2013). They are also inherently anchored in the time they are written (Adoniou & Gallagher,

2016, p. 112) leading many to argue that teaching standards should be “context free” (Ingvarson & Rowe, 2008, p. 18).

Teaching standards have the capacity to oversimplify the complex and contextual practices of teaching (Mulcahy, 2011) and mentoring others (Leonard, 2012). They have been described by some as the pedagogical equivalent of painting by numbers (Davies & Edwards, 1999). By codifying teaching practice, they reduce the capacity for individual decision making (Clarke & Moore, 2013) and “downgrade, neglect or crowd out the equally important emotional dimensions of teachers’ work” (Hargreaves, 2000, p. 152). Some researchers have called for a “rebalancing away from control and towards collaboration and trust in teachers” (Appel, 2020, p. 21).

Overall, it is not clear that professional teaching standards alone have a significant impact on teacher quality (Hudson, 2009) but how they are implemented has a much more profound impact on systems and individual teachers (Mayer et al., 2005). Taking a wide view of teaching quality rather than focusing on testing regimes (Holloway et al., 2017), and implementing standards with “greater supports for student, teacher, and school learning” (Darling-Hammond, 2004, p. 1082) are important considerations in the development and application of professional teaching standards. This thesis concerns itself with the developmental aspects of teaching standards through teacher professional development that supports engagement with them.

### *Higher/Voluntary Teaching Standards*

The specific focus of this thesis is on the Highly Accomplished and Lead Teacher standards within the APST. The APST are unique from most other examples of teaching standards by having four *levels* of certification. Teachers begin their careers at the Graduate level, upon graduating from an initial teacher education program. They must then progress to the Proficient level by developing a portfolio of evidence that is assessed against the teaching standards at that level (AITSL, 2016). Once proficiency is achieved, teachers are required to maintain that level of certification for as long as they continue to teach (AITSL, 2011).

Both Highly Accomplished and Lead Teacher are voluntary levels of certification (AITSL, 2011). As such, the HALT standards, by nature, resemble a more developmental approach to professional teaching standards. The voluntary nature of the HALT standards also prompts the question of “how” or even “whether at all” to encourage teachers to engage with them. This question can be answered by examining other examples of voluntary certification.

The National Board for Professional Teaching Standards in the USA is one of the biggest certifiers of voluntarily accredited teachers in the world with 133 444 National Board Certified Teachers as of 2022 (National Board for Professional Teaching Standards USA, 2022). Research on the effectiveness of this certification is mixed. Some studies have found no notable differences in teacher effectiveness and student outcomes between certified and non-certified teachers (Goldhaber et al., 2004; Harris & Sass, 2009; Rouse, 2008). Other studies assert that certified teachers are more effective (Strategic Data Project,

2011, p. 3; Stronge, 2018) and produce better academic outcomes for students (Cowan & Goldhaber, 2016).

In Europe, studies of teacher attitudes towards career progression pathways have suggested an appetite for more explicit articulations of teacher quality. These calls include calls for teacher agency (Cardoso et al., 2015), input (Hilton et al., 2013) and opportunities for career development (Forde et al., 2016). Accomplished California Teachers (2015) put forward a similar list of factors that support quality higher certification schemes:

- clear and detailed standards;
- evaluation and activity to improve the quality of teaching, not merely complying with regulation;
- greater regard to students as part of the evaluation process;
- a recognition of the spectrum that exists regarding teacher work and workload; and
- links to options for teachers to continue to develop their professional abilities (pp. 4-5).

Voluntary certification has the capacity to increase teacher motivation by “guarantee[ing] and provid[ing] certainty about their professional status as teachers” (Phytanza & Burhaein, 2020, p. 4353). This thesis aims to promote engagement with voluntary certification in Australia. The next section examines approaches to teacher certification and teacher quality in a range of other countries to situate Australia’s current HALT certification scheme in a global context.

### *Professional Teaching Standards Around the World*

Despite having origins tracing back to the 1940s, teaching standards are a relatively new policy trend in many parts of the world. There has been a broad shift towards teaching standards in recent decades, particularly under conservative and neoliberal governments (Greenblatt, 2018). It is also worth noting that in the literature reviewed, there were no examples of teaching standards being repealed, once implemented.

This section situates Australia’s policy approach to professional teaching standards within a global context by examining the approaches of a selection of countries. The selection builds on the work of Call (2018) and includes extra countries that were identified as potentially contributing additional understanding to the review. A broad definition of *standards* has been adopted due to the differing ways in which countries and systems address teacher quality and professional development. The Centre of Study for Policies and Practices in Education Chile (2013) categorised Australia, Chile, England, Germany, New Zealand and the United States as all having defined national standards for teachers, and Brazil, Canada and South Korea as not having them. Countries are discussed in alphabetical order.

#### Canada

There is currently no national set of teaching standards in Canada, however “Canada has a set of performance standards set at the provincial level” (Call,

2018, p. 96). Ontario ensures teacher quality by requiring all practising teachers to be certified by the Ontario College of Teachers (Ontario College of Teachers, 2020).

Whilst there are no national teaching standards, performance standards are tied to the performance of students in standardised testing. Leithwood et al. (2003) states that “an overwhelming majority of Ontarians support provincial student testing” (p. 7) and assistance is provided to schools and teachers who do not meet certain targets. It is also asserted in policy that performance is not tied to job security or pay in any way.

## China

China’s education system is broken into a large number of regions, each with significant autonomy over their own policies around teacher quality and professional development. Most of these regions have implemented professional standards in some form. The Shanghai system most closely resembles that of Australia, where “teachers sit within a hierarchical system of professional levels; Novice, Intermediate, Advanced and Master Teachers” (Call, 2018, p. 98). Rather than submitting evidence portfolios as is the case in Australia, teachers move through levels of accreditation at the discretion of district leaders, who reward distinguished practice.

Chinese policy around teacher quality requires teachers to complete regular testing and lesson observations which determine promotions and job security in a highly competitive job market. Teachers are considered to have a high level of status in Chinese society and are considered professionals and lifelong learners in both reputation and in law (Guo & Yong, 2013). Teachers are also required to participate in research groups in most regions of China in order to encourage teachers to consider current research in their classroom practice (Asia Society, 2010). However, there is debate as to whether China’s current professional development-driven policies have been successful in improving teacher efficacy (Ke et al., 2019).

## England

The Teachers’ Standards were introduced in England in 2012 (Department for Education England, 2011). Of all of the countries listed in this review, these standards most closely resemble the APST at the Proficient level. Discourse around these standards tends to focus on ensuring a minimum standard of practice rather than teacher improvement. The Department for Education England (2014) refers to this explicitly, stating “the Teachers’ Standards set a clear baseline of expectations for the professional practice and conduct of teachers and define the minimum level of practice expected of teachers in England” (p. 1).

The Teachers’ Standards apply to all qualified teachers in the England however, one of the major differences between the English and Australian systems is the absence of career stages in the English standards. The Teachers’ Standards account for career progression by stating:

As their careers progress, teachers will be expected to extend the depth and breadth of knowledge, skill and understanding that they demonstrate in meeting the standards, as is judged to be appropriate to the role they are fulfilling and the context in which they are working. (Department for Education England, 2011, p. 7)

Eaude (2014) questions this approach, stating that it is based on an “assumption that growing expertise consists of doing the same things but doing them better” (p. 10).

### Finland

Over the last 50 years, Finland has transformed its education system from one that performed relatively poorly by international benchmarks to that of a world leader in both student performance in PISA testing and in educational equity as measured by the OECD (Sahlberg, 2011).

Interestingly, the Finnish system has achieved this without adopting accountability measures such as teaching standards and instead, set high benchmarks for teacher education and offered high levels of remuneration and professional status (Sahlberg, 2010). Teacher evaluation is used as a professional development tool and the term “accountability” is notably absent from Finnish educational policy discourse (Tarhan et al., 2019).

### Japan

Japan has performed consistently well in PISA and other standardised tests since 1964, both in performance and in equity measures (OECD, 2012). This is credited, in part, to their high standards set for both teachers and students. There has been debate in Japan over the emphasis placed on standardised tests and PISA “league tables”. Takayama (2008) illustrates how PISA data has been used in Japan to shift the pedagogical discourse away from student-centred approaches towards preparation for high-stakes testing by “creating and capturing crisis to introduce two unpopular policy measures” (p. 401). In 2006, Japan revised their Fundamental Law of Education for the first time since 1947 to allow their policies to be more responsive to economic demands and standardised testing data (Katsuno, 2012).

Teacher supply far exceeds demand in Japan with only 14% of applicants being accepted into Initial Teacher Education (ITE) programs and 20% of graduates completing registration requirements and gaining employment in the public education system. They have no nationalised standards for leadership with local education boards taking responsibility for leadership pathways in each jurisdiction (National Centre on Education and the Economy, 2020).

### Kenya

Kenya does not currently have a national set of teaching standards, however, there has been desire expressed from the Kenyan government to “improve standards in all basic and training institutions” (Kenya Ministry of Education, n.d., para. 1). The process of improving these standards is managed by the Directorate of Quality Assurance and Standards, in consultation with the Kenya

Institute of Curriculum Development. Mugambi and Ochieng (2014) claim that “the teaching profession [in Kenya] falls short of the measures of a true profession” (p. 4) and argue for a set of professional standards to achieve the government’s policy goals.

### New Zealand

New Zealand has had mandatory teaching standards since 2006. The most current iteration is known as the Standards for the Teaching Profession and is “made up of six standards that provide holistic descriptions of what high-quality teaching practice looks like and what it means to be a teacher in Aotearoa New Zealand” (Education Council of Aotearoa New Zealand, 2017, p. 16).

For school leaders, the Educational Leadership Capability Framework “is intended to provide high-level guidelines for leadership development based on shared understandings of what leadership in different spheres of influence looks like” (Education Council of Aotearoa New Zealand, 2018, p. 3).

### Norway

Norway does not have a national set of teaching standards despite an OECD review of the Norwegian education finding that “the development of a clear and concise statement or profile of what teachers are expected to know and be able to do should be a priority in Norway” (Nusche et al., 2011, p. 15). There is strong political will to develop such a statement however there is no evidence of any progress being made to develop and implement this as yet. (Call, 2018).

A 2003 “teacher quality reform” in Norway, raised the minimum level of education required to practise as a teacher to align with other European countries. All teachers in upper secondary are now required to hold an appropriate bachelor degree and one-year master degree (Garm & Karlsen, 2004).

### South Africa

Teacher quality in South Africa is overseen by the South African Council for Educators. The country is currently in the process of implementing a set of professional teaching standards to compliment the current South African Council for Educators Code of Professional Ethics. The code applies to “educators who are registered or provisionally registered with the South African Council for Educators” (South African Council for Educators, 2016, p. 2).

Draper et al. (2017) characterised South Africa’s education system as “in crisis” (p. 5) in 2017. The report called for a set of professional standards for teachers in order to improve teacher quality in South Africa based on “valuable lessons... [from] the USA, England, Australia, Jamaica, Namibia and Chile” (Centre for Development and Enterprise, 2017, p. 1). The South African Council for Educators Professional Teaching Standards were produced in 2020 and are currently being implemented across the country. The standards aim to address South Africa’s “persistent inequality, high learner drop-out rates, and variable teaching quality” (South African Council for Educators, 2020, p. 4).

## United States of America

In the USA, policy around teacher quality is managed at state and local board levels. The National Board for Professional Teaching Standards (NBPTS) developed the country's first set of teaching standards in 1989 (National Board for Professional Teaching Standards USA, 1989). These standards are the most widely adopted in the USA but there has been no policy moves from government towards an official national standard.

*Board certification* most closely resembles higher accreditation in Australia. The NBPTS states that “National Board Certification - created by teachers, for teachers - is the profession's mark of accomplished teaching” (National Board for Professional Teaching Standards USA, 2016, p. 8). In 2019, 3.9% of teachers in the USA were board-certified (National Board for Professional Teaching Standards USA, 2019). The standards espouse five core propositions:

- Teachers are committed to students and their learning.
- Teachers know the subjects they teach and how to teach those subjects to students.
- Teachers are responsible for managing and monitoring student learning.
- Teachers think systematically about their practice and learn from experience.
- Teachers are members of learning communities (National Board for Professional Teaching Standards USA, 2016).

The NBPTS attests to the efficacy of board certification in raising teacher quality, stating that “Board-certified teachers attest to the positive impact the certification process had on their practice” (National Board for Professional Teaching Standards USA, 2016, p. 44). It is worth noting that these claims are also heavily disputed in literature (Chung & Kim, 2010; Harris & Sass, 2009). Board-certified teachers, as well as those with advanced degrees also receive between 11% and 17 % higher salaries in some parts of the country (Goldhaber, 2002).

## Scotland

In Scotland, the Chartered College of Teaching offers *Chartered Status* “as a professional accreditation that recognises the knowledge, skills and behaviours of highly accomplished teachers, mentors and school leaders” (Chartered College of Teaching, 2024, p. 2). It has been praised as a successful example of governments, unions and employers agreeing on major reforms to the career structure of Scottish teachers (Ingvarson, 2009).

The Scottish approach to professional teaching standards shares similarities with the APST, comprising of four key components: “professional values and personal commitments; professional knowledge and understanding; professional and personal attributes; and professional action” (Goodwyn, 2016, p. 135).

## Singapore

Singapore's consistent high performance in PISA testing has led to their education system being the subject of an increasing amount of research. The country implemented professional standards in 2010 which have evolved into the current Southeast Asia Teachers Competency Framework.

The framework is shared with nine other Southeast Asian countries who form the Southeast Asian Ministers Education Organisation. It consists of four essential competencies which are broken down further into 12 general competencies, 31 enabling competencies, and 136 success descriptors (Teachers' Council of Thailand, 2018, p. 5). Unlike in many other countries, teaching standards in Singapore are not embedded in law despite what Tan and Gopinathan (2000) called "an omnipresent state that cherishes stability and order" (p. 7).

Singapore has a unique education system in many ways due to the size and density of its population. This makes it difficult to draw direct comparisons between Singapore and other countries. For instance, Singapore's initial teacher education is managed and delivered entirely by the National Institute of Education. This allows the country to enact policy changes around teacher quality far quicker than is possible in most other OECD countries and provides "uniformity and conformity in approaches to education across the small sovereign city/state" (Call, 2018, p. 98).

## South Korea

South Korea, who have consistently outperformed most other OECD countries in PISA testing do not have formalised teacher standards (Roach, 2018). However, according to the South Korean Ministry Of Education "Korea is currently working towards implementing diverse educational policies to create a better work environment for teachers that can enhance their professional knowledge, supporting their conditions to focus on classroom instructions" (Ministry of Education (Korea), n.d., para. 2).

Based on the above review of countries, a global trend towards teaching standards is evident. This is indicative of a global desire to define and describe the work of educators. Teaching standards are favoured under neoliberalist policy as they create accountability and measurability of work. However, they have also been implemented by more progressive policy makers to support the development of graduate teachers and aspiring school leaders (Sachs, 2005).

A variety of developmental and regulatory approaches to implementing teaching standards are evident in this global review. Some countries such as England, New Zealand and parts of Southeast Asia have adopted mandatory teaching standards to ensure a baseline of practice whereas other countries such as the USA, Scotland and China utilise voluntary standards to reward high-performance. Australia's adoption of both mandatory and voluntary standards in a "hybrid" model could be seen as a unique way of achieving both of these benefits. The current low levels of teacher engagement with these standards, however, risks achieving neither.

## *Professional Teaching Standards in Australia*

### Early Programs

Australia's first national set of teaching standards were officially endorsed in 2010 (AITSL, 2011) but efforts to define and promote quality teaching across the country have existed for far longer (Aspland, 2006). In the 1980s, the Northern Territory and Australian Capital Territory introduced *Master Teacher* schemes to recognise teachers with exemplary skills (Ingvarson & Chadbourne, 1996). The first national approach to officially recognising and rewarding high-performing teachers was developed between 1987 and 1990 and culminated in the Schools Council for the National Board of Employment Education and Training putting forward the *Advanced Skills Classification* for Teachers (Schools Council for the National Board of Employment Education and Training, 1990). The classification had three Advanced Skills Teacher (AST) levels. At Level 1, teachers remained in classroom teacher positions but attracted salaries of an additional \$1200 per year. AST levels 2 and 3 attracted higher salaries in line with Head Teachers/Assistant Principals and Deputy Principals respectively (Weppler & Bourke, 1993).

According to the scheme, "an Advanced Skills Teacher is a classroom teacher who provides educational leadership and guidance to classroom teachers" (NSW Department of Education, 2022a). Similarities between the AST Level 1 classification and HALT certification are evident. Both schemes provide pathways for high performing teachers to remain in the classroom (AITSL, 2011; Weppler & Bourke, 1993). Both schemes also fell short of initial calls to remunerate these teachers in line with those in traditional promotions positions, with significantly less teachers achieving AST levels 2 and 3 over the course of the program (Goss & Sonnemann, 2020; Shacklock et al., 1998). Despite initial enthusiasm for the AST program (Bluer & Carmichael, 1991), the program was ultimately abandoned in most states by 1995.

In 2004, the New South Wales Institute of Teachers (NSWIT) released the Framework of Professional Teaching Standards. The framework "provide[d] a language that can be used by teachers to communicate with the community about their profession and in doing so advance the status and standing of the profession" (NSW Institute of Teachers, 2004, p. 2). These professional standards were the first mandatory set of teaching standards in New South Wales and were eventually revised into the APST that exist nationally today.

### The Australian Professional Standards for Teachers

In 2009, the Australian Institute for Teaching and School Leadership (AITSL) was established with the "responsibility for professional standards and for fostering high-quality professional development for teachers and school leaders" (Australian Curriculum Assessment and Reporting Authority, 2013, p. 16). The APST were implemented shortly after (Dinham, 2013). The purpose of the APST was to "identify and reward accomplished teachers... and strengthen the role of the profession in developing a system of professional certification" (Ingvarson, 2010, p. 5).

There have been many advocates for a national framework for professional teaching standards as such a framework can enhance teacher capacity (Ingvarson, 2018), promote more consistent and equitable opportunities for students (Timperley, 2011), and increase the standing of the profession (Hattie, 2019). Professional standards can positively impact teacher attraction and retention levels (Buchanan, 2017) and encourage a sense of *reflexive professionalism* (Bourke et al., 2013). Reflexive professionals collect their own contextual evidence and make informed decisions regarding their own actions (Ryan & Bourke, 2013). They can also map and justify their own professional development (Evans, 2008). This is evident in the portfolio-style assessment requirements that necessitate professional judgement of evidence by teachers as they progress through the levels of the APST (Mayer, 2009).

The four career stages of the APST “provide benchmarks to recognise the professional growth of teachers throughout their careers” (AITSL, 2011, p. 6). During the creation of the APST, Dinham et al. (2008) hypothesised that by 2020:

it might be expected that about 20 per cent of teachers in a typical school would be Leading Teachers, 30 per cent would be Accomplished Teachers, 40 per cent would be at the Competent Teacher stage in their careers, and about 10 per cent at the Graduate Teacher stage (p. 35).

This would mean that a typical school could expect that 50% of its teachers would be highly experienced, recognised by their colleagues, and able to lead and mentor new teachers as they enter the profession.

As of 2023, there were 1211 certified HALTs in Australia (AITSL, 2023b), representing 0.39% of the country’s 311655 full-time equivalent (FTE) teaching staff (Australian Curriculum Assessment and Reporting Authority, 2023). AITSL has previously asserted that “national use of the Standards is largely at the procedural level (focused upon mandatory requirements) even though it is apparent that pockets of extended use are emerging over time” (AITSL, 2014b, p. 25). It also notes that the NBPTS in the USA only certified 177 teacher’s in its first year but has now certified more than 110,000 teachers across all 50 states (AITSL, 2017b). Table 1 shows how HALT numbers have grown in the first 12 years of implementation.

*Table 1: Total HALT Numbers by Year (AITSL, 2023b; Cole, 2021)*

<b>Year:</b>	2012	2013	2014	2015	2016	2017
<b>HALT #:</b>	25	160	206	287	356	473
<b>Year:</b>	2018	2019	2020	2021	2022	2023
<b>HALT #:</b>	573	709	840	891	1025	1211

The data in Table 1 illustrates that from 2012 to 2023, Australia certified just over 100 HALTs per year. At the current rate, it would take another 88 years to reach the Australian Government’s current target of 10 000 HALTs by 2025 (Australian Government Department of Education, 2024). Different levels of interest between state jurisdictions are also evident with NSW committing to contribute 2500 HALTs to that number (NSW Department of Education, 2022c).

The ACT is also a notable outlier “with 88 HALTs working in the territory’s 136 schools – 65 per cent of the way to securing a HALT in every school” (Cole, 2022, para. 13).

Despite low levels of teacher engagement with the APST, governing bodies have remained outwardly optimistic, noting an increase in both teacher knowledge of and engagement with the APST through to 2015 (AITSL, 2014b). Call et al. (2021) found that a majority of pre-service teachers used APST either “rarely” or “sometimes” to make decisions around their professional learning and future practice. Hardy (2008) also noted confusion at a policy level which has led to mixed responses at the level of practice. In response to the low levels of teacher engagement, some certification jurisdictions have made moves to streamline certification processes, “reducing the workload for HALT applicants” (NESA, 2024a, para. 2). This aligns with research suggesting that the demands of the HALT certification process far outweigh the benefits that certification provides (Cole, 2021; Willis et al., 2021).

Dinham et al. (2008) recommended greater remuneration for Highly Accomplished and Lead Teachers, stating that “salaries for Highly Accomplished teachers should reach a level that is twice the starting salary for graduate teachers. Lead Teacher salaries should reach a salary that is 2.5 times starting salaries” (p. 35). In NSW, both Highly Accomplished and Lead Teachers can earn up to 1.59 times the salary of a graduate teacher and only 1.06 times that of a teacher accredited at Proficient (NSW Teachers Federation, 2020). A Committee for the Review of Teaching and Teacher Education (2003) study also found evidence of a largely hidden resignation “spike” after eight to ten years of teaching, coinciding with teachers reaching the top of the various salary scales in Australia. Whilst salary was reported to be “a ‘neutral’ factor amongst teaching graduates in Australia” (Dinham et al., 2008, p. 18), research from the UK found that “the biggest factor explaining the variation in quality of teaching and other university graduates is the long-term variation in the salary of teachers relative to that of other professions” (Chevalier et al., 2007, pp. 74-75). Ingvarson et al. (2014) discusses how this can cause high quality graduate teachers to make the decision not to enter the profession.

HALT certification has also been described as “a badge in search of a role” (Cole, 2021, p. 147). In addition to lower rates of remuneration than traditional school leadership and management roles, a lack of career opportunities for HALTs has been another criticism of the current certification system (J. Willis, P. Churchward, T. Bourke, et al., 2022). Dinham (2007) recommended a linking of the Standards and promotions positions within schools, stating that “under this proposal, attaining the standards at each level would be a prerequisite for moving to the next [career] stage” (p. 36). This idea aligns with a range of research that suggest that effective school leaders are seen as highly credible by teachers and as expert teachers themselves (Dinham, 2007; Mulford, 2005; Robinson & Timperley, 2016). There has, however, been very little movement in this direction. This is illustrated in NSW where 17% teachers have been chosen to progress their career to an executive position compared to 0.19% of teachers choosing to attain higher accreditation (Centre for Education Statistics and Evaluation, 2017).

Lack of time to engage with teaching standards is also often cited as a contributing factor to the lack of teacher engagement with the APST (Mayer et al., 2005) and with professional development more broadly (Sparks, 2002). Explicit provision of time to teachers in a meaningful way can lead to greater learning (Darling-Hammond, 1998). Many have called for a simplification of the accreditation process and of the APST in general (Gannon, 2012; Talbot, 2016). The current process can take up to 3 years (Association of Independent Schools of NSW, 2019; Catholic Schools NSW, 2021; NSW Department of Education, 2017a) and applicants have expressed “uncertainty about knowing how to best represent that evidence slowed them down in the application process” (Willis et al., 2021, p. 6). Some jurisdictions have taken steps to simplify this process through the adoption of a *modular* model that separates the certification process into a series of smaller portfolios (NESA, 2024a). An advantage of this model is the ability for participants to set smaller, achievable goals and to more regularly receive feedback (Nethsinghe & Brown, 2023). Conversely, others argue that the previously adopted holistic approach provided teachers with more freedom in their selection of how to address the standards (Nethsinghe & Brown, 2023).

In addition to its four career stages, the APST also has a large number of standard descriptors at each level. As such, it can be difficult for teachers to demonstrate the entirety of the APST, particularly for those working in specialist teaching positions (Uther & Pickworth, 2014). Bahr and Mellor (2016) also argue that the APST “do not address personal attributes of teachers, and therefore do not fully consider or provide the contexts for assuring the provision of a quality teacher for every classroom” (p. 20). This thesis accepts that reducing the complex and contextually dependant nature of teaching to a list of dot points will never result in a perfect output. However, the APST, if imperfect, serves as an effective way to induct, develop and celebrate teachers over the course of a career. This thesis aims to produce a professional development program that supports teachers through the HALT process and thus, contribute to an increase in the number of successful HALT applicants in line with Australian Government priorities (Australian Government Department of Education, 2022).

## Context

The research undertaken in this thesis was conducted in New South Wales, Australia. Whilst the APST is a national framework, overseen by AITSL, it is implemented and regulated, at a state level, by teacher accreditation authorities. In NSW, the teacher accreditation authority is the NSW Education Standards Authority (NESA). “Certification” is also referred to as “accreditation” in NSW, in line with the terminology in the Teacher Accreditation Act 2004 (NSW) and the now superseded Professional Teaching Standards (NSW). This thesis uses the term “certification” in broader discussion of the topic and “accreditation” when referring to it in the NSW context, but the terms can be read interchangeably.

The NSW accreditation process is relatively consistent with that of other states. As such, it is intended that the findings of this thesis will have relevancy in other Australian teaching jurisdictions. In NSW, like other states, the process of applying for higher accreditation requires applicants to produce a portfolio of evidence, annotations and classroom observations that demonstrate their performance against the APST (Association of Independent Schools of NSW, 2017; NESA, 2010a; NSW Department of Education, 2017a). The process is also similar, albeit more arduous than the process of gaining Proficient teacher accreditation (NESA, 2019b; NSW Department of Education, 2018a).

Within NSW, there are three school sectors: the NSW Department of Education, Catholic Schools NSW, and the Association of Independent Schools of NSW. Each sector has their own set of supports and regulations for HALT applicants. The largest sector in NSW is the NSW Department of Education, which employs more than 55 000 full-time teachers (Centre for Education Statistics and Evaluation, 2017). The School Excellence Framework (SEF) outlines the NSW Department of Education's processes around school improvement and identifies Highly Accomplished and Lead Teachers as key drivers of the process. The SEF states that *excelling schools* are those schools where "a high proportion of the teaching staff (including specialist teachers) have attained and are maintaining accreditation at Highly Accomplished or Lead Teacher" (NSW Department of Education, 2017b, p. 10).

The NSW Department of Education's Strong Start Great Teachers framework also "provides school-based induction advice for schools to support beginning teachers" (NSW Department of Education, 2021b). It is a framework intended to guide school leaders in supporting Graduate teachers through the process of gaining Proficient teacher accreditation. The policy acknowledges the role that Highly Accomplished and Lead Teachers play as mentors in this process.

The NSW Government's Local Schools, Local Decisions policy has also had an impact on the process of school leadership in NSW over the past decade. Under the policy, "schools will manage a much larger share of the overall NSW public school education budget – from less than 10% of the total NSW public school education budget now, to more than 70%" (NSW Department of Education and Communities, 2014, p. 1). This has led to differing levels of interest and investment amongst schools and systems in supporting staff in the process of gaining higher accreditation, and resulted in small clusters of schools producing the largest numbers of HALTs across the state (NESA, 2023a, 2023b).

Like in most other states, there are relatively few HALTs in NSW. Despite a commitment to producing 2500 HALTs by 2024, the Centre for Education Statistics and Evaluation (CESE) reported that 0.19% of teachers in NSW had achieved HALT accreditation by 2017 (Centre for Education Statistics and Evaluation, 2017) and in 2023, NESA recognised a total of 338 accredited HALTs across the state (NESA, 2023c). A number of recommendations have been made by researchers to increase the number of accredited HALTs including to "increase the accessibility of the application processes" (J. Willis, P. Churchward, T. Bourke, et al., 2022, p. 32), "streamline the process for

applicants to be certified as HALTs” (Cole, 2021, p. 142) and “encourage and coach our colleagues to become nationally certified” (AITSL, n.d.-b, para. 5). This thesis presents a professional development program and accompanying set of design principles that can be used to support HALT applicants in engaging with current certification processes. The findings of the study can also be used by governments and regulators in the consideration of future policy decisions.

## Research Questions

Research around higher teacher certification is relatively sparse and as such, there is little evidence of an obvious solution to the “HALT problem”. A range of financial, industrial and political interventions present as viable options but this thesis is deliberate in selecting an intervention that can be implemented within the time and resource constraints of the study. This thesis, and the publications produced from it, contribute to a greater understanding of higher certification processes and how to effectively recognise and celebrate high-performing teachers.

In line with current research on potential interventions (Cole, 2021; J. Willis, P. Churchward, L. Crosswell, et al., 2022), professional development was selected as an intervention that has the capacity to support the growth of teachers in line with the APST and assist them in successfully accessing and navigating the HALT certification process. The study used Design-Based Research to develop an effective professional development program that achieves this goal. In doing so, it responds to the overarching research question: What are the design principles for an effective professional development program targeting professional accreditation?

In line with the principles of DBR, a series of three sub-questions were also developed to align with each phase of the study:

1. How does current literature define effective professional development?
2. What do key stakeholders see as effective professional development?
3. What is the impact of an effective professional development program?

The iterative nature of Design-Based Research meant that these questions would evolve over the course of the study. This evolution also led to an additional research question being posed and answered: what factors affect teacher engagement with Highly Accomplished or Lead Teacher certification under the Australian Professional Standards for Teachers?

Responding to these questions also allowed the study to produce two key outcomes:

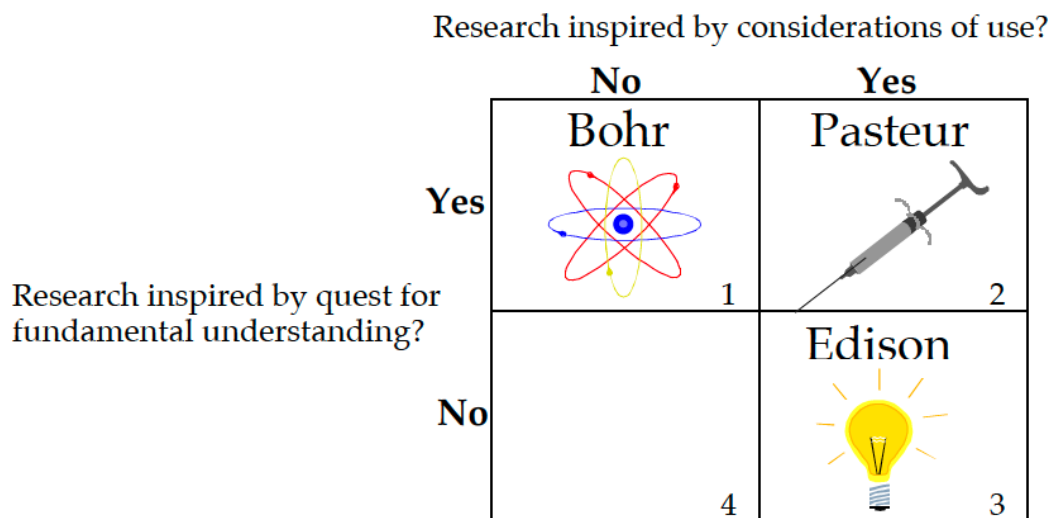
- a set of tested design principles, that will support the development of future effective professional development programs; and
- an artefact, in the form an effective professional development program, that will support teachers in achieving HALT certification.

## Methodology

This study utilised Design-Based Research (DBR) to answer the aforementioned research questions. DBR is an iterative and flexible methodology, often involving multiple phases, and where the research approach taken in each phase can be dependent on the results of the last (Reeves, 2000; Wang & Hannafin, 2005). An overview of Design-Based Research and how it is applied in this study is presented in this section. Chapter 2 of this thesis discusses the overall protocols for the study (Graham et al., 2023) and the subsequent four chapters describe the methodology for each phase of the DBR process (Graham et al., 2024; Graham et al., 2025a, 2025b, 2025c).

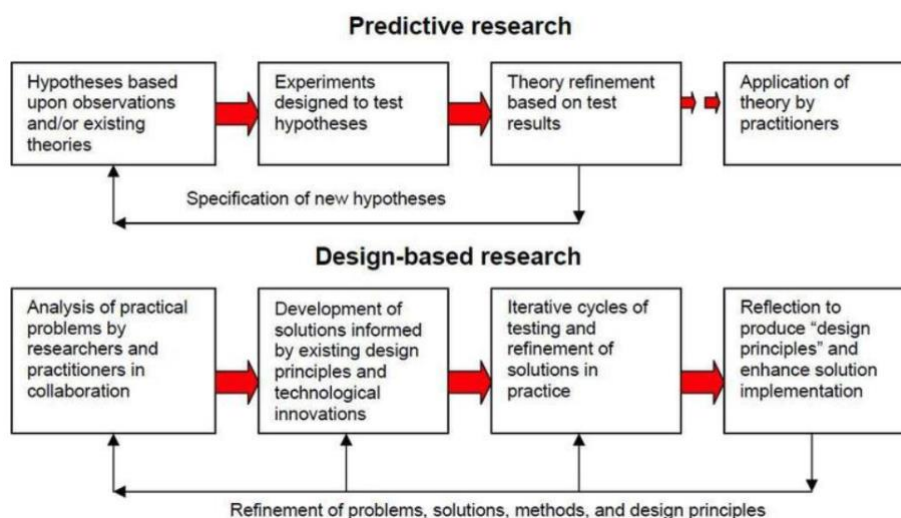
Design-Based Research, often referred to in literature as Design Research or Development Research, is a solutions-based methodology that attempts to achieve the goals of both basic and applied research (Reeves et al., 2005). Basic research has the goal of “extending fundamental understanding within a scientific field” (Reeves, 2000, p. 2) whereas applied research is focussed on “solving problems that confront an individual, a group, or society at large” (Reeves, 2000, p. 2). These goals ensure that this thesis both contributes to global knowledge and addresses a practical problem for the participants and profession involved. Pasteur’s Quadrant (illustrated below in Figure 1) illustrates another way in which research can be classified.

Figure 1: Pasteur’s Quadrant View of Research (Stokes, 1997)



Using Pasteur’s Quadrant as a framework, DBR situates itself in Quadrant 2. Despite the dual purpose of attempting to understand and solve a problem, there are inherent complexities in conducting any sort of research around the learning of individuals (Winne, 2006). Rather than ignoring these complexities or attempting to isolate and control individual factors, DBR addresses them in real contexts, in collaboration with practitioners (Kenny-Clark, 2013). Bakker (2018) asserts that “most educational research describes or evaluates education as it currently *is*. Some educational research analyses education as it *was*. Design research, however, is about education as it *could be* or even as it *should be*” (p. 3). Figure 2 illustrates how this process differs from traditional research methods.

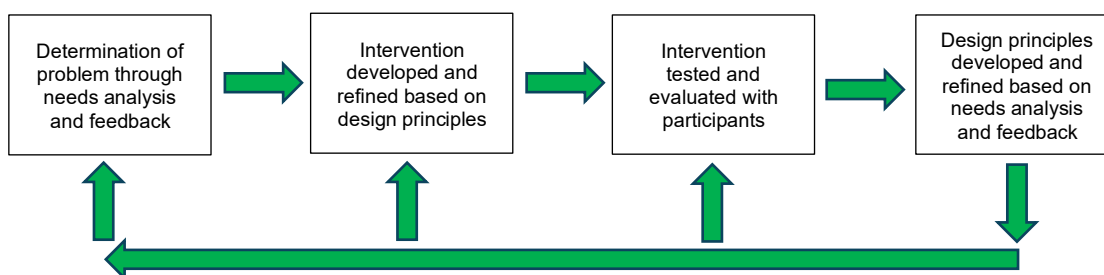
Figure 2: Model of Design-Based Research (Reeves, 2006, p. 59)



DBR’s origins come from the field of educational technology, where it was used to develop technology artefacts and associated theories, in the form of design principles (Cole et al., 2005). Design principles are a set theoretical understandings presented in active terms (Herrington et al., 2009) as heuristic statements (Van den Akker, 1999). The repeated process of grounding, conjecturing, iterating and reflecting on these design principles provides epistemologically different outcomes to positivistic or interpretivist research approaches (Hoadley & Campos, 2022).

Wang and Hannafin (2005) proposed five basic characteristics of DBR: “pragmatic; grounded; interactive, iterative and flexible; integrative; and contextual” (p. 7). By combining theoretical and practical elements, “DBR tries to produce not only better practices using theory, but also to improve theory through practice” (Suzuki & Nemoto, 2016, p. 47). Figure 3 shows a proposal of how this methodology could be applied to the formulation of professional development programs.

Figure 3: Modified model of DBR for use in the design of professional development

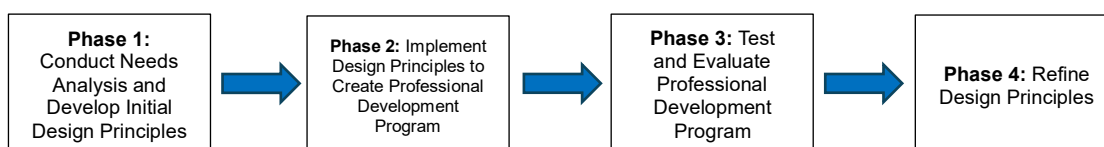


DBR is an appropriate approach to developing effective professional development due to “its commitment to developing theoretical insights and practical solutions simultaneously, in real world (as opposed to laboratory) contexts, together with stakeholders” (McKenney & Reeves, 2012). This allows the study achieve two outcomes: producing an artefact, in the form of an effective professional development program, for practitioners; and generating a

set of accompanying design principles that contribute to the wider understanding of effective professional development. Plomp (2013) advocates for greater use of DBR as a research methodology, stating that “instead of doing more studies comparing whether in a certain context method A is better than method B, undertake design research aimed at developing an optimal solution for the problem in that context” (p. 12).

DBR is cyclical in nature and involves a process of continual refinement until the intervention or product achieves its purpose. In doing so, it provides opportunities for researchers to go beyond simply solving problems to challenge the assumptions on which these problems exist in a process of double-loop learning (Argyris & Schön, 1989). The DBR approach taken in this study takes into consideration the time and resource constraints of the Doctor of Philosophy degree. As such, a predetermined start and finish point in the cycle was required in this instance. Figure 4 shows a *single-cycle* model of DBR that was adapted for this study.

Figure 4: Proposed single-cycle model of DBR to be used in this study



It is also worth noting that, like any methodology, DBR has weaknesses that were considered and accounted for over the course of this study. Making credible and trustworthy claims can be a challenge for DBR as the researchers play a leading role in the design, development, and implementation of the interventions and associated design principles (Barab & Squire, 2016). Thus, absolute validity is difficult to attain (Zheng, 2015). Over reliance on pragmatic research approaches also has the capacity to lead to *anything goes* methodologies (Denscombe, 2014), as such the protocols for this study were predetermined, peer-reviewed and published as an academic paper (Graham et al., 2023). This paper is located in Chapter 2 of this thesis.

DBR is a methodological approach to research that has traditionally been limited to learning sciences and educational technology. However, it is increasingly being used in other fields of research (Fowler et al., 2023). This thesis demonstrates how DBR can be applied in the field of professional development to achieve both theoretical and practical outcomes. Educational research can sometimes be accused of “being divorced from the problems and issues of everyday practice” (The Design-Based Research Collective, 2003). Future researchers and professional developers could consider the approach used in this thesis to promote greater alignment between theory and practice.

## Ethical Approval

This study involved two forms of data collection involving human participants. Chapters 4 and 6 of this thesis report on stakeholder analyses. The data collection was approved by the University of Sydney Human Research Ethics

Committee (HREC) - approval no.: 2022/159. Full approval can be found in Appendix A.

Chapter 5 of this study reports on a professional development program that was, ultimately, unable to be delivered. This phase of the study also was also approved by the University of Sydney Human Research Ethics Committee - HREC approval no.: 2023/479. Full approval can be found in Appendix B.

## Thesis Overview

This dissertation has been submitted as a thesis with publications. It contains seven chapters, five of which have been submitted to or accepted in international, peer-reviewed journals. A summary of each chapter is below:

### *Chapter 1: Introduction*

This chapter establishes the thesis. It discusses the assumptions that underpin the study and reviews relevant literature around *teacher quality* and *professional teaching standards* in a narrative-style review. It also introduces the goals of the study and provides an overview of *Design-Based Research*.

This chapter was not submitted for publication.

### *Chapter 2: Protocols*

This chapter outlines the rationale and methodologies for the study. It introduces the concept of *professional development*, differentiating it from *professional learning* and justifying it as a viable intervention in the context of professional teaching standards. It then declares and presents the methods for each phase of the study, with the aim of promoting adherence and greater rigour in the final outcomes.

This chapter has been published as: Graham, M., Grice, C., & Cotton, W. (2023). Design-based research protocols to support effective PD for emerging Highly Accomplished and Lead Teachers. *Issues in Educational Research*, 33(4), 1380-1402.

### *Chapter 3: Systematic Literature Review*

This chapter presents and discusses a systematic literature review that was undertaken, in line with the study's protocols, to establish a definition of *effective professional development* and produce the *initial design principles*. The chapter is written in line with the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) statement.

This chapter has been published as: Graham, M., Grice, C., & Cotton, W. (2024). Design principles of effective professional development for school teachers: A systematic literature review. *Issues in Educational Research*, 34(4), 1260.

#### *Chapter 4: Stakeholder Analysis*

This chapter reports on a key stakeholder analysis that was undertaken, in line with the study's protocols, to evaluate and refine the initial design principles and produce a set of *revised design principles*. It also discusses these revisions in relation to wider literature around effective professional development and the notions of *agency* and *praxis* in professional development.

This chapter has been submitted for publication and is cited in this thesis as: Graham, M., Grice, C., Cotton, W., & Hilal, Y. Y. (2025a). Effective Professional Development in Schools and School Systems: A Stakeholder Analysis. *[Manuscript submitted for publication]*.

#### *Chapter 5: Intervention.*

This chapter presents an intervention, in the form of a *professional development program*, that was created using the refined design principles discussed in Chapter 4. It draws on additional data collected through the stakeholder analysis to justify the content of the professional development program and situates the data in the broader academic understanding of *middle leadership* in schools.

This chapter has been submitted for publication and is cited in this thesis as: Graham, M., Grice, C., Cotton, W., & Hilal, Y. Y. (2025c). Supporting Teachers who Support Teachers: Effective Professional Development for Higher Teacher Accreditation Applicants. *[Manuscript submitted for publication]*.

#### *Chapter 6: Revised Stakeholder Analysis*

This chapter presents the findings of an additional phase of the study. As data was not able to be collected from the implementation of the intervention due to insufficient participant numbers, an additional stakeholder analysis was undertaken to further evaluate and refine the revised design principles and better understand the factors that affect teachers in engaging with professional development. The data is used to produce a set of *final design principles* which are discussed in relation to wider literature around *teacher participation in professional development activities*.

This chapter has been submitted for publication and is cited in this thesis as: Graham, M., Grice, C., Cotton, W., & Hilal, Y. Y. (2025b). Ground to a HALT: Design Principles for Effective Professional Development that Support Highly Accomplished and Lead Teacher Applicants. *[Manuscript submitted for publication]*.

#### *Chapter 7: Conclusion*

This chapter concludes the thesis. It provides an overview of the study and presents its findings in relation to the research questions posed in Chapter 1. It also discusses the limitations of the study and its recommendations for future research and practice.

This chapter was not submitted for publication.

## Chapter 2

### Protocols and Methodology (Graham et al., 2023)

The following chapter was published as: Graham, M., Grice, C., & Cotton, W. (2023). Design-based research protocols to support effective PD for emerging Highly Accomplished and Lead Teachers. *Issues in Educational Research*, 33(4), 1380-1402. Formatting and referencing styles have been adjusted to align with the style of this thesis.

#### Abstract

Professional standards for teachers have become a near-ubiquitous policy tool in Organisation for Economic Co-operation and Development member countries in efforts to improve teacher quality and student outcomes. The Australian Professional Standards for Teachers differ from teaching standards implemented in comparable countries with its system of voluntary higher accreditation levels for teacher-leaders. In the decade since these standards were introduced, it was hoped that 50% of teachers would achieve higher levels of accreditation. Currently, that number is lower than 1%.

This protocol paper outlines the rationale and methodologies for a Design-Based Research study that creates, tests and refines a set of design principles for effective professional development. These principles are used to inform the design and delivery of a professional development program that supports teachers through the process of gaining higher accreditation under the Australian Professional Standards for Teachers.

The benefits of this study are twofold. The professional development program will remain as an artefact for the profession to address the issue of the dearth of Highly Accomplished and Lead Teachers. The design principles will also support researchers and practitioners in the development of future effective professional development programs within and beyond the teaching profession.

#### Keywords

Australian Professional Standards for Teachers; Design-Based Research; teacher accreditation; professional development; educational leadership.

#### Background

The “professional status” of teaching is a heavily debated topic that frames the way that the profession is regarded, remunerated and regulated around the world (Hotaman, 2010; Lagowski, 1986; Maskit & Firstater, 2016). In Australia, this topic invariably re-enters public discourse during teacher pay negotiations, the release of international standardised testing data, and during government elections.

The concept of “a profession” is, itself, a widely-argued subject. Wise (2005) defines a profession as: “An occupation that seeks to regulate itself by (a)

developing a consensus concerning what its practitioners must know and be able to do and (b) developing an accreditation and licensing system to ensure the transmission of that knowledge and skill. An occupation becomes a profession when organizations such as universities, states, and the public accept that system” (p. 318).

By this definition, the debate around education in Australia was settled in 2018 as the final cohort of pre-2004 teachers were accredited at Proficient under the Australian Professional Standards for Teachers (APST) and expected to maintain this status for the remainder of their careers (NESA, 2018; Northam, 2018; NSW Department of Education, 2018b).

The APST were initially introduced in Australia in 2010 with the intention that every teacher would eventually be accredited under the system. It consists of four levels of accreditation that were designed to reflect the different career stages of a teacher. Accreditation is regulated at a state level and slight variations to naming and processes exist but generally, teachers begin their career at the Graduate level, and it is then compulsory that they achieve the Proficient level within a specified amount of time in order to continue practising. Once proficient, teachers may then choose to undertake a voluntary process to apply for Highly Accomplished or Lead Teacher accreditation.

## Literature Review

### *Professional Teaching Standards*

The contents of the APST are regularly debated and slight variations exist to the standards implemented across state jurisdictions. This study, however, accepts the APST as an effective, if imperfect, means of improving teacher quality at a national level. The purpose of this study is, therefore, to utilise professional development in supporting teacher understanding and development in line with the APST.

Since 2016, the remuneration and working conditions of public school teachers in New South Wales have also been aligned with the APST through the NSW Standards Based Salary Procedure (NSW Department of Education, 2017c). This requires teachers to achieve specific levels of accreditation to access salary increases which impacts not only the strength of the profession, but the quality of the service that it delivers to the community (Hattie, 2003).

However, the intention of the APST in Australia was to do more than regulate underperforming teachers and standardise remuneration. It was expected that within ten years of implementation, 50% of the profession would be accredited at Highly Accomplished or Lead Teacher (Dinham et al., 2008). Higher accreditation would support the growth of school leaders, and remunerate and celebrate highly-skilled teachers who chose to remain in classrooms (Ingvarson, 2010; NESA, 2016; NSW Department of Education, 2017b).

More than ten years have now passed since the inception of the APST and it is estimated that less than 0.1% of Australia’s teaching workforce have been successful in achieving higher accreditation under the APST (Centre for

Education Statistics and Evaluation, 2017; NESAI, 2023a, 2023b). This is a significant issue for the Australian education system and a learning opportunity for comparable international education systems interested in implementing professional standards as there is evidence that high-quality teaching has a sizable impact on the learning outcomes of students, as demonstrated in the USA (Darling-Hammond, 2000) and in Australia (Hattie, 2003). Masters (2015) also identifies a strong link between top-performing countries in PISA and those who focus on raising the standard of teaching through stricter recruitment and registration processes.

In a time where education systems around the world are facing increasing teacher shortages and workload pressure, increasing the number of highly accredited and skilled teachers is one of many necessary measures to provide access to greater remuneration and recognition opportunities for the profession. Tang et al. (2006) argues that teaching standards provide quality assurance in professional development and teaching quality. This has been supported by a number of studies conducted in the USA (Danielson & McGreal, 2000; Darling-Hammond, 2001). There is insufficient evidence available to determine whether the number of highly accredited teachers in Australia is a reflection of the capacity of its teachers. If student outcomes are used as the measuring stick, Australia's relatively high performance in international standardised testing such as PISA might suggest that the problem lies elsewhere.

The trend towards standards in the education sector is neither new, nor unique. Standards of practice have become increasingly common in many occupations over the last half-century. Power (1999) describes an "audit explosion" that had been occurring since the late 1980s, normalising "accountability culture" and increasing the number and complexity of professional standards in many industries.

The way in which teaching standards are framed can also have a significant impact on their success as a policy. Mahony and Hextall (2000) discussed two ways that standards tend to be implemented. A regulatory approach sees standards "as a managerialist tool for measuring the efficiency and effectiveness of systems, institutions and individuals" (p. 31). Conversely, a developmental approach uses standards as an intervention "which can provide structured opportunities for teachers' further professional learning, aimed at improving the quality of their teaching throughout their careers" (p. 31).

Elements of both approaches are evident in the APST. Bourke et al. (2013) identify two key discourses surrounding the Australian teaching standards. "First, quality teachers are a key determinant in student achievement and are clearly linked to a competitive economy; and second, professional standards are the mechanism for obtaining quality teaching as well as providing other benefits for the teaching profession" (p. 407). For individual teachers, accreditation serves as proof of both professionalism and an ability to demonstrate quality teaching practices.

### *Professional Development*

This study envisages professional development as a tool to improve teacher understanding of the APST and intends to use the principles of Design-Based Research (DBR), as described in Reeves (2006), to systematically determine principles of effective professional development and create a prototype professional development program that addresses the critical issue of the low numbers of Highly Accomplished and Lead Teachers in Australia.

Professional development in this study encompasses any experience of workplace learning that is deliberate or can be measured. It is often also referred to in literature as “professional learning” or “continuing professional development” (Netolicky, 2016).

Whilst the terms are often used interchangeably, this study views the terms “professional development” and “professional learning” as different concepts. Murray (2016) defines professional learning as any act that “results in improvements in teachers’ knowledge and instruction” (p. 9). The notion that professional learning can occur anywhere, makes professional development a more deliberate process. The focus of this study is, therefore, professional development.

Professional development can include activities run by external providers and activities that already occur within schools. Netolicky (2019) includes “talks, courses and conferences... and other times where educators learn, and that influence their lives and work” (p. 5) as common examples of professional development.

The impact of professional development can be multifaceted. Drago-Severson and Blum-DeStefano (2018) discuss the idea that professional development can build the capacity of an individual, not just by adding to what they know, but changing the way in which they know it. The book also highlights “perspective taking, collaboration, and continuous learning as guiding processes for capacity building” (p. 7). This is considered in the determination of the initial design principles and subsequent professional development program developed in this study.

It is assumed that professional development is a valid tool to improve teacher quality. Naylor and Sayed (2014) found that “teacher quality is not fixed at the point of entry into the profession but can develop through experience and exposure to ongoing professional development opportunities” (p. 19). Professional development is also linked closely to teacher quality in a range of state and national government policies (AITSL, 2012b; NSW Department of Education, 2015).

The role of professional development within the teaching profession has changed dramatically since the introduction of the APST. Professional development is now mandatory for all practising teachers in New South Wales, with an expectation that teachers undertake at least 20 hours of professional development, on average, each year. This requirement remains the same for teachers applying for and maintaining higher accreditation (NESA, 2018; NSW

Department of Education, 2018b). For professional development providers, their programs must now be explicitly aligned with the APST to contribute to these mandatory hours.

Whilst the body of literature around what constitutes effective professional development has grown considerably over the last decade, a clearly articulated set of design principles that supports the development of such programs could provide significant benefit to future researchers and practitioners within the field. This study will utilise a systematic literature review and stakeholder analysis to create a set of initial design principles that will guide the development of a professional development program that supports teachers through the Australian higher accreditation process. The program will then be delivered and evaluated by participants to refine the initial design principles into a set of final design principles, usable for future researchers and practitioners. Timperley et al. (2007) claimed that “the empirical evidence relating to the professional learning of teachers is sparse. Empirical articles are typically theory-free; theoretical articles are typically evidence-free” (p. 228). The Design-Based Research process utilised in this study aims to synthesise current literature with the voice of policy-makers and the profession in the development of the aforementioned design principles.

The Australian Institute for Teaching and School Leadership (AITSL) synthesised a range of research around teacher professional learning in 2012 to support the implementation of the APST. The findings are applicable to the creation of effective professional development and were used to hypothesise what the program in this study might look like. The synthesis defines professional learning as “the formal or informal learning experiences undertaken by teachers and school leaders that improve their individual professional practice, and a school’s collective effectiveness, as measured by improved student learning, engagement with learning and wellbeing” (AITSL, 2012a, p. 2). AITSL found four determinants of high-quality professional learning: learning culture, collaboration, innovation and evaluation.

A “learning culture” was found to have the greatest impact on the efficacy of professional learning where leadership drives and values workplace learning (AITSL, 2012f, 2017a). This is supported by Timperley (2011), who found that “when learning becomes core business... these situations are likely to have a far greater effect on what leaders and teachers learn than out-of-school learning opportunities” (p. 14).

The synthesis also found that effective collaboration “encourages ongoing observation and feedback among colleagues where a culture of professional sharing, dialogue, experimentation and critique becomes commonplace” (AITSL, 2012c, p. 2).

Innovation was also found to be a key determinant of the effectiveness of professional learning. AITSL (2012e) found that innovation “will use external and internal research and the creative and reasoning capacity of all staff to develop and implement practices to address problems or enhance already strong practice” (p. 3).

Finally, evaluation “can provide sound, useful, and sufficiently reliable information that can be used to make thoughtful and responsible decisions about ongoing professional development processes” (AITSL, 2012d, p. 2). These four determinants are intended to be used to guide the development of professional learning programs across Australia. It is important to consider that these determinants are expressed towards professional learning but can also be considered when designing and implementing a targeted professional development program.

## Context

There are a number of assumptions made in the design of this study. Firstly, that the APST themselves reflect quality teaching practices. There is considerably more research in this area and whilst the APST are often contested and remain subject to change, they do reflect a common understanding of what practices are likely to lead to improved student outcomes.

Secondly, that it is important for high-performing teachers to gain higher accreditation. Whilst accreditation is now mandatory for all teachers in Australia, higher accreditation remains a voluntary process. The APST and the body of literature that rests behind them suggest that if more teachers demonstrate more of these practices more often, that student outcomes will improve. It is this assumption that drives the study.

By gaining an insight into stakeholder perceptions of teacher quality and the factors that affect engagement with the accreditation process, the study is able to create a professional development program that supports teachers in gaining accreditation, regardless of the problems identified. In doing this, a set of design principles around professional development aimed at supporting teacher capacity to gain higher accreditation will be established to ensure that the program is scalable, and the principles are transferable. The proposed study incorporates four phases, following the processes of DBR.

A systematic literature review will be conducted in the first phase to further explore and define the concept of effective professional development. This will be supplemented by a key stakeholder analysis of teachers, school leaders, teacher accreditation authority representatives, and academics to establish a set of initial design principles that will inform the development of a professional development program.

The program will then be tested and evaluated in line with the principles of Design-Based Research to determine a final set of design principles that will inform future research in the area of higher accreditation and be transferable, both across countries and industries. The professional development program itself aims to support teachers to engage with the higher accreditation process and if successful, will remain as an artefact to support future cohorts of aspiring teacher-leaders.

## Aims and objectives

There is an evident gap in literature around higher accreditation in Australia. This study situates itself in that gap by developing an understanding of the factors that enable and prevent success in the higher accreditation process.

Additionally, the study utilises a systematic literature review and key stakeholder analysis to explore the idea of effective professional development and develop a set of design principles for a professional development program targeting higher accreditation applicants through a process of development, implementation, testing and refinement.

The study aims to answer the research question: What are the design principles for an effective professional development program targeting professional accreditation?

In order to answer this question, a series of three sub-questions have been established:

1. How does current literature define effective professional development?
2. What do key stakeholders see as effective professional development?
3. What is the impact of an effective professional development program?

The questions also allow the study to produce two key outcomes:

- a set of tested design principles, that will support the development of future effective professional development programs; and
- an artefact, in the form an effective professional development program, that will support teachers in achieving HALT certification.

This study will be conducted in the context of school teachers in New South Wales, Australia. In New South Wales, teacher accreditation is regulated by the New South Wales Education Standards Authority (NESA). Whilst the professional development program will be specific to this context, it is anticipated that the design principles produced will be applicable across a range of professional contexts.

## Methods

The nature of the questions posed above require an adaptable and responsive methodological approach to the study. Design-Based Research has been selected as this approach. This methodology originates from studies in the field of educational technology and facilitates the creation of new knowledge through an iterative, rigorous design process and the development of an artefact, which intends to benefit research participants.

Design-Based Research, also referred to in literature as design research or development research, is a solutions-based methodology that attempts to achieve the goals of both basic and applied research (Reeves, 2000; Reeves et al., 2005). While DBR gained popularity as a research methodology in the field of educational technology, it has been shown that the methodology can be

adapted and applied to a range of areas (Ford et al., 2017; Shattuck & Anderson, 2013).

Reeves (2000) differentiates DBR from traditional methodologies by describing the goals of basic research as “aimed at extending fundamental understanding within a scientific field” (p. 2) and the goals of applied research as “solving problems that confront an individual, a group, or society at large” (p. 2). The functions and limitations of both research styles were considered when determining the intended outcomes of this study.

Stokes (1997) questioned the assumption that pure basic research leads to the development of new technologies and called for more “use-inspired basic research”. Whilst it may be an oversimplification to categorise research as wholly “basic” or “applied”, there has been significant debate over the relative value of each approach. Basic research can be seen as having little practical value in the solutions-focussed world of educational research whereas applied research is often criticised for lacking “scientific value” and not producing new knowledge (Ary et al., 2018; Bentley et al., 2015; Cockburn et al., 1999). DBR has the capacity to achieve both outcomes by producing new knowledge in the form of design principles, and a practical solution to an industry problem through the residual artefact.

The study also requires a clear methodological approach in order for the artefact produced to be both scalable and replicable. This study will produce a professional development program to support a group of teachers in achieving Highly Accomplished or Lead Teacher accreditation under the APST but acknowledges that this alone, will not solve the issue of the shortage of highly accredited teachers in Australia. Capacity for replication across teaching jurisdictions increases the potential impact of the study, and the design principles produced allow the findings to be transferable across professions.

Additionally, the literature reviewed in this paper demonstrates a global desire for developmental standards of practice, both in teaching and in other industries (Call, 2018; Centre of Study for Policies and Practices in Education Chile, 2013). There is, however, very little research available on how to successfully implement them. The design principles produced in DBR studies allow future researchers and practitioners “to make design more effective and efficient, in order to enable design practice to develop more successful products” (Blessing & Chakrabarti, 2009, p. 12). Figure 2 illustrates key differences between DBR and traditional research methods.

The process of gaining teacher accreditation at Highly Accomplished or Lead Teacher in Australia can take up to three years (Association of Independent Schools of NSW, 2019; NESA, 2016; NSW Department of Education, 2017a). While it has been determined that professional development is most effective when it is sustained (Centre for Education Statistics and Evaluation, 2014; InPraxis Group Inc, 2006; Sims & Fletcher-Wood, 2021), the time limitations of this study require the delivery and evaluation of the program to be completed in no more than one year. Figure 4 shows the “single-cycle” model of DBR to be used in this study.

Herrington et al. (2007) states that “we have to appreciate that design-based research is inherently exploratory and speculative” (p. 9). It is this nature that requires the planning of a DBR study to be adaptable, as each phase of the study is often dependant on the results of the last. This same nature, however, ensures that the professional development program and final design principles produced, are done so with greater rigour and less bias.

### *Phase 1: Conduct Needs Analysis and Develop Initial Design Principles*

The Reeves (2006) model of DBR begins with a needs analysis to determine the problem and consider potential solutions. In this study, the problem has been identified as the lack of participation by teachers in the higher accreditation process. In order to develop a solution, a systematic literature review will be conducted to build upon the research considered in this paper. Due to the large amount of research around professional development, it is important that this review is done in a systematic manner to ensure that all research is considered and the process around what literature to include is transparent and rigorous.

Semi-structured interviews with key stakeholders will then be conducted to determine whether government policies and current jurisdictional processes align, provide stakeholders with a voice in the development of the study, and consider lessons from any current and past interventions implemented.

### *Systematic Literature Review*

The literature reviewed in this paper establishes that there is little research around higher accreditation for teachers and this study will contribute to understanding in this area. An understanding of what constitutes *effective professional development* will also be required to establish the design principles required for the professional development program.

“Professional development” goes by a range of names in academic discourse and is also often used interchangeably with the concept of “professional learning”. This creates a challenge in being able to effectively capture all relevant literature. It also provides an opportunity to draw from a wider pool of evidence and develop a more comprehensive definition. As such, a traditional literature review risks being non-exhaustive and falling prey to subjectivity. Zawacki-Richter et al. (2020) states that: “In contrast to traditional or narrative literature reviews, that are criticised as being biased and arbitrary, the aim of a systematic review is to carry out a review that is rigorous and transparent in each step of the review process, to make it reproducible and updateable” (p. vi).

Systematic reviews are also often the subject of criticism. Andrews (2005) states that they can be considered “over-dependent on quantitative data and experimental designs; as favouring ‘hard’ statistical evidence rather than interpretive strategies; as positivist; as distilling too quickly and too crudely from large numbers of papers found in initial searches” (pp. 399-400). It is evident that some level of subjectivity remains necessary, especially when interpreting the findings and applying them to the creation of the initial design principles.

This systematic review will be reported on in line with the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) statement (Page et al., 2021). This reporting system is the most widely used reporting system for systematic literature reviews. The review is also registered on Open Science Framework (OSF) Registries (OSF Registries, 2023) to allow future researchers to replicate and update as required.

### *Search Strategy*

The search strategy used in this review has been adapted from other previously conducted systematic literature reviews (Freeman & Simonsen, 2015; Hopfenbeck et al., 2018) The Population, Exposure, Outcome (PEO) framework (Khan, 2003) was selected to guide the formulation of the keywords used in the search. This outcome of this process is summarised below:

- Population (1): teacher\* or educator\* and
- Population (2): school\* or college\*
- Exposure: “professional development” or “professional learning” or training
- Outcome: quality or effective\* or success\* or impact\*

The keywords, as outlined above, were then used in conjunction with the aforementioned eligibility criteria to generate the following search terms:

- Keywords: teacher\* or educator\* and school\* or college\* and “professional development” or “professional learning” or training and quality or effective\* or success\* or impact\*
- Date range: 1<sup>st</sup> January 2004 – 31<sup>st</sup> December 2021
- Databases: Scopus, Education Resources Information Center (ERIC), Web of Science, British Education Index
- Language: English
- Refined by: peer-reviewed journals, full text available online by open access or by library subscriptions.

Results will then undergo a preliminary screening to ensure that they meet specified eligibility criteria. These criteria are outlined in Appendix C.

After this, a methodological quality assessment tool that has been adapted from Dixon-Woods et al. (2004) will be used to assess the risk of bias in each included study. Data will then be extracted and synthesised into themes that will be used to answer research sub-question 1.

### **Key Stakeholder Analysis**

The systematic literature review aims to generate an understanding of what constitutes effective professional development. However, the creation of the professional development program will also require an understanding of the higher accreditation process, the barriers preventing teachers from engaging in this process, and the policy goals surrounding the process. As previously discussed, research around higher accreditation is scarce and as such,

interviews with key stakeholders in the accreditation process will be conducted to fill this knowledge gap. These interviews will be used to answer research sub-question 2.

Semi-structured interviews were selected as the most appropriate approach to the interview process. DeJonckheere and Vaughn (2019) describes semi-structured interviews as an effective method for data collection “when the researcher wants: (1) to collect qualitative, open-ended data; (2) to explore participant thoughts, feelings and beliefs about a particular topic; and (3) to delve deeply into personal and sometimes sensitive issues” (pp. 2-3).

### *Participants*

Five key stakeholder groups were identified to be participants in this phase of the study. Four groups represent the bodies responsible for developing and implementing the APST and will be consulted to ensure that the design and development of the professional development program aligns with the policy goals of relevant governing bodies. It will also determine the existence of any unpublished interventions already implemented and allow any knowledge gained from these interventions to inform the development of the initial design principles in this study.

The fifth stakeholder group represents the profession. Teachers, as the people affected by the policy, will be given voice in the design of the professional development program. Teacher input will also be valuable in developing an understanding of the reasons why engagement with the higher accreditation process has remained so low. Potential representatives of key stakeholder groups (and sample size) include:

- Representatives of academia with relevant research around the APST (2).
- A representative from AITSL (1).
- Representatives of teacher accreditation authorities (1). In NSW, the authority is NESAA.
- Representatives of teacher employers. The three bodies identified in NSW are:
  - NSW Department of Education (2);
  - Catholic Schools NSW (1); and
  - The Association of Independent Schools NSW (1).
- Representatives of the profession. This will include teachers who have:
  - been accredited as either a Highly Accomplished or Lead Teacher (2);
  - started but not yet finished the higher accreditation process (2);
  - been unsuccessful in the higher accreditation process (2); and
  - been identified as suitable but have chosen not to start the higher accreditation process (2).

Students, whilst heavily impacted by the APST, have been determined to be outside of the scope of this study and are not included as participants.

Invitations will be sent out to representatives from each of the stakeholder groups. Teachers will be identified and recruited through relevant staff noticeboards, local Highly Accomplished and Lead Teacher (HALT) networks within the NSW Department of Education, and equivalent networks in the Catholic and Independent systems if available.

The identified stakeholders will be contacted via email, requesting consent to participate in a semi-structured interview. The interviews will be conducted at a location that is convenient for the participant, through videoconferencing or over the phone. Appendix D outlines a list of questions will be asked to facilitate discussion and draw out the information required to develop the initial design principles and subsequent professional development program.

All interviews will be conducted by the researchers named in this paper. This ensures that the interviewer has the requisite background knowledge to ask clarifying and follow-up questions as appropriate for the differing stakeholder groups and individual participants.

### Develop Initial Design Principles

The information gathered in the systematic literature review, supplemented by the insights gained from the key stakeholder analysis, will form the evidence necessary to develop and substantiate the initial design principles used in the design of the professional development program. Design principles can be defined as a heuristic set of hypotheses and principles that are used to guide a design process (Edelson, 2002). Edelson (2002) also states that design principles “are not detailed enough to determine every design decision. In addition, these guiding principles are not followed slavishly if accumulated evidence, specific circumstances, or informed intuition lead the designers to believe they do not apply” (p. 106).

No limits have been placed on the number of design principles to be developed in this phase but the review of similar Design-Based Research studies in education (Sultoni et al., 2021) suggests that 4-6 principles could be anticipated.

Design principles can vary from general laws of design to specific opportunities for designers. Bell et al. (2013) groups design principles within the context of education research into four categories:

- general cognitive principles;
- metaprinciples;
- pragmatic pedagogical principles; and
- specific principles.

This study expects to produce general cognitive principles which describe cognitive principles and are transferable for use in future research and professional development design (Bell et al., 2013). A set of general cognitive principles in this context could be organised as a set of statements beginning with “Effective professional development should”.

### *Phase 2: Implement Design Principles to Create Professional Development Program*

This study will implement the design principles developed in Phase 1 by developing an effective professional development program that supports teacher engagement with the higher accreditation process. It is hoped that the provision of effective professional development to teachers will benefit the participants of the study, their schools and communities, the goals of the APST, and the wider education system.

In order to meet the time requirements of the study, the program will need to be deliverable within a one-year timeframe and be evaluable at intermittent intervals throughout its delivery. This will provide additional opportunities to monitor the progress of the study and ensure that the data collected is consistent with the research questions posed.

### *Phase 3: Test and Evaluate Professional Development Program*

The purpose of Phase 3 is to test and evaluate the professional development program designed in Phase 2. This study allows for one year of delivering and evaluating the professional development program. The number of participants in the program will be informed by the needs analysis and the requirements of any chosen venue. It is expected that there will be at least 15 participants in the program. Applicants who express an interest in the program and meet the eligibility requirements will be considered and should the number of applicants exceed the number of places available, selection will be made based on applicant capacity, experience, and diversity.

The content of the program will also be informed by the needs analysis, but this phase of the study will be limited to a maximum time-period of one year. If the needs analysis determines that a shorter program is appropriate, there will be scope for multiple iterations of the program to be tested and refined. However, initial research examined in this study suggests that professional development is most effective when it is delivered over a sustained period of time (Centre for Education Statistics and Evaluation, 2014; InPraxis Group Inc, 2006; Sims & Fletcher-Wood, 2021).

It is expected that the research team will be able to deliver the professional development program and administer the evaluation tool under the current protocols. It is worth noting, however, that final design of the professional development program may present ethical and practical barriers. If this is the case, research assistants will be recruited to conduct elements of the evaluation. The data gathered through implementation and evaluation will also be used to answer the primary research question.

### *Participants*

The professional development program will be tested and evaluated in Sydney, Australia. Expressions of interest in the program will be sought from local teachers who are interested in applying for either Highly Accomplished or Lead Teacher accreditation. The expression of interest will be circulated in employer bulletins across the three education systems (NSW Department of Education,

Catholic Schools NSW and the Association of Independent Schools NSW). In order to be eligible for participation in the program, it will be required that applicants meet the minimum requirements for eligibility for accreditation at Highly Accomplished and Lead Teacher in NSW. Participants must:

- be an Australian citizen or have a permanent residency visa
- have full accreditation at Proficient Teacher if required by the Teacher Accreditation Act 2004
- have been assessed as satisfactory in their two most recent annual performance assessments for those applying for Highly Accomplished career stage, or have been assessed as satisfactory in their three most recent annual performance assessments for those applying for Lead career stage. (NESA, 2016, p. 15).

A self-identification method of recruitment and selection is necessary as the study requires participants to have a specific set of knowledge and experiences to be able to fully participate in the program. The final number of participants in the professional development program will be determined by the program's design but it is anticipated that the program could accommodate between 15 and 30 participants.

The nature of the higher accreditation process requires participants to commit a significant amount of their own time to gathering and annotating evidence portfolios. The application process can take up to three years and teachers can draw on any evidence produced over that three year period (NESA, 2016). This was considered from both a practical and ethical perspective and contributed to the choice of recruitment methodology.

As the study will be located in Sydney, participation will be limited to residents and those who are able to travel there. It is acknowledged that this limitation will have implications on the data generated with regards to diversity.

### Evaluation

Effective evaluation is a critical component in determining the success of the professional development program and the final iteration of design principles. The evaluation tool to be used will be informed by the needs analysis conducted in Phase 1 of the study. It is anticipated that the evaluation could involve an assessment of the portfolio evidence produced throughout the program, and pre and post interviews or focus groups to measure change in participant knowledge, attitudes and practices, and evaluate their experiences.

Collins et al. (2004) proposes five sections to be reported on in a DBR study: goals and elements of the design, settings where implemented, description of each phase outcomes found, lessons learned. This framework will guide the design of the final evaluation tool to be used in this study. The final assessment tool will also be developed in line with the professional development program. This is consistent with the principles of Design-Based Research and will allow for greater flexibility in the development of the tool, as the specifics of the professional development program have not yet been finalised.

#### *Phase 4: Refine Design Principles*

The knowledge gained from phases 2 and 3 of the study will be used to reflect on the initial set of design principles. Based on this reflection, a final set of refined design principles will be created, justified and disseminated to provide a framework for future researchers and practitioners to produce more effective professional development programs, both within teacher accreditation, and across other industries.

#### *Ethical Considerations*

Ethical considerations are fundamental in the design of any research. Govil (2013) identified four rights of research participants in educational research as “(a) right to maintain privacy (b) guaranteed anonymity (c) guaranteed confidentiality and (d) avoiding harm, betrayal or deception” (p. 18).

Guaranteed privacy, anonymity and confidentiality will be addressed in the consent process. All participants will be required to give consent through a participant consent form which outlines the rights and responsibilities of all parties. Additionally, group norms will be established at the beginning of the professional development program, and rights and responsibilities will be formally addressed in each interview.

The professional development program intends to go beyond simply avoiding harm to participants and will be designed to support participants in navigating the higher accreditation process. It must be acknowledged that this program is a trial and may not represent best practice at the time of delivery, however, all efforts will be made to ensure that it does.

It is important that participants are made aware of the limitations of the professional development program in order to manage expectations. Participants will be made aware that the program will be designed to support them in the accreditation process but is not a guarantee of accreditation.

It is anticipated that the researchers will also deliver the professional development program and administer the evaluation tool. This process will be explained to participants and all efforts will be taken to ensure that responses are deidentified and kept anonymous.

Another consideration will be whether a program to support teachers in the accreditation process is, itself, ethical. The key stakeholder analysis will determine whether this study aligns with the goals of higher accreditation policies. Both the stakeholder analysis and professional development program have been approved by the University of Sydney Human Research Ethics Committee (HREC) - approval nos.: 2022/159 and 2023/479 respectively.

#### *Discussion*

This paper identifies the significant disparity between the number of teachers who currently hold higher accreditation under the APST and the number of teachers proposed upon the introduction of these professional standards. There is no suggestion that this disparity in numbers is a reflection of the

profession's capacity, but a lack of formal identification of teacher leaders and mentors presents potential issues for both the goals of the policy and the wider profession.

The protocols outlined for this Design-Based Research study aim to synthesise current literature with stakeholder knowledge to determine the key difficulties that the profession faces in engaging with the higher accreditation process. The study also aims to create a professional development program that addresses these difficulties.

The program will be underpinned by a set of design principles for effective professional development that will be developed, refined and tested throughout the study and aim to support future practitioners and researchers within the field of teacher professional development and beyond.

# Chapter 3

## Systematic Literature Review (Graham et al., 2024)

The following chapter was published as: Graham, M., Grice, C., & Cotton, W. (2024). Design principles of effective professional development for school teachers: A systematic literature review. *Issues in Educational Research*, 34(4), 1260. Formatting and referencing styles have been adjusted to align with the style of this thesis.

### Abstract

This paper presents the findings of a systematic literature review that answers the research question: How does current literature define effective professional development? In answering this question, a set of design principles for effective professional development have been produced for utilisation by researchers and practitioners within and beyond the teaching profession.

The literature review sourced articles published between 1<sup>st</sup> January 2004 and 31<sup>st</sup> December 2021 from four prominent education databases. The search produced 10420 records. A series of inclusion and exclusion criteria were then applied, leaving 18 suitable articles to be included in the findings. A methodological quality assessment was undertaken, and data was extracted and synthesised to produce a set of ten design principles for effective professional development.

This review has been reported on in line with the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) statement. The review is also registered on Open Science Framework Registries.

### Keywords

Professional development, professional learning, systematic literature review, Design-Based Research, design principles, teacher.

### Introduction

#### *Rationale*

The pursuit of improved student outcomes is a complex one. Literature suggests that high-quality teaching has a sizable impact on these outcomes, as demonstrated in the USA (Darling-Hammond, 2000) and in Australia (Hattie, 2003). We also know that professional development is a valid tool to improve teacher quality (Drago-Severson & Blum-DeStefano, 2018; Naylor & Sayed, 2014). It makes sense, then, for policy makers and researchers alike to ask the question: How can we improve the quality of teacher professional development?

This question becomes even more complex when one considers that the definition of professional development, itself, is an oft-challenged one. Professional development, in this paper, refers to any experience of workplace learning that is deliberate or can be measured. It is also referred to in literature

as “professional learning” or “continuing professional development” (Netolicky, 2016).

Whilst the terms are often used interchangeably, this review sees the terms “professional development” and “professional learning” as different concepts. Murray (2016) defines professional learning as any act that “results in improvements in teachers’ knowledge and instruction” (p. 9). The notion that professional learning can occur anywhere, makes professional development a more deliberate process. The focus of this paper is, therefore, professional development.

Professional development can include activities run by external providers and activities that already occur within schools. Netolicky (2019) includes “talks, courses and conferences... and other times where educators learn, and that influence their lives and work” (p. 5) as common examples of professional development.

This review synthesises global research on professional development since 2004, to provide professionals, academics and policy makers with a clearer understanding of how to design, implement and evaluate effective professional development.

This systematic literature review is reported on in line with the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) statement (Page et al., 2021). Appendix E maps the items reported on in this review to the PRISMA Checklist (Page et al., 2021). The review has also been registered on Open Science Framework (OSF) Registries (OSF Registries, 2023).

### *Context*

Professional development for teachers is a widely researched and heavily debated topic. A large number of empirical studies and research syntheses already exist. However, these syntheses are rarely systematic. This study differentiates itself from other literature in the field by utilising a systematic literature review to produce a set of design principles that can be used to guide the creation of effective professional development programs.

Systematic literature reviews often have higher levels of rigour, transparency and replicability than traditional literature reviews. The systematic process can also reduce the implicit researcher bias associated with reviewing literature that is either already known to the researcher or limited to the researcher’s preferred subject areas and networks (Mallett et al., 2012).

Although the risk of bias is comparatively reduced, it is important to consider that the protocols of a systematic literature review are still often informed by the context in which it is conducted. This review was conducted as part of a wider study around professional development and higher accreditation for teachers in Australia (Graham et al., 2023). As such, protocol selection decisions were made in line with the history of, and discourse surrounding professional development in this context.

Other systematic literature reviews have been conducted in the field of professional development and whilst they do not answer the question posed in this study, they do contribute important knowledge to wider literature. Two notable studies are discussed in this paper. Sims et al. (2021) identifies forms and characteristics associated with effective professional development. The findings of this study could support the reader in selecting an appropriate methodology for professional development delivery. However, this review does not discuss design principles and may not be appropriate to inform the creation of new professional development programs.

The purpose of professional development is also an important consideration when planning for an effective professional development program. Kirsten (2020) conducted a systematic literature review that tests four hypotheses around the efficacy of professional development that are prominent in current discourse. The review assumes professional development to be a tool to achieve policy goals.

This paper challenges that assumption. Whilst professional development can be an important mechanism in achieving policy goals, the review conducted in this paper will also encompass professional development that supports the development of praxis.

Praxis can be defined as “acting in the world in a way that contributes positively and meaningfully to society, or acting in the interests of humankind” (Mahon et al., 2019, p. 464). This idea gives professional development purpose beyond the policy goals of the context in which it is conducted. As such, the findings of this systematic literature review advance current knowledge of professional development by contributing a set of design principles that guide future researchers and practitioners in the creation of effective professional development that can be used to achieve policy goals and promote meaningful change in wider society.

## Objectives

The aim of this study is to answer the research question: How does current literature define effective professional development? This is achieved by synthesising current literature to create a set of design principles that can be utilised by researchers and practitioners within and beyond the teaching profession.

This review was conducted as part of a wider study around professional development and higher accreditation for teachers that poses the question: “What are the design principles for an effective professional development program targeting professional accreditation?” (Graham et al., 2023, p. 1385). The design principles developed in this review will be refined and tested in line with the protocols outlined in Graham et al. (2023) to produce a set of final design principles that specifically target professional development for teachers undertaking higher professional accreditation.

## Methods

### *Eligibility Criteria*

This review synthesises the findings of research conducted between 2004 and 2021. The specific date range was selected to capture all literature published since the inception of professional teaching standards in New South Wales, Australia. Whilst this date is significant within that context, it does not intend to impact the findings of the study beyond setting a standard of currency in the literature reviewed. As the review was conducted throughout 2022 and 2023, it was determined that all research published between 1<sup>st</sup> January 2004 and 31<sup>st</sup> December 2021 would be eligible for inclusion.

The study focuses purely on peer-reviewed articles to promote a level of methodological rigour in the literature included. Time and budget requirements also necessitated the review be limited to articles available in English and articles where the full text was available online by open access or through library subscription. Additionally, articles were included in the synthesis if they met the following criteria, as agreed by the research team:

- the research evaluates the effectiveness of a professional development program;
- the professional development program targets teachers;
- the research was conducted in either a primary or secondary school setting;
- the research draws conclusions about what constitutes effective professional development;
- the findings/discussion of the research are not limited to the effectiveness of a single professional development program;
- the research measures the term “effective” by gains in teacher knowledge/skills/performance (ie. not improved student outcomes);
- the research is not conducted on a *niche* or *experimental* form of professional development (robotics, virtual reality, Massive Open Online Courses etc.); and
- the research is not, itself, a review.

### *Information Sources*

The researchers consulted with University of Sydney Library staff to identify and select an appropriate range of electronic databases and source relevant literature. Selection was made on the basis of each database’s reach and reputation within the field of educational research. The four databases selected were: Scopus, Education Resources Information Center (ERIC), Web of Science and British Education Index. Data extraction was finalised on 25<sup>th</sup> February 2022.

### *Search Strategy*

#### *Background*

The Population, Exposure, Outcome (PEO) framework (Khan, 2003) was selected to guide the formulation of the keywords to be used in the search. This outcome of this process is summarised as:

- Population: school teachers
- Exposure: professional development
- Outcome: effective

### Search Terms

The keywords were then used in conjunction with the eligibility criteria to generate the following search terms:

- Population (1):
  - teacher OR educator AND
- Population (2):
  - school\* OR college\* AND
- Exposure:
  - “professional development” OR “professional learning” OR training AND
- Outcome:
  - quality OR effective\* OR success\* OR impact\*
- Date range: 1<sup>st</sup> January 2004 – 31<sup>st</sup> December 2021
- Databases: Scopus, ERIC, Web of Science, British Education Index
- Language: English
- Refined by: peer-reviewed journals, full text available online by open access or by library subscriptions.

The differing interfaces between databases necessitated slight variations of the search terms to be used in each instance. The exact search protocols used are shown in Appendix F. All records were exported to and stored in Endnote version 20 (The EndNote Team, 2013).

### *Selection Process*

Once all records had been sourced, the selection process was undertaken in two phases. In the first phase, a title and abstract screening was undertaken by the primary researcher. The researcher scanned each record’s title (and abstract, if required) to determine whether the record was related to the research question, and then whether the article met the eligibility criteria. This phase was undertaken over a period of approximately 30 days.

The second phase of the selection process was a full-text screening. In this phase, two of the review’s named researchers read each article and made a final decision as to whether the article met the eligibility criteria. Where consensus was not reached, the third researcher would make the final decision. This phase was undertaken over a period of approximately 14 days.

Endnote’s “Rating” functionality was utilised to provide a simple framework to guide each phase of the study. This is outlined in Table 2.

Table 2: Endnote Coding System

Rating	Code
0 stars	Record yet to be screened
1 star	Record excluded in initial screening
2 stars	Full text to be sourced
3 stars	Article ready for full-text screening
4 stars	Article excluded in full-text screening
5 stars	Study included in synthesis

### *Data Collection Process*

Once a final determination of the studies to be included was made, each included article was read by one researcher and relevant data was extracted. To ensure a level of rigour and uniformity in this process, the data was then checked by a second researcher. Where there was any disagreement between the two researchers about whether findings were to be included, it was agreed that a final decision would be made by the third researcher.

A data extraction summary tool was developed based on comparable systematic literature reviews and can be seen in Appendix G (El Soufi & See, 2019; Kristoffersson & Linden, 2020). This tool provided all researchers with a clear framework around what data was relevant for extraction which, in turn, assisted in determining whether the article was appropriate for inclusion. In addition to this tool, extraction was guided by whether the findings were relevant in answering the research question: How does current literature define effective professional development?

### *Quality of Study Assessment*

Table 3 shows a methodological quality assessment tool that has been adapted from Dixon-Woods et al. (2004) and was used to assess the methodology of each included article and the likelihood of various forms of bias. Dixon-Woods et al. (2004) describes the items in the tool as prompts and argues that in order to be applicable to extensive array of qualitative methodologies, they must be, by nature, subjective. This tool was deemed to be appropriate in this context due to wide array of methodologies used to determine “effectiveness” regarding professional development.

To account for the inherent subjectivity in both this tool and in qualitative research, each full-text screening was conducted by two members of the research team. Where there was a difference of opinion, a final determination was made by the third member of the team.

It is also important to note that where a methodological item was not stated in a study, it was assumed to be absent. This assumption reduced the likelihood of assessment bias on the part of the research team.

Table 3: Methodological Quality Assessment Items- Adapted from Dixon-Woods et al. (2004)

Item	Description
A	Research question is clear and appropriate
B	Sample size is stated and appropriate
C	Sampling methodology/participant selection is clear and appropriate (response/attrition rate acknowledged)
D	Data collection tool/methodology is clear and appropriate
E	Data analysis methodology is clear and appropriate
F	Claims made in discussion/results are supported by sufficient evidence
G	Data, interpretations and conclusions are clearly integrated

### Synthesis Methods

The extracted data (summarised in Appendix G) was then analysed by all three researchers. Ten broad themes were identified through an iterative process of inductive and deductive theming. Each piece of data or point, if presented in a list, was then allocated a score of 1-7 based on the study's methodological quality (shown in Table 4 and Appendix G) and the scores we added up to give an indicative prevalence of each theme based on the qualitative analysis of the literature. The themes were then presented as statements that answer the primary research question (ie. Effective professional development should...).

## Results

### Study Selection

#### Initial Search

A preliminary search was conducted using the previously stated eligibility criteria. The process returned 10420 records (3970 from Scopus, 2933 from ERIC, 2446 from Web of Science, and 1071 from British Education Index).

The "Find and Remove Duplicates" function on Endnote was used to remove any duplicate records captured by multiple databases. This process removed 2668 records, leaving 7752 eligible records. A manual process of removing duplicate records was then undertaken. This removed an additional 541 records, leaving 7211 to be screened.

#### Preliminary Screening

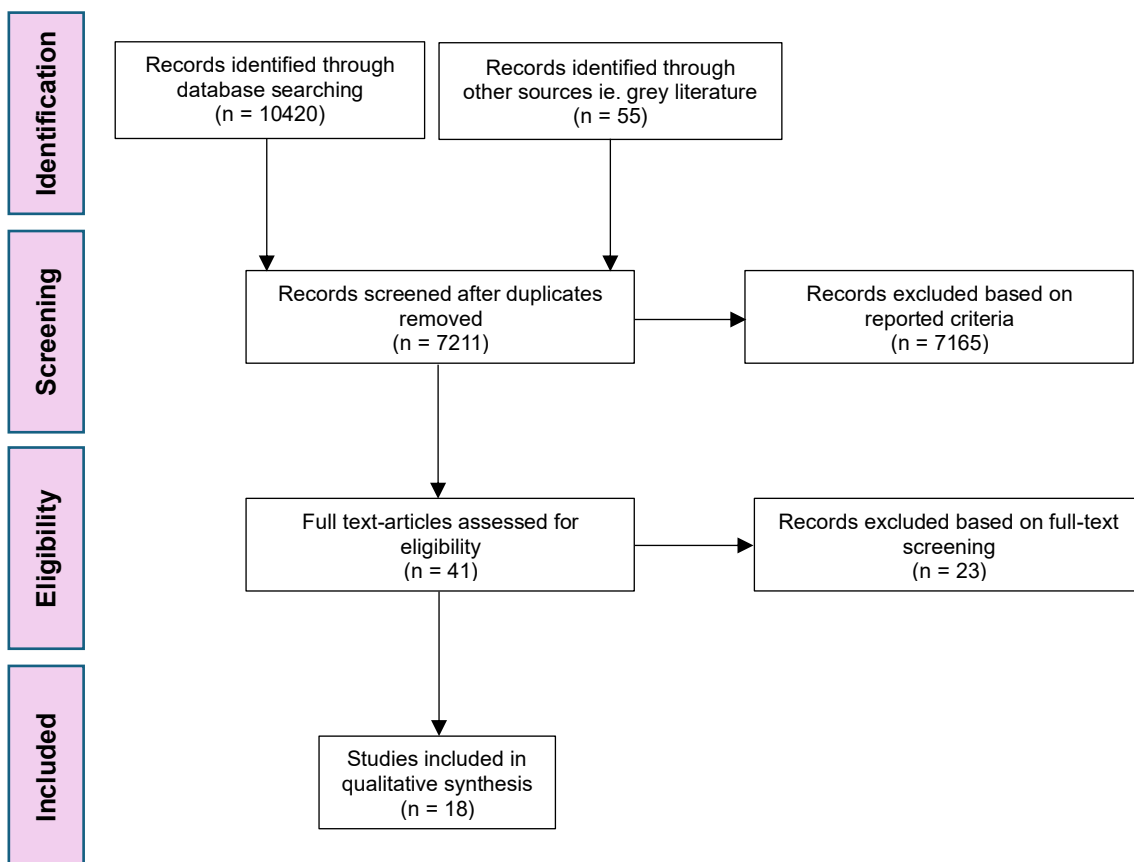
A title and abstract screening, outlined in the initial search phase, was then conducted by the primary researcher on the remaining 7211 records, based on the aforementioned inclusion criteria. This process excluded a further 7165 records, with 41 deemed eligible.

The "Find Full Text" function on Endnote 20 was then used to draw any additional information that was not captured during the export from each database. The remaining articles were downloaded through a manual search using the University of Sydney Library and Google Scholar. This process sourced the full text for all 41 articles.

## Full-text Screening

A full-text screening of each article, as outlined previously, was then undertaken to determine final inclusion in the study. The same inclusion criteria as previously stated were applied to the full article. A further 23 articles were excluded because, upon examination of the article in its entirety, the findings of the article could not be used to answer the research question (n=12), the findings were not based on primary data (n=10), or the full text could not be sourced in English (n=1). Figure 5 shows a diagrammatic overview of this process, in line with PRISMA guidelines. The figure also shows how many articles were excluded in each phase of the study.

Figure 5: PRISMA Flowchart



## Methodological Quality of Evidence

Table 4 summarises the results of the methodological quality assessment made for each article included in the full-text screening.

Table 4: Methodological Quality Assessment Data

Article Author (year)	Assessment Item- adapted from Dixon- Woods et al. (2004)							Overall Rating
	A	B	C	D	E	F	G	
Abu-Tineh and Sadiq (2017)	X	X	X	X	X	X	X	7
Cameron et al. (2013)				X		X		2
Collins and Liang (2015)	X	X			X	X		4
Colombo (2007)		X				X		2
Dasoo (2020)			X	X		X	X	4
Daugherty (2009)	X	X	X	X				4
Ekinci and Acar (2019)	X	X		X	X			4
El-Deghaidy et al. (2015)	X	X		X	X		X	5
Hickey and Harris (2005)				X	X	X	X	4
Hilton et al. (2015)	X	X		X	X	X	X	6
Howell et al. (2020)	X			X	X	X	X	5
Karlberg and Bezzina (2020)		X	X	X	X	X	X	6
Koellner et al. (2011)				X	X		X	3
Labone and Long (2016)						X	X	2
Lee (2004)							X	1
McCray (2018)	X							1
Vansteelandt et al. (2019)				X	X	X	X	4
Yates (2007)		X		X	X		X	4
<b>Mean (%)</b>	<b>44%</b>	<b>50%</b>	<b>22%</b>	<b>72%</b>	<b>61%</b>	<b>61%</b>	<b>67%</b>	<b>3.56 51%</b>

### *Risk of Bias*

The results of the methodological quality assessment (summarised in Table 4) give an indication of the relative strength of each study against the criteria outlined in Table 3. As with any tool used to quantify something as complex as research quality, the results should be interpreted with care (Jarwal et al., 2009). The Data Extraction Summary (shown in Appendix G) provides an elaboration of the context, research questions, methodology and sampling techniques used in each study to both substantiate the scores allocated to each study and allow the reader to draw their own conclusion as to the risk of bias associated with each study.

### *Study Characteristics and Findings*

A summary of the data extracted from each of the 18 studies is shown in Appendix G.

### *Results of Syntheses*

The data in Appendix G was then synthesised into themes to create a set of design principles. Table 5 provides an overview of these principles and they are unpacked below. The number in brackets next to each heading indicates the relative prevalence of the theme within the literature analysed. The score was calculated by the number of coded data points that supported the theme multiplied by the methodological quality assessment score of the study for each point. The themes are presented in descending order based on their prevalence score and are worded to coherently complete the design principle

stem. Themes that had a prevalence score of less than 10 were not included as design principles.

Table 5: Design Principles

Number	Design Principle (effective professional development should...)	Prevalence Score
DP 1	be collaborative and involve participation from school/system leaders	81
DP 2	be tailored to the needs of participants	63
DP 3	be authentic and align with current school/system priorities	36
DP 4	be sustained and provide teachers with adequate time/resources for change	35
DP 5	focus on enhancing teacher skills/knowledge	31
DP 6	challenge participants and encourage self-reflection	28
DP 7	include rigorous evaluation <i>of</i> and <i>by</i> participants	19
DP 8	be evidence-based and of high quality	19
DP 9	clearly articulate the goals/learning intentions of the professional development	13
DP 10	encourage active participation of participants	10

#### Effective professional development should be collaborative and involve participation from school/system leaders (81)

Collaboration had the highest prevalence score with 13 of the 18 studies discussing the need for professional development to be a collaborative process (Abu-Tineh & Sadiq, 2017; Collins & Liang, 2015; Dasoo, 2020; Ekinici & Acar, 2019; El-Deghaidy et al., 2015; Hickey & Harris, 2005; Hilton et al., 2015; Karlberg & Bezzina, 2020; Koellner et al., 2011; Labone & Long, 2016; McCray, 2018; Vansteelandt et al., 2019; Yates, 2007). Collins and Liang (2015) found that teachers “benefitted from being able to discuss questions, concerns, or ideas that came up during the PD experience”. (p. 12). Peer-driven professional development and various forms of coaching were also found to be effective. Hickey and Harris (2005) reported that “teachers have positive feelings from professional development led by peers” (p. 15). Collaboration was also found to be most effective when school and system leaders were involved in and supportive of the process (Hilton et al., 2015; Labone & Long, 2016).

#### Effective professional development should be tailored to the needs of participants (63)

Effective professional development cannot take a “one size fits all” approach according to 12 of the 18 studies reported on (Abu-Tineh & Sadiq, 2017; Cameron et al., 2013; Collins & Liang, 2015; Dasoo, 2020; Daugherty, 2009; Ekinici & Acar, 2019; Hickey & Harris, 2005; Koellner et al., 2011; Labone & Long, 2016; Lee, 2004; Vansteelandt et al., 2019; Yates, 2007). Professional development, where possible, should be designed in collaboration with participants (Daugherty, 2009; Ekinici & Acar, 2019; Lee, 2004), acknowledge that participants’ needs may change over time (Koellner et al., 2011) and be participant-driven (Labone & Long, 2016; Yates, 2007).

### Effective professional development should be authentic and align with current school/system priorities (36)

Authenticity and alignment with school and system priorities was found to increase the effectiveness of professional development in seven studies (Abu-Tineh & Sadiq, 2017; Colombo, 2007; Ekinici & Acar, 2019; Labone & Long, 2016; Lee, 2004; Vansteelandt et al., 2019; Yates, 2007). Professional development is more effective when the content demonstrates an authentic connection to the work of participants (Colombo, 2007; Yates, 2007) and aligns with school and system priorities (Abu-Tineh & Sadiq, 2017; Labone & Long, 2016). It is also important for professional development to remain current and change with school/system priorities (Ekinici & Acar, 2019; Vansteelandt et al., 2019).

### Effective professional development should be sustained and provide teachers with adequate time/resources for change (35)

The need for adequate time and resources was identified in nine studies (Collins & Liang, 2015; Ekinici & Acar, 2019; Hickey & Harris, 2005; Koellner et al., 2011; Labone & Long, 2016; Lee, 2004; McCray, 2018; Vansteelandt et al., 2019; Yates, 2007). Effective professional development provides adequate time for participants to prepare for (Hickey & Harris, 2005), implement (McCray, 2018) and reflect upon (Koellner et al., 2011) the content and program. Suggestions on how long this could take included 20 hours (Vansteelandt et al., 2019), 30 hours (Collins & Liang, 2015) and one semester (Labone & Long, 2016).

### Effective professional development should focus on enhancing teacher skills/knowledge (31)

Professional development was found to be more effective when it focussed on building the skills and knowledge that participants used in the workplace and was reported on in seven studies (Abu-Tineh & Sadiq, 2017; Cameron et al., 2013; Dasoo, 2020; Daugherty, 2009; Labone & Long, 2016; Vansteelandt et al., 2019; Yates, 2007). In the context of teaching, this included curriculum (Daugherty, 2009), instruction (Labone & Long, 2016) and pedagogy (Abu-Tineh & Sadiq, 2017).

### Effective professional development should challenge participants and encourage self-reflection (28)

Reflection was discussed in five of the 18 studies examined (Colombo, 2007; Ekinici & Acar, 2019; Koellner et al., 2011; Vansteelandt et al., 2019; Yates, 2007). It was noted that effective professional development should be rigorous enough to engage participants (Colombo, 2007; Ekinici & Acar, 2019). It should also ask participants to reflect on their current practices and on the content of the professional development program in order to improve their own practice (Koellner et al., 2011; Yates, 2007).

### Effective professional development should include rigorous evaluation *of and by* participants (19)

Evaluation was found to be fundamental to designing and delivering effective professional development in four studies (Daugherty, 2009; Ekinici & Acar, 2019; Labone & Long, 2016; Lee, 2004). By eliciting feedback from participants, professional developers were able to measure participant perceptions which could be used to improve the learning program (Daugherty, 2009; Labone & Long, 2016). Additionally, evaluation of participants allowed professional developers to assess the impact of their program on participant skills and knowledge which provided additional data points for effective evaluation of the program (Ekinici & Acar, 2019; Lee, 2004).

### Effective professional development should be evidence-based and of high quality (19)

Quality, evidence-based professional development programs were identified to be more effective in four studies (Abu-Tineh & Sadiq, 2017; Daugherty, 2009; Howell et al., 2020; Koellner et al., 2011). It encompasses the need for high-quality instruction (Abu-Tineh & Sadiq, 2017), comprehensive design (Daugherty, 2009) and evidence-based instructional models (Howell et al., 2020).

### Effective professional development should clearly articulate the goals/learning intentions of the professional development (13)

Goals and learning intentions were noted as increasing the effectiveness of professional development in three studies (Collins & Liang, 2015; Ekinici & Acar, 2019; McCray, 2018). Professional developers should make participants aware of the learning goals of a program (Ekinici & Acar, 2019). The design of the program should also be backward mapped from these goals (Collins & Liang, 2015). Alignment between these goals and the program is likely to increase learning (McCray, 2018).

### Effective professional development should encourage active participation of participants (10)

The impact of active participation on participant learning was found in three studies (Ekinici & Acar, 2019; Labone & Long, 2016; Vansteelandt et al., 2019). Active participation included a range of participant-led activities (Ekinici & Acar, 2019), participant modelling (Labone & Long, 2016), and the co-creation of new knowledge (Vansteelandt et al., 2019). It is worth noting that El-Deghaidy et al. (2015) found the opposite to be true, stating that “teachers did not seem to be involved in CPD programmes that require them to take active leadership roles. They seemed to be acquainted with always being passive receptors and being directed by others” (p. 1592). However, this principle was generally supported in the literature reviewed and ultimately met the criteria for inclusion.

## Discussion

The findings of this paper build upon current knowledge of effective professional development by presenting a systematically generated set of design principles that can be used by researchers and practitioners in future work. These design

principles provide the user with a tool to create and substantiate evidence-based professional development programs in a more deliberate manner. The design principles generally align with current discourse around effective professional development, and given the nature of the review, this is to be expected. However, the systematic and transparent nature of this review allows the reader to draw more informed conclusions as to why we do what we do. As such, this section will discuss the findings of this paper in relation to other systematic literature reviews in the field.

Whilst the research question in Kirsten (2020) differs from the one posed in this paper, some alignment can be seen in the results. Kirsten (2020) tests four hypotheses, two of which are relevant to the findings of this review. Hypothesis 1 was that “PD policy should target both teachers and administrators, since teachers’ learning partly relies on administrators’ understanding of teaching and learning” (Kirsten, 2020, p. 9). This was supported in the study’s results. This theme was also prevalent in the findings of this review, represented as Design Principle 1 and appearing in 13 of the 18 included studies.

Hypothesis 3 was that “Policies should build on information from practice and invite teachers to participate in the monitoring of the quality of teaching, learning and professional development” (Kirsten, 2020, p. 9). This hypothesis was also supported in the study’s results. Whilst the hypothesis is framed from the perspective of the policy maker, agreement can be found in the design principles produced in this review. Design Principle 5 speaks to alignment between practice and professional development design, and Design Principle 7 encompasses involving teachers in the evaluation, and by extension, the design process.

Similarly, Sims et al. (2021) discusses 14 mechanisms that contribute to effective professional development. Broadly, the study found that if more of these mechanisms are present, professional development can be thought to be more effective. The mechanisms were: “manage cognitive load, revisit material, ... goal setting, credible source, praise/reinforce, ... instruction, practical soc. [social] support, feedback on practice, modelling, rehearsal, ... prompts/cue, action planning, self-monitoring practice, context-specific repetition” (Sims et al., 2021, p. 87). These mechanisms are not presented in any order, nor do they claim to act as design principles but significant alignment is evident between the mechanisms and the results of this study.

Some notable topics prominent in current discourse around professional development did not feature in any of the design principles. These omissions were not made with any intent and are simply the result of the systematic nature of the study. Some examples include “communities of practice”, the notion of “follow-up” in relation to the delivery of professional development and “subject-specific content” that is common in teacher professional development. The absence of these and other expected themes could, perhaps, be explained by a lack of empirical, peer-reviewed research in the case of newer concepts. This could also be a topic for future research.

## Limitations

This study attempted to follow a rigorous, systematic and transparent process to identify, analyse and synthesise literature in the development of ten themes and subsequent design principles. However, like any other research, the methodologies undertaken should be considered by future researchers and practitioners when using these findings.

This review has been undertaken and reported on in line with the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) Statement (Page et al., 2021). Due to the qualitative nature of the included studies, a meta-analysis was not determined to be the most appropriate method for data synthesis. As such, some preferred reporting items are not present in this review. Appendix E maps the items reported on in this review to the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) Checklist (Page et al., 2021).

It is important to consider that when codifying data that is largely of a qualitative nature, some level of subjectivity is unavoidable. Results should therefore be interpreted with care (Jarwal et al., 2009). This review accounts for this inherent subjectivity by making the process transparent and available for scrutiny, both in publication and in registration.

The researchers acknowledge the under-representation of lower socioeconomic schools and developing countries in the research reviewed in this study. This comes as a result of the systematic nature of the process and speaks to a broader imperative for greater representation and research in these schools and countries. This should be considered by future researchers and practitioners in these contexts.

## Conclusion

This systematic literature review has produced a set of ten design principles that can be used to create and strengthen system-level professional development policies within and beyond the teaching profession. They can also be used by practitioners in the development, implementation and evaluation of future professional development programs.

The findings of this systematic literature review suggest that by incorporating more of these design principles into future professional development programs, professional developers can increase the likelihood of participants gaining and retaining their program's desired skills and knowledge.

The design principles generated in this systematic literature review were created to be universally applicable. As such, future researchers may wish to test these design principles in their own contexts in order to further refine them in line with their context's specific needs.

# Chapter 4

## Stakeholder Analysis (Graham et al., 2025a)

The following chapter has been submitted for publication as: Graham et al. (2025a). Formatting and referencing styles have been adjusted to align with the style of this thesis.

### Abstract

Effective professional development can improve the quality of teaching and, in turn, student outcomes. However, professional development is not always effective and is often *done to* teachers without consideration of their needs. This paper addresses this problem by refining a literature-informed set of design principles for effective professional development, through stakeholder analysis, to incorporate the voice of teachers. In doing so, it aims to better understand teacher and teaching system views on the roles of agency and praxis in professional development.

Nine revised design principles were produced. These design principles reflect an overall stakeholder desire for fewer, simplified design principles that align with current system policies and frameworks. These design principles could be used by policy makers and professional developers to improve the quality of professional development programs within and beyond the teaching profession.

### Keywords

Professional development, professional learning, stakeholder analysis, design-based research, design principles, teacher.

### Introduction

Effective professional development is fundamental to the advancement of both professionals and professions (Darling-Hammond et al., 2017). Teaching is no exception to this. This paper explores how effective professional development is represented in academic discourse and utilises stakeholder analysis to determine how it is viewed by key stakeholders in the Highly Accomplished and Lead Teacher (HALT) accreditation process in New South Wales (NSW), Australia. Thus, it contributes a definition of effective professional development that incorporates both academic and practitioner views to wider literature.

The way in which professional development is conceptualised and the underlying assumptions of these conceptualisations are often disputed in literature, but that dispute is not the topic of this paper. This paper is deliberate in using the term “professional development” rather than “professional learning” or “continuing professional development” despite the terms often being used interchangeably (Netolicky, 2016).

Professional development is defined, in this paper, as “any experience of workplace learning that is deliberate or can be measured” (Graham et al., 2023, p. 1382). Conversely, professional learning can be defined as any act that “results in improvements in teachers’ knowledge and instruction” (Murray, 2016,

p. 9). Professional learning encompasses a wider range of potential activities, making professional development a more deliberate and formal process than that of professional learning. Professional learning can also be theorised as the change in knowledge itself, thus being an outcome of effective professional development (Liou & Carrinus, 2020) and used to describe the complexity of teacher learning and teacher agency in the process of learning (King et al., 2023). As such, professional development was determined to be the more appropriate term for use in this paper.

The framing of professional development in research and literature has continuously evolved over the last 50 years. Jones et al. (2024) proposed a five-stage model to illustrate this evolution. The first stage of the model is In-Service Education and Training (INSET) and is characterised by a *laissez-faire* approach to teachers' continued on-the-job learning (Jones & O'Brien, 2024). The early stages of this model can also be characterised by minimal coordinated planning and conceptual frameworks in place for teachers' professional development (Jones et al., 2024).

The latter stages of the model emphasise emerging sector leaders and the embedding of policy at national and sub-national levels, leading to more planned approaches to professional development. The model also addresses how professional development is evaluated, moving from *victory narratives*, claiming effectiveness and impact in its early stages to the push for more empirical, longitudinal evidence of change visible in many education systems today. The professional development and associated design principles to be discussed in this paper reflect the latter stages of this model.

The professional development activities discussed in this paper could also be categorised as formal professional development. Formal professional development can include activities run by external providers and activities that already occur within schools. Netolicky (2019) includes "talks, courses and conferences ... and other times where educators learn, and that influence their lives and work" (p. 5) as common examples of formal professional development. These activities occur purposefully and their effectiveness can be influenced by the processes used in their design and evaluation (Patton et al., 2013). Purposeful professional development is more likely to lead to participant growth in line with the desired outcomes of those who implement it (Jao & McDougall, 2015). At its core, professional development is organised learning for professionals and can be theorised as a part of what makes a profession (Webster-Wright, 2009).

Literature tells us that effective professional development for teachers should lead to improved teacher practice (Drago-Severson & Blum-DeStefano, 2018; Naylor & Sayed, 2014) however, teacher learning-practice is complex and often non-linear (Strom & Viesca, 2021). Opfer and Pedder (2011) argue that failing to consider this complexity when developing and delivering professional development can render it ineffective.

Improved teacher practice is often defined by improved skills or knowledge (Byrd & Alexander, 2020). However, the selection of targeted skills and

knowledge is an important consideration that is often politically sensitive and based on standardised approaches to teaching (Hardy, 2012; Hochberg & Desimone, 2010). Professional development can be theorised to be a tool to achieve system goals and thus is *done to* teachers with pre-determined measures for improvement (Hilton et al., 2015). Conversely, professional development that is *done with* teachers can provide greater choice in the design, delivery and evaluation of programs. It requires the system to partially or fully relinquish control over elements of the professional development but can also lead to greater participant gains (Hardy, 2012).

In Australia, conceptualisations of professional development are heavily intertwined with the Australian Professional Standards for Teachers (APST) (Mockler, 2011). All practising teachers in Australia are required to be registered by state accreditation authorities and to participate in, on average, 20 hours of professional development each year (NESA, 2024c). Professional development providers are also expected to align content with the APST. As such, professional development can be framed as a policy tool “that emphasise[s] technical and instrumentalist approaches to teaching” (Mockler, 2013, p. 38) within this context. The APST can, however, support the development of a common language around pedagogy (Loughland & Ellis, 2016) and teaching practices that are replicable and effective in a variety of contexts (Taubman, 2010).

Professional development is most effective when it is evaluated for the purposes of program and participant improvement (Merchie et al., 2018). In order to measure the effectiveness of professional development, it is important to first consider its purpose. Professional development can be used to improve teachers’ skills and knowledge in achieving policy goals or ability to comply with legislative or organisational requirements. It can also be used to develop teacher agency and through this, praxis.

Professional agency for teachers is an inexact term in much of the literature about teaching (Priestley et al., 2015) but broadly, it refers to teacher “capacity to make choices, take principled action, and enact change” (Anderson, 2010, p. 541). Higher levels of agency provide professionals with greater control over their practice and capacity to focus on what education *should* achieve (Biesta & Tedder, 2007). Molla and Nolan (2020) discusses the interplay between agency and professionalism, arguing that truly agentic teachers have greater voice and autonomy in their day-to-day professional practice and thus, are able to make choices that lead to impact on those around them. Timperley et al. (2007) also notes the “importance of teachers having agency in the learning process, not simply seeing professional development as something that is done to them” (p. 233).

Higher levels of participant agency in professional development can lead to greater gains in participant knowledge and changes in professional practice (Paloniemi & Goller, 2017). This can allow professional development to achieve outcomes beyond compliance or growth in line with defined policy goals. These outcomes are rarely articulated in neoliberalist policies and professional teaching standards but represent a key component of morally committed

teaching, or praxis (Smith et al., 2010, p. 5). Praxis occurs when teachers aim to *act rightly* and have the agency to do so (Kemmis & Grootenboer, 2008).

Praxis can be defined as “what people do when they take into account all the circumstances and exigencies that confront them at a particular moment and then, taking the broadest view they can of what is best to do, they act” (Kemmis & Smith, 2008, p. 4) and “is about acting in the world in a way that contributes positively and meaningfully to society, or acting in the interests of humankind” (Mahon et al., 2019, p. 464). It is enabled and constrained by a range of cultural-discursive, material-economic and social-political arrangements (Mahon, 2020). Considering agency and praxis in the design, delivery and evaluation of professional development provides opportunity for participants to achieve learning beyond the traditional desired outcomes of improved skills and knowledge and allows them to “com[e] to know how to go on in practices” (Kemmis, 2021, p. 282). This is an important consideration in the exploration of effective professional development that can achieve a dual purpose of building participant agency and praxis whilst fulfilling systemic needs articulated in policies such as the APST.

### *Context*

The stakeholder analysis reported in this paper was conducted in the context of teachers in New South Wales, Australia and will be used in the design of a professional development program to support teachers in gaining Highly Accomplished or Lead Teacher accreditation under the APST. This process frames how professional development is discussed in this paper. However, it is possible, and even desirable, to consider praxis as an outcome of professional development within this frame. This can promote deeper learning as “professional learning that develops critical praxis seeks to promote and enable agency” (Francisco et al., 2021, p. 4). Within the framing of professional learning in this paper, these findings can be applied to both professional learning as an outcome of professional development and to professional development as a subset of professional learning.

The Australian Professional Standards for Teachers are “a public statement of what constitutes teacher quality” (AITSL, 2011, p. 3) and articulate system priorities, in Australia, for the work and learning that teachers do. It is compulsory for all practicing teachers in Australia to be registered in their relevant state at one of four accreditation levels. All teachers who graduate from an approved university degree begin teaching at the Graduate level. They must then submit a portfolio of evidence to become accredited at the Proficient level and maintain that level throughout their career. Highly Accomplished and Lead Teacher are the two highest levels of accreditation under the APST. These levels are voluntary and require applicants to undergo a further accreditation process to prove that they meet the standards at that level (AITSL, 2017b).

The APST places significant emphasis on the role of HALTs in influencing and mentoring colleagues. This articulates how education systems and the profession conceptualise the role of the country’s most effective teachers. Ensuring that these skills are practiced with respect to the wide-reaching impact

of educators is an important consideration for professional developers in this context, and for the design principles presented in this paper (Moloney et al., 2023).

Design principles are a useful tool to codify and formalise design knowledge for use by researchers and practitioners (Fu et al., 2016). Design principles for effective professional development do currently exist but the methodologies used to produce these principles are often limited to literature reviews (Hawley & Valli, 2007; Lo, 2021). This paper refines the Graham et al. (2024) design principles for effective professional development through stakeholder analysis. Specifically, it introduces the input of teachers to produce a revised set of design principles that incorporates both literature and the views of practitioners.

## Objectives

This paper is situated in a broader study that answers the research question: What are the design principles for an effective professional development program targeting professional accreditation? The protocols for this study are outlined in Graham et al. (2023). This paper specifically answers the research question: What do key stakeholders in the process of gaining higher teacher accreditation in New South Wales, Australia see as effective professional development? To answer this question, the stakeholder analysis tests and refines the initial design principles developed in Graham et al. (2024) to produce a set of revised design principles for effective professional development.

The initial design principles were devised through a systematic literature review of available research published between 2004 and 2021. The review sourced 10420 journal articles. A series of inclusion and exclusion criteria were applied to select 18 studies. A methodological quality assessment of each article was undertaken based on the work of Dixon-Woods et al. (2004). Data was then extracted and synthesised to produce a set of ten design principles for effective professional development. These design principles are shown in Table 6.

Table 6: Initial Design Principles for Effective Professional Development (Graham et al., 2024)

Initial Design Principle (DP)	Effective professional development should...
DP 1	be collaborative and involve participation from school/system leaders
DP 2	be tailored to the needs of participants
DP 3	be authentic and align with current school/system priorities
DP 4	be sustained and provide teachers with adequate time/resources for change
DP 5	focus on enhancing teacher skills/knowledge
DP 6	challenge participants and encourage self-reflection
DP 7	include rigorous evaluation <i>of</i> and <i>by</i> participants
DP 8	be evidence-based and of high quality
DP 9	clearly articulate the goals/learning intentions of the professional development

The design principles in Table 6 are refined in this paper, through stakeholder analysis, to produce a revised set of design principles for effective professional development that incorporate the views of teachers.

## Methodology

The protocols for this study and the broader study are published in Graham et al. (2023). In line with these protocols, the initial design principles are refined in this paper through stakeholder analysis. They will then be used to design and implement a professional development program that supports teachers in gaining HALT accreditation under the APST. This will be reported on in future work.

To address the research question, the selection of an appropriate methodology was considered. Semi-structured interviews were chosen due to the relatively sparse research around higher accreditation for teachers in Australia. This allowed the researchers to take a more exploratory approach to data collection. DeJonckheere and Vaughn (2019) describes semi-structured interviews as an effective method for data collection “when the researcher wants: (1) to collect qualitative, open-ended data; (2) to explore participant thoughts, feelings and beliefs about a particular topic; and (3) to delve deeply into personal and sometimes sensitive issues” (pp. 2-3). The Graham et al. (2024) design principles provided a foundation to guide the interviews and as such, entirely unstructured interviews were not deemed suitable. Appendix H shows the data collection tool used for the interviews. This provided the research team with an initial set of questions to guide the interviews. Interviews were transcribed, and a thematic analysis was undertaken to produce a set of revised design principles.

### *Semi-structured Interviews*

The semi-structured interviews were conducted using Zoom (Zoom Video Communications Inc, n.d.) which allowed the researchers to meet with participants within and outside of New South Wales in a manner that was mutually convenient. Information and consent forms were provided to potential participants prior to scheduling the interviews. Interviews typically lasted for between 10 and 30 minutes and were recorded and transcribed, providing greater accuracy and transparency when coding and analysing the data (Bailey, 2008).

During the interviews, participants were shown the Graham et al. (2024) design principles on screen, asked to categorise them as ‘essential’ ‘desirable’ or ‘irrelevant’ and also to provide their own views about effective professional development. A series of additional questions, intended to be used to inform the design of the future professional development program, were also included in the questionnaire. This additional data is not reported on in this paper.

### *Participants and Sampling*

Participants were recruited and selected from the researchers' own professional networks which included colleagues, known people working in the field and relevant HALT networks within the three NSW education sectors (Association of Independent Schools of NSW, n.d.; Catholic Schools NSW, n.d.; NSW Department of Education, n.d.-b) in line with the protocols published in Graham et al. (2023). Slight deviations to the stakeholder groups were necessary due to participant availability. Most notably, the researchers were unable to recruit any "teachers who have been unsuccessful in the higher accreditation process" (Graham et al., 2023, p. 1391) nor was there any public available list of these teachers to recruit from. This should be considered when interpreting the findings of this paper. The final list of participants, categorised in stakeholder groups is presented below:

- Representatives of academia with relevant research around the APST (2).
- Representative from the Australian Institute for Teaching and School Leadership (AITSL) (1).
- Representatives of teacher accreditation authority (NSW Education Standards Authority) (2).
- Representatives of teacher employers:
  - NSW Department of Education (2);
  - Catholic Schools NSW (1); and
  - The Association of Independent Schools NSW (2).
- Representatives of the profession i.e., teachers who have:
  - been accredited as either a Highly Accomplished or Lead Teacher (2);
  - started but not yet finished the higher accreditation process (3); and
  - been identified as suitable but have chosen not to start the higher accreditation process (1).

### *Thematic Analysis*

Thematic analysis was then used to code and theme the data collected through the semi-structured interviews. Thematic analysis was selected due to its flexibility and applicability to a wide range of data (Braun & Clarke, 2006). The methodology was also deemed appropriate as the semi-structured interview process can lead to data that is non-uniform and problematic to analyse using more rigid approaches (Galletta, 2013).

Transcripts of each interview were coded and themed in an iterative process. Deductive coding was used to determine whether to support, modify or remove each of the ten initial design principles in a process derived from similar Design Research studies (Michalke et al., 2022; Mohedas et al., 2016). A process of inductive coding was then used to identify themes that could be used as additional design principles. The results of the thematic analysis are presented in the next section.

## Results

A total of 16 participants were involved in the stakeholder analysis, representing a range of stakeholders in the Australian HALT accreditation process. An analysis of the 16 transcripts provided an overall indication of participant agreeance with each initial design principle. This can be seen in Table 7.

Table 7: Participant Classification of Initial Design Principles

<b>Initial Design Principle (DP) (effective professional development should...)</b>	<b>Essential (%)</b>	<b>Desirable (%)</b>	<b>Irrelevant (%)</b>
DP 1: be collaborative and involve participation from school/system leaders	75	18.75	6.25
DP 2: be tailored to the needs of participants	81.25	18.75	nil
DP 3: be authentic and align with current school/system priorities	62.5	31.25	6.25
DP 4: be sustained and provide teachers with adequate time/resources for change	93.75	6.25	nil
DP 5: focus on enhancing teacher skills/knowledge	100	nil	nil
DP 6: challenge participants and encourage self-reflection	75	25	nil
DP 7: include rigorous evaluation of and by participants	56.25	43.75	nil
DP 8: be evidence-based and of high quality	100	nil	nil
DP 9: clearly articulate the goals/learning intentions of the professional development	62.5	37.5	nil
DP 10: encourage active participation of participants	75	25	nil

The data in Table 7 shows that overall, stakeholder agreement with the initial design principles was high with 78.75% of responses assessing design principles as “essential” (20% “desirable” and 1.25% “irrelevant”). Two design principles (DP 5 and DP 8) were deemed “essential” by 100% of participants (n=16) whereas DP 7 had the lowest agreeance rate of 56.25% (n=9).

Participant data was also analysed in relation to four identified demographics (teacher/school or system leader, male/female, public system/private system/teacher regulator/academia, and primary teaching background/secondary teaching background) to determine whether certain groups viewed either individual or the collective initial design principles more favourably than other groups. Table 8 shows each demographic analysed and

how that group categorised the initial design principles, expressed as a percentage. This data is useful to interpret some of the findings in this paper.

*Table 8: Overall Participant Classification of Initial Design Principles by Demographic*

<b>Demographic</b>	<b>Essential (%)</b>	<b>Desirable (%)</b>	<b>Irrelevant (%)</b>
Teachers (n=5)	60	36	4
School/system leaders (n=11)	87	13	0
Males (n=4)	85	15	nil
Females (n=12)	77	21	2
Public system representatives (n=8)	66	31	3
Private system representatives (n=3)	97	3	nil
Academia representatives (n=2)	95	5	nil
Teacher regulator representatives (n=3)	84	16	nil
Primary school background (n=3)	57	36	7
Secondary school background (n=6)	72	28	nil

The data in Table 7 and Table 8 were used in conjunction with the themes identified through the thematic analysis to create a set of revised design principles. This process is illustrated in Table 9 below.

Table 9: Initial Design Principles for Effective Professional Development (Graham et al., 2024), Revised Design Principles Produced in this Paper and Justification for Changes

<b>Initial Design Principle (DP) (effective professional development should...)</b>	<b>Revised Design Principle (DP) (effective professional development for NSW school teachers should...)</b>	<b>Justification for Changes (example quotes from interviews)</b>
DP 1: be collaborative and involve participation from school/system leaders	DP 1: be collaborative and promote active participation of participants	Overall, 75% agreeance; (participant 5: “you learn just as much from the people at the front of the room, as you do from the people in the room with you”)
DP 2: be tailored to the needs of participants	DP 2: be tailored to the needs/context of participants	(Participant 4: “I think professional learning has to be differentiated. And I always believed in differentiating based on your career stage”)
DP 3: be authentic and align with current school/system priorities	DP 3: be evidence-based and align with current school/system priorities	Overall, 62.5% agreeance; (participant 8: “What do you mean by authentic?”)
DP 4: be sustained and provide teachers with adequate time/resources for change	DP 4: be sustained and provide teachers with adequate time/resources for change	Unchanged
DP 5: focus on enhancing teacher skills/knowledge	DP 5: provide opportunities for participants to enhance skills/knowledge	(Participant 14: “[the term ‘focus’] needs to be reshaped to explicitly provide opportunities for it”)
DP 6: challenge participants and encourage self-reflection	DP 6: challenge participants and encourage reflective practice	Overall, 75% agreeance; (participant 6: “I think everybody must be reflective of their practice”)
DP 7: include rigorous evaluation <i>of</i> and <i>by</i> participants	DP 7: determine its impact through rigorous evaluation <i>of</i> and <i>by</i> participants	Overall, 56.25% agreeance; (participant 16: “determining impact in terms of measurement”)
DP 8: be evidence-based and of high quality	DP 8: clearly articulate its goals/learning intentions	Reworded for clarity only
DP 9: clearly articulate the goals/learning intentions of the professional development	DP 9: be aligned to relevant professional standards and seek to improve student outcomes	(Participant 4: “I think there has to be a role for things being standards based”; Participant 2: “I think what’s missing for me is the student need”)
DP 10: encourage active participation of participants		(Participant 1: “the last one [DP 10] ties back into the first one [DP1]”)

Significant alignment between the two sets of the design principles can be seen in Table 9. Revisions made to each design principle are further outlined below. The total number of design principles was also reduced from ten to nine with several participants expressing a desire for simplification. When asked “What are some other important characteristics of effective professional development?”, one participant answered “actually, I'm grouping them together because I'd like there to be less of them”. Several participants noted a desire for the revised set of design principles to be streamlined and applicable to a broad range of professional development forms to simplify the process of designing professional development programs for practitioners.

*Revised Design Principle 1: effective professional development should be collaborative and promote active participation*

Initial Design Principle 1 and Initial Design Principle 10 were both deemed “essential” by 75% of participants. One participant also noted that “the last one [DP 10] ties back into the first one [DP1]. Active participation ties in with collaboration, etc.”. As such, it was decided that the two initial design principles would be reworded into a single revised design principle.

Participants also tended to view Initial Design Principle 1 as two distinct concepts. Agreement with the concept of collaboration tended to be high. One participant stated that “you learn just as much from the people at the front of the room as you do from the people in the room with you”. However, several participants did not agree that “participation from school/system leaders” was important or even positive. It is also worth noting that 91% of school/system leaders categorised Initial Design Principle 1 as “essential” as opposed to 40% of classroom-based teachers. This could be indicative of a desire by teachers for greater agency in the selection of, and participation in, professional development that meets their personal needs, rather than those of the system. As a result of this feedback, this element was removed in Revised Design Principle 1.

*Revised Design Principle 2: effective professional development should be tailored to the needs/context of participants*

Agreement with Initial Design Principle 2 was relatively high with 81.25% of participants deeming it as “essential”. Numerous participants also noted that although this design principle is important, it is also the most difficult to implement.

Participants discussed different ways in which professional development is effectively differentiated with one participant stating “I think professional learning has to be differentiated. And I always believed in differentiating based on your career stage”. This point has been acknowledged by adding the word “context” to the revised design principle to encapsulate some of the ways in which professional development can be differentiated for participants, beyond just their needs.

Several participants spoke about professional development being either “differentiated” or “personalised” and often used these terms interchangeably. This was considered in the final wording of Revised Design Principle 2. Differentiation, in regards to professional development, can be defined as modifying the content, process and expected outcomes of professional development to better suit

participant need (Grierson & Woloshyn, 2013). Personalisation is often used as a more general term in literature and can involve modifying professional development to suit the context and needs of the participant (Owen, 2011). Whilst Revised Design Principle 2 ultimately remained unchanged, it is worth noting that this statement aligns closest with the concept of differentiation and the evidence that supports its use.

*Revised Design Principle 3: effective professional development should be evidence-based and align with current school/system priorities*

Agreement with Initial Design Principle 3 was mixed with 62.5% of participants classifying it as “essential”. Some participants acknowledged the need for professional development to align with school/system priorities with one participant stating:

I want my PL to be focused on my context, but I also want it to give me a broad enough understanding so that if I go somewhere else, I understand that PL and the context for that area.

This could be interpreted as a participant desire for professional development that is widely applicable but balanced with the desire for differentiation expressed in Revised Design Principle 2.

Other participants spoke about increasing system pressure to undertake specific professional development for compliance purposes rather than to meet their own professional goals. It is worth noting that only 20% of teachers interviewed categorised Initial Design Principle 3 as “essential” in contrast to 73% of school/system leaders. This speaks to a clear distinction between what these two stakeholder groups prioritise as the intended outcomes of effective professional development. Multiple participants also asked for clarification around the word “authentic” in Initial Design Principle 3 and when the term was further unpacked, most expressed that this term added little value to the overall statement.

Conversely, 100% of participants deemed Initial Design Principle 8 as “essential” but as conversations progressed, it became evident that the term “high quality” was not specific to a particular element of professional development and does not serve as a meaningful design principle. As such, the terms “authentic” and “high quality” were removed from the initial design principles and the two concepts were combined in line with participant desire to reduce the overall number of design principles.

*Revised Design Principle 4: effective professional development should be sustained and provide teachers with adequate time/resources for change*

Initial Design Principle 4 was supported overwhelmingly by participants with 93.75% deeming it “essential”. Several participants also noted that in their current contexts, time and resources were becoming increasingly scarce and that this principle was the perhaps the most important to them. This principle was supported and unchanged.

*Revised Design Principle 5: effective professional development should provide opportunities for participants to enhance skills/knowledge*

Initial Design Principle 5 was deemed “essential” by 100% of participants. One participant noted that the word “focus” “needs to be reshaped to explicitly provide opportunities for it” to reflect a desire for specific time and activities to be set aside in professional development programs. This aligns with other research in the field (Hayse, 2018; Smith et al., 2020) and is reflected in Revised Design Principle 5.

*Revised Design Principle 6: effective professional development should challenge participants and encourage reflective practice*

Participants generally supported Initial Design Principle 6 with 75% considering it “essential”. Participants tended to be more comfortable with the term “reflective practice” than with “self-reflection”. This was contrary to what was found in the Graham et al. (2024) literature review, where the term “self-reflection” tended to be the dominant terminology. To determine the more appropriate nomenclature, the research team sought definitions for each in literature.

Reflective practice can be defined as “the ability to reflect on an action so as to engage in a process of continuous learning” (Mathew et al., 2017, p. 126). Self-reflection can be used to develop “a better understanding of who you are and what you want to be” (Wosnitza et al., 2018, p. 338). Relevant policy around teacher accreditation in New South Wales frequently uses both terms (AITSL, 2017b; NSW Department of Education, 2018a). It was decided that Revised Design Principle 6 would be reworded based on the preference of participants in order to make the revised design principles more accessible to those who may eventually use them.

*Revised Design Principle 7: effective professional development should determine its impact through rigorous evaluation of and by participants*

Initial Design Principle 7 was classified as “essential” by 56.25% of participants. This was the lowest of any of the initial design principles. Participants were generally of the belief that professional development could still be effective without evaluation, with the remaining 43.75% of participants all deeming the initial design principle “desirable”. Teachers were also considerably less likely to view Initial Design Principle 7 as “essential” with only 20% categorising it that way as opposed to 73% of school/system leaders, again highlighting the differing priorities of these stakeholder groups based on those interviewed.

Several participants used the term “determining impact” when responding to questions despite the term “evaluation” being used in the prompts. Both terms were examined in literature to determine which would be used in the revised design principles. When determining the impact of professional development, the process can be theorised as having five distinct levels of increasing complexity to measure: participant reactions, participant learning, organisation support and change, participant use of new knowledge, and skills and student learning outcomes. (Guskey, 2000). Earley and Porritt (2014) asserts that “evaluation seems to have remained largely at Guskey’s first level of participant reactions” (p. 116).

Guskey’s five levels provide a strong foundation for professional developers to consider when implementing this design principle. In the context of New South

Wales teachers, “determining impact” was also more prevalent in policy and discourse (AITSL, 2017b; NESAs, 2016; NSW Department of Education, 2017a). As such, Revised Design Principle 7 was reworded to adopt this terminology.

*Revised Design Principle 8: effective professional development should clearly articulate its goals/learning intentions*

Initial Design Principle 9 was deemed “essential” by 62.5% of participants. Whilst this score was relatively low, all other participants rated the design principle as “desirable”. Several participants expressed that professional development could still be effective without articulating its desired outcomes, but that it is beneficial for participants to know these prior to the learning. Revised Design Principle 8 was reworded to be more succinct but was otherwise unchanged.

*Revised Design Principle 9: effective professional development should be aligned to relevant professional standards and seek to improve student outcomes*

Participants were asked the question: What are some other important characteristics of effective professional development?. The stakeholder analysis uncovered two themes that were specific to the context of this stakeholder analysis. One participant stated that “I think what's missing for me is the student need”. Several others noted that improving student outcomes should be an aim of any professional development program.

The assumption that professional development leads to improved student outcomes is often challenged in literature and measuring the impact of professional development on student outcomes can be complex (Holloway, 2006; Kraft et al., 2018). It is, however, largely accepted that although the link between professional development for teachers and improved student outcomes might not be direct, it is present, as demonstrated in the USA (Darling-Hammond, 2000) and in Australia (Hattie, 2003).

Several participants also noted that professional development, in the context of this study, is overseen by the NSW Education Standards Authority (NESAs) in line with the APST. One participant stated that “I think there has to be a role for things being standards-based”. This is consistent with research in this field which indicates that professional development that is standards-based is likely to result in more effective professional learning (Ingvarson, 2011).

Whilst these two ideas were not significant themes in the Graham et al. (2024) literature review, the research team deemed these ideas highly appropriate in the revised design principles. Due to the student-centred terminology used in the APST, there is also significant alignment between the two concepts. As such, they were combined and added as Revised Design Principle 9.

## Discussion

The revised design principles for effective professional development produced in this paper demonstrate significant alignment with the Graham et al. (2024) design principles and wider literature in the field (Darling-Hammond et al., 2017; Sims & Fletcher-Wood, 2021). This is indicative of an overall agreement between research

and practitioners on what constitutes effective professional development. Some notable differences are evident and are discussed in this section.

The results of this paper illustrate a stakeholder preference for professional development that is evidence-based, skills-focussed and adequately resourced. Design Principles 4, 5 and 8 were categorised as “essential” by 93.75%, 100% and 100% of participants respectively. Conversely, the skills associated with agency and praxis such as self-reflection, active participation, authenticity and collaboration (Salo et al., 2024) were less likely to be categorised that way with Design Principles 1, 3, 6 and 10 deemed “essential” by only 75%, 62.5%, 75% and 75% of participants respectively. Whilst these participant preferences are consistent with government policy and guidelines around professional development in Australia (AITSL, 2017a), they are surprising in the face of increasing literature advocating for praxis-oriented professional development (Edwards-Groves, 2008; Francisco et al., 2021). Ultimately, this presents as a potential area for future research but in this section, we attempt to understand these findings in the policy context in which this research was conducted. Specifically, in the context of the mandatory professional teaching standards that permeate throughout educational policy in Australia.

Professional development in Australia is heavily intertwined with teaching standards and is expected to align with the APST in order to contribute to teacher mandatory professional development hours (NESA, 2024c). Mockler (2022) points out that the APST “and their associated processes strongly suggest that “professional development activities”, and teachers accounting for their engagement in such activities are of more consequence and higher value than actual professional learning” (p. 174). Whilst this paper does not suggest that the two terms are mutually exclusive, the design principles produced in this paper aim to allow users to design and implement effective professional development that leads to professional learning.

The APST have been criticised for oversimplifying the complex and contextual practices of teaching (Mulcahy, 2011). Like other neoliberalist approaches to codifying and measuring the work of teachers, it can have the effect of reducing teaching, and the teaching of teaching, to dot-point lists (Connell, 2009). More broadly, teaching standards have been described by some as the pedagogical equivalent of “painting by numbers” (Davies & Edwards, 1999). Despite this, there was a clear appetite, from the participants in this stakeholder analysis, for professional development that aligns with these standards. This was true for both teachers and school/system leaders.

It is unclear whether these findings are a true indication of teacher preference towards standardisation over agency, or simply a result of a general acceptance of mandatory teaching standards in the context where this research was conducted. The relationship between teaching standards and agency is complex (L. D. Willis et al., 2022). Agency can also be theorised to have an *iterational dimension* where the present is shaped by the past (Emirbayer & Mische, 1998). Therefore, as teachers develop skills and knowledge within policy frameworks shaped by professional standards, there is an inherent narrowing of the definition of teaching as standards “do not measure everything that matters” (Taylor, 2016, p. 163).

Whilst a lower number of participants in the stakeholder analysis classified the design principles associated with agency and praxis as “essential”, only a very small number deemed them “irrelevant”. The portion that remains used the classification “desirable”, which could mean that whilst these principles are not critical for professional development to be effective, their inclusion remains preferable. As such, this paper holds that effective professional development can, and should, seek to promote agency and praxis in order to empower teachers, as professionals, to *act rightly* in a complex and politically sensitive working environment.

## Conclusion

The revised design principles produced in this paper represent a refined version of the initial design principles published in Graham et al. (2024). These nine principles incorporate the views of teachers and could be used to develop and strengthen government and system professional development policies both within and beyond the teaching profession. They could also be used by practitioners, academics and professional developers in the creation of evidence-based professional development programs that drive positive change in teacher growth and student outcomes.

As outlined in Graham et al. (2024), the revised design principles will be implemented to develop a professional development program aimed at supporting teachers to gain Highly Accomplished or Lead Teacher accreditation under the Australian Professional Standards for Teachers. This program and the revised design principles will be evaluated to produce a set of final design principles that are contextualised for teachers undertaking HALT accreditation in NSW, Australia. Future researchers may also wish to test and further refine these design principles for use in other contexts.

This paper contributes a new understanding of professional development to current discourse in the form of nine design principles that support researchers and practitioners in the implementation of effective professional development programs. These design principles are distinct from those before them as they have been developed using both empirical evidence, through systematic literature review and practitioner voice, through stakeholder analysis. This mixed-methodology approach aims to support teacher growth and development beyond performative policy goals and contribute to greater agency and critical praxis within the teaching profession.

# Chapter 5

## Intervention (Graham et al., 2025c)

The following chapter has been submitted for publication as: Graham et al. (2025c). Formatting and referencing styles have been adjusted to align with the style of this thesis.

### Abstract

Teacher certification can be used to regulate teacher quality and to support the development of future educational leaders. This paper presents a professional development program that was designed to support teachers through the process of gaining Highly Accomplished or Lead Teacher certification under the Australian Professional Standards for Teachers. In doing so, it responds to the question: What should an effective professional development program for school teachers undertaking higher accreditation look like?

The construction of the professional development program was guided by a set of design principles for effective professional development that incorporate both academic and practitioner views. The content of the professional development program was determined by data collected through stakeholder analysis. Semi-structured interviews were conducted with key stakeholders in the higher accreditation process. These stakeholders included teachers, school leaders and academics in related fields. A thematic analysis was then undertaken to code and categorise the qualitative data.

Data-informed decision-making, reflective practice, instructional leadership, and coaching/mentoring were identified as key content in the professional development program. The content also aligns with current literature around the development of school middle leaders and supports researchers and policy makers to advance democratic values and praxis-oriented professional learning for emerging educational leaders.

### Keywords

Professional development, professional learning, middle leadership, design-based research, teacher accreditation, HALT.

### Introduction

#### *Rationale*

Formal recognition and support for high-performing teachers can lead to increased motivation (Phytanza & Burhaein, 2020) and improved student outcomes (Cowan & Goldhaber, 2016). In a time of widespread teacher shortages (Eacott, 2024), provision of this support is also critical in equipping teacher-leaders with the praxeological skillset required to navigate the complex and increasingly important demands of middle leadership (Lipscombe et al., 2023). This paper presents a practical tool, in the form of a professional development program that supports teachers through the process of gaining Highly Accomplished or Lead Teacher

(HALT) certification under the Australian Professional Standards for Teachers (APST) and in accessing the formal benefits associated with higher teacher certification in Australia.

HALT certification is a national mechanism to “recognise high quality teachers” (AITSL, 2019, p. 9) in Australia. However, the number of certified HALTs is significantly below the program’s initial targets (Dinham et al., 2008) and subsequent federal government targets (Australian Government Department of Education, 2022). This is a significant problem for education systems across the country as HALTs play an important role in schools as classroom-based leaders and peer-mentors (AITSL, n.d.-a; NESAS, 2024b).

Concurrently, the work of school leaders has become an increasingly complex endeavour that involves balancing the “performativity” and “humanity” of education (Netolicky, 2020). As such, the distribution and delegation of leadership tasks to others within schools has become a ubiquitous practice (Harris & DeFlaminis, 2016). The result of this is an increase in the number of “hybrid” roles within schools that have both teaching and leadership responsibilities (De Nobile, 2018). These roles can be referred to as middle leadership roles. Like HALTs, middle leaders occupy a highly complex and contextually dependant leadership space within schools that often has a pedagogical focus within a managerial role delegated or distributed by more senior positional leaders (Grice, 2019).

Middle leadership can be defined as “teaching alongside ‘out-of-classroom’ responsibilities” (Forde et al., 2019, p. 299). It is often used interchangeably with the terms “teacher leadership” which can be thought of as a more generic, ubiquitous term, and “middle management” which tends to highlight managerial responsibilities over leadership practices (Grootenboer et al., 2015). This paper is deliberate in using the term “middle leadership”, which has become the dominant nomenclature in Australian discourse over the past two decades (AITSL, 2022) but does not suggest that this precludes the paper’s applicability to other, related terms.

With established national standards of practice for teachers (AITSL, 2011) and for principals (AITSL, 2014a), the role and expectations of middle leaders has only recently been formally articulated in Australian education systems (AITSL, 2024). Formal role statements for middle leaders are also a relatively new phenomenon within education systems (NSW Department of Education, 2021a, 2022b). Prior to this, the decision of whether to delegate formal leadership responsibilities and the selection of those responsibilities had typically been left to principals (Leaf et al., 2024). As a result, middle leadership roles can look vastly different across different teaching sectors and jurisdictions (De Nobile et al., 2024).

The APST at the Highly Accomplished and Lead levels, whilst being a far from exhaustive description of the role of middle leaders (Lipscombe et al., 2020), demonstrate significant overlap with the work that middle leaders perform in Australian schools (AITSL, 2023a). They place significant emphasis on many of the practices associated with instructional leadership which is consistent with some models of middle leadership (Tang et al., 2022). However, instructional leadership, in isolation, does not fully explain the complex work that school leaders undertake on

a daily basis (Day et al., 2016) and an over-rigid adherence to this model of leadership can lead to detrimental outcomes (Marks & Printy, 2003).

Since Australian professional teaching standards were in their infancy, HALT certification has been discussed as a possible prerequisite for formal middle leadership positions (Dinham et al., 2008) although this requirement has never been formally implemented in any Australian teaching systems. One of the key principles of the HALT certification process is that it “offers a pathway for excellent teachers to grow ... while remaining in teaching positions” (AITSL, 2019, p. 16). Many teaching systems have also moved to standards-based salary scales which tie remuneration to registration status (NSW Department of Education, 2017c). This offers HALTs higher salaries than their non-certified counterparts to remain in classrooms. It is worth noting, however, that these salaries are still considerably lower than those of teachers in formal middle leadership positions.

Teachers who have attained HALT certification are more likely to engage in higher degrees of middle leadership practices (Grootenboer et al., 2023). A strong certification system also enables leadership at all levels and strengthens schools as professional learning communities (Ingvarson, 2018). This study seeks to support the professional development of teachers where these concepts intersect, enabling the professional and praxeological growth of high-performing teachers and providing formalised recognition for the important work that they undertake.

Professional development is another key term used in this paper. It can be defined as “any experience of workplace learning that is deliberate or can be measured” (Graham et al., 2024, p. 1260). The term is often used interchangeably with “professional learning”, but some would argue significant differences between the two terms. Professional learning can be defined as any activity that “results in improvements in teachers’ knowledge and instruction” (Murray, 2016, p. 9). This improvement may be in relation to standards or policies that define teacher quality (Creemers et al., 2013) or a broader, praxeological skillset (Mahon et al., 2019). As such, it can take a wider range of forms. It can also be theorised to be an outcome of effective professional development (King et al., 2023; Liou & Carrinus, 2020). Whilst the findings of this paper may be applicable to the broader range of professional learning, its focus is on planned and structured forms of learning that are often categorised as formal professional development (Netolicky, 2019).

Effective professional development has the capacity to improve teacher practice (Drago-Severson & Blum-DeStefano, 2018; Naylor & Sayed, 2014) and, at least indirectly, student outcomes (Fischer et al., 2018; Sancar et al., 2021). What constitutes effective professional development is contextually dependant but some common traits can be found in research (Darling-Hammond et al., 2017; Sims et al., 2021).

Effective middle-leadership practices support the effectiveness of professional development (Hallinger & Kulophas, 2020) and, in turn, effective professional development contributes to the growth of effective middle-leaders (Lipscombe et al., 2023). This paper puts forward an intervention that can be inserted into this developmental loop and promote teacher agency (Kemmis, 2021) and educational

equity (Poekert et al., 2020) in the face of neoliberal and political threats to schools and education systems.

### *Context*

This study was undertaken in New South Wales (NSW), Australia. In NSW, certification is referred to as “accreditation”. As such, both terms are used in this paper. The two terms can be read interchangeably but the authors have chosen to leave the term “accreditation” as it appears in literature, policy and interview data specific to NSW. Professional development is also mandatory for all practising teachers across Australia and is overseen by state regulators. This professional development is expected to align with the APST (AITSL, 2011). It is also a requirement for teachers to be registered under the APST and regularly demonstrate the APST through performance management and certification processes.

The APST comprises of four career stages. Upon graduating from an initial teacher education program, teachers begin their careers at the Graduate level. They are then required to achieve and maintain registration at the Proficient level for as long as they continue to teach (AITSL, 2011). This is done by developing a portfolio of evidence that demonstrates that their practice aligns with the teaching standards at the Proficient level (AITSL, 2016).

The final two levels of certification are voluntary. Proficient teachers can apply to become either Highly Accomplished or Lead Teachers (HALTs). These two levels of certification are often grouped together and referred to as “HALT”. Becoming a HALT involves a similar, albeit significantly more arduous process of portfolio creation, teaching observations and the provision of referees to demonstrate alignment with the APST at the highest levels (AITSL, 2017b).

In NSW, the process of applying for HALT certification is divided into two modules, with feedback provided to applicants in between. Completing a module requires applicants to submit annotated artefacts of their teaching practice, referred to as evidence. This evidence needs to demonstrate to assessors that the applicant’s practice aligns with the APST at either the Highly Accomplished or Lead level. Applicants must demonstrate 20 standard descriptors over the course of two modules. Applicants can choose the focus of their modules and there are relatively few restrictions or guidelines for what “evidence” looks like but applicants are encouraged to group evidence into coherent “evidence sets” within modules to demonstrate the impact of their work (NESA, 2022a, 2022b). For the purposes of this paper, “evidence” is grouped together to form “evidence sets” which, in turn, are grouped together to form a “module”. There is no time limit for completion of each module but six months per module is often used as an indicative guide (NESA, 2022a, 2022b).

The production of teaching “portfolios” is a relatively new feature of the profession in Australia but evidence collection and managerialism are not (Mockler, 2022). The APST are espoused to the profession as a common language to support reflective practice and professional learning but they can just as easily be used as a neoliberalist tool to monitor and regulate (Larsen et al., 2023). Whilst it is commonly accepted that reflection and evidence-based practices support the work of teachers (Mitchell & Sutherland, 2020; Molla & Nolan, 2020), the additional pressures that

evidence collection and datafication place on teacher workload and morale are the trade-off (Holloway, 2020).

Less than 1% of current Australian teachers have achieved HALT certification since its inception (AITSL, 2023b; Australian Bureau of Statistics, 2023) which has led to calls for change in current certification processes (J. Willis, P. Churchward, L. Crosswell, et al., 2022) and prompted governments to implement targets and initiatives aimed at increasing the number of HALTs to roughly one per school (Australian Government Department of Education, 2024; NSW Department of Education, n.d.-a). This raises the question of whether the current dearth of certified HALTs reflects teaching quality in Australia or whether high-performing teachers are simply not being recognised through the current HALT certification process. Graham et al. (2025a) suggests that the answer is the latter. Therefore, supporting teachers to gain that recognition is what drove the study reported in this paper.

### Objectives

The professional development program presented in this paper was designed to support applicants in the process of gaining HALT certification under the APST. Specifically, it aimed to build participants' skills and knowledge in line with the APST and complimentary areas identified through stakeholder analysis. The program was designed to be delivered to school teachers in New South Wales (NSW), Australia and was part of a broader, Design-Based Research study that answered the research question: What are the design principles for an effective professional development program targeting professional accreditation? The protocols for the broader study are published in Graham et al. (2023). This paper represents Phase 2 of that study and specifically answers the research question: What should an effective professional development program for school teachers undertaking higher accreditation look like?

### Methodology

The professional development program reported on in this paper was designed using a set of refined design principles for effective professional development that were iteratively developed over the course of the broader study and are published in Graham et al. (2025a). Table 10 shows these design principles.

Table 10: Revised Design Principles for Effective Professional Development (Graham et al., 2025a)

Revised Design Principle (DP)	Principle (effective professional development should...)
DP 1	be collaborative and promote active participation of participants
DP 2	be tailored to the needs/context of participants
DP 3	be evidence-based and align with current school/system priorities
DP 4	be sustained and provide teachers with adequate time/resources for change
DP 5	provide opportunities for participants to enhance skills/knowledge
DP 6	challenge participants and encourage reflective practice

DP 7	determine its impact through rigorous evaluation <i>of and by</i> participants
DP 8	clearly articulate its goals/learning intentions
DP 9	be aligned to relevant professional standards and seek to improve student outcomes

The specific form and content of the program was informed by data collected through stakeholder analysis. Semi-structured interviews were conducted with a range of key stakeholders in the process of gaining HALT certification in NSW. Semi-structured interviews are a structured data-collection tool that also allows researchers to ask tailored follow-up questions based on each participant's role in and experiences (DeJonckheere & Vaughn, 2019). The interviews were conducted by the lead author using Zoom (Zoom Video Communications Inc, n.d.) and typically lasted for between 10 and 30 minutes. This allowed the researchers to meet with a wider range of stakeholders and remove some of the geographical inhibitors of in-person interviews (Oliffe et al., 2021). The data collection tool used in the interviews is shown in Appendix H.

### *Participants*

Participants were recruited and selected from professional networks within the three NSW education sectors and those known to the researchers, in line with the protocols published in Graham et al. (2023). Due to participant availability, some variations were made to the stakeholder groups outlined. Specifically, no “teachers who have been unsuccessful in the higher accreditation process” (Graham et al., 2023, p. 1391) were able to be recruited nor was there any public available list of these teachers to recruit from. A total of 16 participants were interviewed and a summary of the stakeholder groups is shown below:

- Representatives of academia with relevant research around the APST (2).
- Representative from the Australian Institute for Teaching and School Leadership (AITSL) (1).
- Representatives of teacher accreditation authority (NSW Education Standards Authority) (2).
- Representatives of teacher employers:
  - NSW Department of Education (2);
  - Catholic Schools NSW (1); and
  - The Association of Independent Schools NSW (2).
- Representatives of the profession i.e., teachers who have:
  - been accredited as either a Highly Accomplished or Lead Teacher (2);
  - started but not yet finished the higher accreditation process (3); and
  - been identified as suitable but have chosen not to start the higher accreditation process (1).

### *Thematic Analysis*

Upon completion of the interview process, thematic analysis was used to code and theme the data. This approach was selected as semi-structured interviews can often require a flexible and more broadly applicable analysis approach (Braun & Clarke, 2006) due to non-uniform data that can be problematic to analyse using more rigid methods (Galletta, 2013). Transcripts of each interview were coded by the authors.

An iterative process of inductive and deductive theming was then used to determine key content to be included in the program. The Graham et al. (2025a) design principles were then used to construct a professional development program around this content. This process is discussed further in the next section.

## Results and Discussion

Thematic analysis of the interviews produced six key themes which were used to guide the content of each session. This section discusses the professional development program, how the Graham et al. (2025a) design principles were implemented, and the content selected for each section. An overview of the professional development program can be found in Appendix I.

### *Program Design*

The majority of stakeholders interviewed noted that the professional development program would need to be delivered over multiple sessions to be effective. This aligns with Revised Design Principle 4 and other literature in the field (Harwell, 2003). Due to the time constraints of the study, it was decided that program would be implemented over a period of six months and support participants to complete one module of the HALT certification process. There were a range of different suggestions from stakeholders for the frequency of sessions but “two to three times per term” reflected the consensus. One stakeholder also suggested “they go for a couple of hours” and that “you have to have deliverables between the sessions”. These suggestions were included in the design of the professional development program.

A range of stakeholders also suggested that the professional development program be delivered via videoconferencing. Videoconferencing allows equitable participation from those living or working in geographically remote locations, or those with competing commitments (Vrasidas & Glass, 2006). “Convenience”, “reducing travel time” and “equity of accessibility for people in rural and remote areas” were cited, by stakeholders, as the main benefits. One current teacher also spoke of the collaborative ways in which videoconferencing could be used, suggesting “having those little breakout rooms just to get a little bit more personal is helpful”. Another teacher noted “there's a real role for that collaboration for people going through the journey to be able to support each other”. These suggestions also informed the design of the professional development program. There was no consensus amongst stakeholders on an optimal number of participants but in order to facilitate collaborative practice in line with Revised Design Principle 1 and be able to provide rigorous feedback in line with Revised Design Principle 7, the program was designed to be delivered to groups of between six and 30 participants.

Whilst the professional development program was designed to support participants in completing one module of the certification process, it focusses on the production of smaller evidence sets, providing participants with more manageable milestones to achieve over the course of the program. This also allowed the professional development program to achieve more than a binary “pass/fail” outcome. Where a participant does not complete an entire module over the six-month period, they may still complete and receive feedback on one or more evidence sets which can be submitted as part of a module at the participant’s convenience.

In addition to supporting participants through the certification process, the professional development program will be used to test and evaluate the Graham et al. (2025a) design principles and produce a set of final design principles, contextualised for HALT applicants under the APST in line with the protocols published in Graham et al. (2023). In order to achieve this, the professional development program was designed using the Graham et al. (2025a) design principles. How each principle is reflected in the program is outlined below.

#### Revised Design Principle 1: effective professional development should be collaborative and promote active participation of participants

Designated time for participants to collaborate on both the session content and their evidence sets was explicitly allocated in the professional development program. Each of the first five sessions devotes 55 minutes to these activities. Participants would also be encouraged and supported to produce and submit a series of evidence sets over the course of the program, providing an additional opportunity to practice the skills taught in each session.

#### Revised Design Principle 2: effective professional development should be tailored to the needs/context of participants

The recruitment methods used in this study were devised to allow any eligible teacher to participate. This intends to draw a larger number of participants but could also lead to a wider range of different contexts and participant needs. The specialised nature of the professional development program, and complexities of recruiting participants caused by the coronavirus disease of 2019 (COVID-19) and prolonged teacher shortages across the targeted systems necessitated this approach. Future researchers may wish to consider recruiting and grouping participants based on contextual factors (eg. primary schools, subject/year specialisations).

The “breakout room” function in Zoom will be used in the professional development program to group participants and address this design principle. The use of breakout rooms also allows the presenters to address specific contextual questions in smaller settings, reducing interruption for other participants. Participants will also be encouraged and supported to produce and submit a series of evidence sets, that will be unique to their own context. This aligns with the requirements of the HALT accreditation process (NESA, 2022a, 2022b) and provides further agency for participants to choose how to apply the learning in their own context (King, 2022). Participants will receive individualised feedback on their submissions using the Evidence Set Evaluation Tools shown in Appendix J.

#### Revised Design Principle 3: effective professional development should be evidence-based and align with current school/system priorities

The professional development program was developed through a process of developing and revising a set of evidence-based design principles (Graham et al., 2024; Graham et al., 2025a). The program also aligns with the Australian Government target of producing 10 000 teachers certified as HALT or equivalent by 2025 and NSW Government target of committing 2500 HALTs to that number (Australian Government Department of Education, 2022; NSW Department of

Education, 2022c). Sessions 4 and 5 of the professional development program will also focus on specific elements of leadership development in line with the language embedded in the APST (AITSL, 2011). These sessions and much of the HALT accreditation process asks applicants to consider their impact in line with school and system targets, referred to as Strategic Improvement Plans in most NSW schools (NSW Department of Education, 2024).

#### Revised Design Principle 4: effective professional development should be sustained and provide teachers with adequate time/resources for change

The professional development program will be delivered in six sessions, over six months. This timing was informed by stakeholder suggestions for frequency and indicative timelines published in relevant policies (NESA, 2022a, 2022b). Allowing sufficient time between sessions provides the opportunity for participants to embed learning in their own context and increases the likelihood of sustained improvement (Cordingley et al., 2015). The program will also provide explicit time and support for participants to reflect on learning and apply it in the production of a series of evidence sets. This reduces the administrative workload outside of scheduled sessions intends to improve retention and participation rates (Archibald et al., 2011).

#### Revised Design Principle 5: effective professional development should provide opportunities for participants to enhance skills/knowledge

The specific skills required to gain HALT certification will be explicitly taught to participants over the first five sessions of the program. The latter part of each session provides time and support for participants to discuss and practice these skills in a collaborative setting with colleagues and researchers. Additionally, participants will be required to use these skills to produce, collect and submit evidence of the impact of these skills in their own contexts.

#### Revised Design Principle 6: effective professional development should challenge participants and encourage reflective practice

Participants will be guided through the process of reflection in Session 3 of the professional development program. The skill is heavily referenced throughout the certification process (NESA, 2022a, 2022b) and is a key component of effective professional development (Osterman & Kottkamp, 2004).

The professional development program supports participants through the voluntary process of gaining HALT accreditation. As such, there is an assumption that participants have signed up to learn the skills and knowledge required to achieve this. Each session will challenge participants to develop these skills through explicit teaching and guided practice. The skills will then be applied independently in the production of participant evidence sets.

#### Revised Design Principle 7: effective professional development should determine its impact through rigorous evaluation *of* and *by* participants

The professional development program in this study will be evaluated in two distinct ways. Evaluation *of* participants will be achieved through participant submission of evidence sets. The extent to which evidence sets demonstrate the APST is considered to be indicative of participant skills and knowledge at the end of the

professional development program. Participants will also be asked to self-assess their learning each week on a 1-5 Likert Scale rating their knowledge of the topic before and after the session. This will provide the researchers with self-assessment data of participants' perceived change in knowledge.

At the end of each session, participants will also be asked whether the session met the proposed standards and outcomes to facilitate evaluation *by* participants. A group of participants will also be selected to participate in a focus group discussion upon completion of the professional development program. The evaluation questionnaire to be used in these focus groups is shown in Appendix K.

#### Revised Design Principle 8: effective professional development should clearly articulate its goals/learning intentions

Each session of the professional development program has a distinct topic, set of learning intentions and related set of teaching standards. These will be shared with participants at the beginning of each session by the presenter. Additionally, Session 1 allocates extra time to this and explicitly explains the HALT application process and the expected overall outcome of producing a module or series of evidence sets over the six sessions. It will also be disclosed to participants that the professional development program will be concurrently testing a set of design principles.

#### Revised Design Principle 9: effective professional development should be aligned to relevant professional standards and seek to improve student outcomes

This professional development program has been specifically designed to align with the professional standards and the wider system priorities that surround them. Each session is also aligned to specific standard descriptors which are shared with participants at the beginning of each session. This is common practice in Australian professional development and supports participants to record the learning in order to meet mandatory professional development requirements (NESA, 2018).

#### *Program Content*

The Graham et al. (2025a) stakeholder analysis and relevant policy documents informed the overall design of the professional development program and each of the six program sessions. The rationale for the content of each session is discussed below.

#### Session 1: Orientation and Accreditation processes

The primary outcome of the professional development program, for participants, is the successful completion of a HALT accreditation module. This is a long and rigorous process for teachers who aren't necessarily trained in how to produce evidence and build portfolios of work (Willis et al., 2021). One teacher-stakeholder described how an effective professional development program has the capacity to simplify an otherwise complicated process:

It gives people this sense of "Oh, so what am I going to be doing? I'm doing this. I'm going to complete a module. I'm going to submit that. I'm going to be observed. I'm going to have an interview here". So that kind of pathway, I think is very helpful.

Whilst the details of the process can be found in policy documents, most stakeholders agreed that an effective professional development program would need to promote a shared understanding of this process amongst participants and ensure a baseline level of participant knowledge to facilitate more informed collaborative discussion. One former teacher noted “it’s got to explain to them a bit about the process of accreditation so that they are aware of what the requirements are”.

Another feature of HALT certification is that it comprises of two levels. Four stakeholders referenced the importance of understanding the APST at both Highly Accomplished and Lead and then making a self-assessment of the more appropriate level to apply for. One system leader suggested that this be explicitly embedded in the content of the program, stating “I think there needs to be a balance between this real clear recognition of what the different career stages are about”.

There were a minority of stakeholders who did not see the value of embedding the accreditation process in session content, arguing that it is merely restating what is already publicly available and readily accessible. One teacher noted “if you are at that level, you are reading the documentation of what is needed and what the process is. So, what would be value adding is maybe a walkthrough or to model it”. Both viewpoints were considered, and it was determined that 30 minutes would be sufficient to “walk participants through the process” and deliver the required knowledge for them to engage in the subsequent sessions and evaluation. Session 1 was also designed to align with Highly Accomplished and Lead standards 6.1 and 7.2 (AITSL, 2011).

## Session 2: Data and Evidence

Great teachers have an impact. It can be easily felt and heard through conversations with colleagues, students and parents. However, measuring this impact and demonstrating it in a portfolio of evidence is far more challenging (Gore et al., 2023). Portfolios of evidence, while valid, are also a time consuming way of demonstrating and assessing competency (Shepherd & Hannafin, 2013). Multiple stakeholders spoke about the importance of teaching participants how to collect and analyse data, and how to use that data to produce a coherent portfolio of their work. These are skills that have not traditionally been taught to teachers through initial teacher education courses and are a noted barrier for teachers in achieving HALT accreditation (Kertesz & Brett, 2020). One current HALT applicant questioned “how do people keep track of all this information? How do they annotate? What does an annotation require? For me it was more just [needing to understand] that practical part of it”.

Some stakeholders suggested that applicants should be provided with example portfolios to demonstrate what evidence looks like, but others pointed out that this could lead to formulaic and inauthentic evidence sets. One current HALT expressed that “I think we’ve got to get the balance right where we might be showing examples of what it could look like but actually provide support for people to see what this could look like in their context”. Incorporating data and evidence analysis into the content of the program will support participants to apply these skills to their own context and evidence. This, in conjunction with the content of Session 1, endeavours to reduce the need for the provision of example portfolios and supports participants to apply this knowledge to their own context to achieve outcomes

beyond simply generating evidence for the purpose of certification. The session was also designed to align with Highly Accomplished and Lead standards 5.4 and 6.3 (AITSL, 2011).

### Session 3: Reflective Practice

Nine of the 16 stakeholders interviewed discussed the importance of reflective practice in the process of gaining accreditation and in the process of making positive change in schools. This sentiment is also reflected in wider literature (Cappelletti & Sajon, 2022). One system leader specifically noted that the process of reflective practice needs to build on that of data analysis, calling for the program to “explicitly teach reflective practice and how to evidence”.

The content of this session aligns with Revised Design Principles 4 and 6. It frames reflective practice as a process of using known theories or experiences to solve the new and unique problems that professionals encounter (Schon, 2016). It aims to support participants to understand their role in school change and improvement and promotes planning for future effective teaching and leadership practices. One academic stakeholder commented that “I think that individuals need to go back to their school and look at what they're doing and do a big self-reflection process”. This session also aligns with Highly Accomplished and Lead standards 6.3 and 6.4 (AITSL, 2011).

### Session 4: Leading Learning

Instructional leadership practices are expressed, in the APST, as a key component of the role of HALTs. Lead Teachers “initiate and lead activities that focus on improving educational opportunities for all students” (AITSL, 2017b, p. 5). This was also acknowledged by stakeholders, with several calling for the professional development program to go beyond supporting participants to collect and annotate evidence, and empower them to become the leaders that the APST describes. One academic stakeholder stated, of an effective professional development program, that “most importantly, it's got to give them the leadership skills that they need to support other teachers”.

Whilst instructional leadership is not a complete model for effective school leadership and change, it promotes organisational growth through improved planning, delivery and evaluation (Hallinger, 2005). Research around instructional leadership has traditionally centred around principals and those in formal leadership, however, discourse and literature are becoming increasingly focussed on teacher-driven instructional leadership (Neumerski, 2013). This session will deliver an overview of elements of the instructional leadership model and provides opportunity for collaboration and discussion about how participants can use this model to improve educational opportunities in their own context, exhibiting several standard descriptors in the process. One system leader stated that “for a program to be effective, the number one indicator is just an improvement in learning in the school”. The session was also designed to align with Highly Accomplished and Lead standards 6.3 and 6.4 (AITSL, 2011).

## Session 5: Coaching Mindset

Another key role of HALTs is that of coaching and mentoring colleagues. The APST states that “they are skilled in mentoring teachers and pre-service teachers, using activities that develop knowledge, practice and professional engagement in others” (AITSL, 2017b, p. 5). When asked what they would like to see in a professional development program designed to support aspiring HALTs, several participants noted that building the capacity of those around them is critical for both the process of accreditation and broader school and system improvement. One academic stakeholder explicitly called for the program to target “coaching, mentoring, all of those kinds of skills that you would want to give teachers to support other teachers”.

Mentoring can be defined as “a one-to-one relationship between an experienced and less experienced person for the purpose of learning or developing specific competencies” (Tonna et al., 2017, p. 211). Conversely, coaches tend to follow a defined process and “respond to observed teacher needs, prompt teachers to critically consider elements of their practice, and, in some cases, provide more directive feedback to leverage improvement” (Cohen et al., 2020, p. 212). Whilst the two concepts are distinct, stakeholders in this study tended to use the terms either grouped together or interchangeably.

One current HALT called for a more consistent approach to developing teacher-mentors, stating that “I know that many of the researchers in this area, have advocated for a mentoring curriculum, and we could expand that to a HALT curriculum”. This is consistent with research in this field (Athanasides et al., 2008) and such a curriculum is an opportunity for further research. The session was also designed to align with Highly Accomplished and Lead standards 6.3 and 6.4 (AITSL, 2011).

## Session 6: Presentations and Evaluation

The final session will provide participants with the opportunity to present the evidence sets developed over the course of the program to colleagues and presenters for evaluation and feedback. Stakeholders generally wanted more opportunities for HALT applicants to collaborate with other applicants “for feedback and then they are able to share that feedback with their colleagues”. A teacher-stakeholder noted, of the certification process, that “benchmarks for what is good enough are not readily available”. Several stakeholders suggested that embedding this process into the professional development program would allow participants to reflect on their portfolios against colleagues at similar career stages to potentially make a more accurate determination of their practice against the APST. The session was also designed to align with Highly Accomplished and Lead standards 6.4 and 7.4 (AITSL, 2011).

### *Program Evaluation*

Evaluation is an important element of effective professional development (Borg, 2018). It can be used as a tool to measure impact and to initiate improvement during planning, and both formative and summative appraisals (Merchie et al., 2018). As such, selecting what to measure and how to measure it is a highly contextual decision that is difficult to standardise and is best made on an individual basis (Desimone, 2009). In line with Revised Design Principle 7, evaluation of the

professional development program in this study will be conducted *of* participants and *by* participants.

The selection of evaluation methodologies, in this study, was guided by the Five Levels of Professional Development Evaluation model (Guskey, 2000). The model articulates five critical levels of information that are increasingly complex to measure. The levels are: participant reactions, participant learning, organisation support and change, participants' use of new skills and knowledge, and student learning outcomes (Guskey, 2000).

Evaluation *by* participants is achieved in two ways. Fidelity checks will be conducted at the end of each session as a formative evaluation tool. These checks aim to provide the presenters with data on participant reactions and participant learning to inform decisions around adapting the content and deliver of future sessions to meet participant need (Guskey, 2002a). Appendix I shows the questions asked in these fidelity checks.

Additionally, focus groups will be held after the completion of the professional development program to determine the view of participants across all five levels of data. Focus groups have the capacity to generate deep data as a result of spontaneous and dynamic interplay between participants (Mardis & Hoffman, 2007). This same interplay can be a limitation of focus groups and care should be taken not to attribute the views of the group to each individual within that group (Kitzinger, 2006). Appendix K shows the focus group questions that will be asked at the completion of the professional development program.

Evaluation *of* participants will be achieved through participant submission of one or more evidence sets. Submissions are to be assessed against the criteria shown in Appendix J. These criteria reflect the 37 standard descriptors of the APST at Highly Accomplished and Lead levels. This process will allow the researchers to evaluate the professional development program at three most complex levels of the Guskey (2000) model through a portfolio-style articulation of participant impact in their own context. Evaluating professional development at these three levels is inherently problematic when the link between professional development and student outcomes is, at best, indirect (King, 2014) but the submission of authentic evidence and annotations, provides a more rigorous, if still imperfect, method of evaluation (Attinello et al., 2006).

## Conclusion

The stakeholder views and policies examined in this study reaffirm the view that there is significant alignment between the role of HALTs and that of middle leaders in Australian schools. This alignment may give the findings of this research broader applicability and support future research into effective professional development for current and aspiring middle leaders. It also presents a potential problem for governments and education systems to consider. Despite more than a decade of presenting HALT certification as a career option that allows teachers to remain in the classroom, the majority of stakeholders in this study, many of whom have significant interest in the process, continue to see it as a less attractive option than other middle leadership pathways.

Formal middle leadership roles for HALTs, that reflect the title and remuneration of other middle leaders, would likely provide additional incentive for some teachers to undertake the certification process. For many teachers, instructional leadership practices such as coaching and mentoring without the added burden of formal line-management responsibilities was one of the more appealing incentives of HALT certification. Governments and education systems may wish to consider this in the design and development of future policy in this area.

The professional development program presented in this paper reflects the implementation of the Graham et al. (2025a) revised design principles for effective professional development synthesised with the views of key stakeholders in the HALT certification process. The professional development program will be implemented and tested in a future phase of the broader Graham et al. (2023) study. It will also remain as an artefact that could be utilised by professional developers to assist in achieving current government targets around Highly Accomplished and Lead Teachers in Australia. The findings of this study also suggest that it could be adapted to support middle and emerging leaders, or to support other mechanisms to recognise and celebrate high-performing teachers.

# Chapter 6

## Revised Stakeholder Analysis (Graham et al., 2025b)

The following chapter has been submitted for publication as: Graham et al. (2025b). Formatting and referencing styles have been adjusted to align with the style of this thesis.

### Abstract

Professional development can be used to as a tool to foster teacher agency and praxeological teacher growth. However, rising administrative burdens and global teacher shortages makes professional development increasingly inaccessible for many teachers. This paper presents the findings of a stakeholder analysis that contextualises a set of design principles for effective professional development that targets teachers undertaking Highly Accomplished or Lead Teacher certification under the Australian Professional Standards for Teachers. In doing this, it also examines factors that affect teacher engagement with the certification process. Semi-structured interviews were conducted with a total of 30 teacher-stakeholders to collect data. A thematic analysis was then undertaken to answer the research questions.

The analysis identified six factors that affect teacher engagement with higher certification and seven final design principles to guide future professional development programs. The findings could be adopted by decision makers to strengthen professional development and higher teacher certification policies, and to support formal recognition and celebration of high-achieving teachers.

### Keywords

Professional development, professional learning, stakeholder analysis, design-based research, teacher certification.

### Introduction

#### *Effective Professional Development*

Balancing professional growth with competing occupational priorities and time constraints is a ubiquitous challenge for working professionals. For today's teachers and school leaders, this challenge is exacerbated further by rising administration burdens (Heffernan et al., 2019) and prolonged teacher shortages (Dao et al., 2024). This paper explores the factors that affect teacher engagement with professional development activities and presents a set of design principles for effective professional development that could be used to support professional growth within and beyond the teaching profession.

Professional development, sometimes referred to as “professional learning” or “continuing professional development” (Netolicky, 2016) is conceptualised in this paper as “any experience of workplace learning that is deliberate or can be measured” (Graham et al., 2024, p. 1260). Professional development of this nature can be described as “traditional professional development” (Barrett & Pas, 2020).

Traditional professional development includes activities such as workshops, seminars and conferences. It generally occurs outside of the participant's normal workplace, is deliberate, and can be influenced by its design and evaluation (Patton et al., 2013).

Conversely, *innovative* professional development refers to “interventions in which teachers do play an active role” (Van Veen et al., 2012, p. 3). It has been suggested that innovative professional development can be more effective than traditional professional development (Van Veen et al., 2012). However, comparisons and generalisations of this nature can be problematic as the context, form and goals of professional development often vary from study to study (Evans, 2019). This paper asserts that traditional professional development activities, when developed using appropriate design principles, can be effective in achieving desired participant learning.

Research around effective professional development is ever-evolving and its definition and impact are heavily contested in literature (Wasserman & Migdal, 2019). It is generally agreed, however, that effective professional development can positively affect teacher practice (Barrera-Pedemonte, 2016; Creemers et al., 2013) and, at least indirectly, student outcomes (Darling-Hammond et al., 2009; Sancar et al., 2021).

Effective professional development has a number of distinguishable features. Borko et al. (2010) states that “quality professional development engages teachers in inquiry about the concrete tasks of teaching, assessment, observation, and reflection, and provides them with the opportunity to make connections between their learning and their classroom instruction” (p. 549). This frames professional development as a mechanism that assists teachers in autonomously solving problems (Hall, 2009) and is consistent with other studies undertaken in the field (Lo, 2021; Sims & Fletcher-Wood, 2021).

Professional development can be a tool used to drive improvement in relation to policies, standards, or predetermined measures of teacher quality (Creemers et al., 2013). It can also be used to drive praxeological growth and promote teacher agency (Mahon et al., 2019). Often, these outcomes can be achieved simultaneously (Hardy & Melville, 2019) but as neoliberalist policy continues to permeate into traditional classrooms, the goals of the system and the goals of its individual teachers can also be markedly different. As such, it is useful to consider the underlying purpose of professional development in its design, delivery and evaluation (Wilkinson, 2018).

Governments and education systems continue to invest significant resources into teacher quality and professional development initiatives (Ingersoll, 2007; Popova et al., 2022). However, student outcomes, as measured by Programme for International Student Assessment (PISA) testing, have steadily declined over the last decade in many Organization for Economic Co-operation and Development (OECD) countries (OECD, 2023b). This paper presents a set of design principles for effective professional development that is unique in its synthesis of research findings and teacher perspectives to support policy makers and professional developers in meeting both system and individual teacher professional development needs.

### *Teacher Participation in Professional Development*

Participation in professional development is mandated in all teaching jurisdictions in Australia (NESA, 2024c; Queensland College of Teachers, n.d.; Teacher Quality Institute, 2024; Teacher Registration Board of Western Australia, 2023; Teachers Registration Board of South Australia, n.d.; Teachers Registration Board Tasmania, n.d.; Victorian Institute of Teaching, n.d.). This requires all teachers to undertake and record, on average, 20 hours of professional development activities per year. Mandatory professional development ensures that all teachers have regular access to some form of workplace learning. Teaching And Learning International Survey (TALIS) data shows that Australia was one of only six OECD countries in which more than 99% of teachers engaged in professional development in 2018 (OECD, 2019).

Although a large number of teachers in Australia report having access to at least one form of professional development each year, overall participation has historically been relatively low. In 2008, more than 50% of Australian teachers reported wanting more professional development than they were receiving at the time (OECD, 2009). Equity of access to professional development in schools can also be questioned with principals reporting far greater access to professional development than classroom teachers (OECD, 2019). In some countries, this access is also associated with factors such as gender and completion of initial teacher training (Barrera-Pedemonte, 2016) but more research is required to determine if this is the case in Australia.

A major contributing factor in successfully implementing professional development is the ability to allocate sufficient time to the process (Darling-Hammond et al., 2017). Finding this time, however, can be a challenge for schools and for individual teachers (McChesney & Aldridge, 2021; Sparks, 2002). TALIS data shows that the most prominent barriers to participation in teacher professional development, both in Australia and around the world, are conflicts with teachers' work schedules and a lack of allocated time (Thomson & Hilliman, 2019).

Providing teachers with relief from face-to-face teaching to participate in professional development is becoming an increasingly difficult endeavour due to decades of accountability-driven education policy reforms and an increase in administrative requirements for teachers in many of the world's education systems (Gavin et al., 2022). Additionally, the supply of new teachers into the profession continues to fall short of the demands caused by increasing student numbers and high levels of teacher attrition in many OECD countries (Allen et al., 2019; Wiggan et al., 2021). This has led to a teacher shortage, both globally (Sullivan et al., 2019) and in Australia (Eacott, 2024).

There are also a range of other factors that can influence the likelihood of teacher participation in professional development. Effective professional development can lead to better job performance and in turn, greater remuneration and monetary incentives for participants. This can be an effective motivator, particularly for early career teachers (Richter et al., 2011). Directly linking financial incentives to participation in professional development, however, has been shown to reduce the intrinsic motivation of teachers (Kohn, 1998) and can adversely impact participation rates due to perceptions of managerialism, reduced professional agency, and

insufficient perceived value for the disruption caused to teachers' everyday work (Jacobsen et al., 2014).

Whilst resistance to poorly designed or overtly managerialist professional development could be expected, it is worth noting that it is still common for effective professional development to face resistance (Musanti & Pence, 2010). This resistance is often a result of challenging assumptions and preconceptions (Sannino, 2010). As such, teacher resistance to professional development can also be viewed as an expression of professional agency (Jacobs et al., 2018).

Most teachers engage in professional development "because they want to become better teachers" (Guskey, 2002b, p. 382). It is particularly attractive to educators if it allows them to develop a praxeological skillset or knowledge that can help them navigate situations that they face in their daily work (Scribner, 1999). Many teachers also have high levels of public service motivation (Sarnacchiaro et al., 2019). Those with high levels of public service motivation are driven by doing good for others and for society (Andersen et al., 2014). Perry and Wise (1990) found that people with high levels of public service motivation are more likely to make extra efforts to improve their performance, and as such, are more likely to engage in professional development.

Effective teacher professional development plays an important role in the service that education systems provide, and in turn, the outcomes that students achieve (Darling-Hammond, 2000; Yoon et al., 2007). This paper explores factors that affect engagement with teacher professional development through the lens of HALT certification in NSW, Australia. It then presents a set of design principles for effective professional development that have been contextualised to promote engagement with the HALT certification process. These design principles can be used by professional developers and policy makers to design and deliver effective professional development in comparable fields.

### *Context*

Professional certification under the APST is compulsory for all practising teachers in Australia. The APST are "a public statement of what constitutes teacher quality. They define the work of teachers and make explicit the elements of high-quality, effective teaching in 21<sup>st</sup> century schools that will improve educational outcomes for students" (AITSL, 2011, p. 3). Teachers must prove that they demonstrate these standards at various points throughout their careers through portfolios, maintenance declarations and performance and development processes. Additionally, they are expected to engage in professional development that aligns with these standards in order to remain certified. As a result, the professional development landscape in Australia is strongly linked to professional certification.

Certification is managed by regulatory bodies at a state level and is referenced using different terminology in different jurisdictions. The term appears in some policy documents as "registration" and is also referred to as "accreditation" in NSW, where this study was conducted. For the purposes of this paper, these terms can be read interchangeably. "Certification" is the preferred nomenclature due to its dominance in national policy, however, quotations within this paper have not been modified and, as such, use varying terminology.

Despite differing terminologies, all states follow a similar certification pathway. Upon successful completion of an approved initial teacher education (ITE) program, teachers begin their career at the Graduate level of certification. All teachers must then progress to and maintain certification at the Proficient level throughout their careers. This is where the journey ends for more than 99% of Australian teachers (AITSL, 2023b; Australian Bureau of Statistics, 2023) but under the APST, there are two more levels of voluntary certification; Highly Accomplished and Lead. In most Australian education systems, teachers can undertake a voluntary process involving a portfolio of evidence, annotations and classroom observations to be accredited as a HALT. There are some states and systems yet to fully adopt this process and some also offer alternative pathways to recognition for high performing teachers.

As of 2023, there were 1410 certified HALTs in Australia, representing 0.45% of the country's 311 655 full-time teachers. Of the 1410 HALTs certified since 2012, it is unknown how many remain in classrooms. In 2022, the National Teacher Workforce Action Plan was released by the Australian Government in consultation with state counterparts. The plan sets a target of 10 000 teachers certified as HALT or equivalent by 2025 (Australian Government Department of Education, 2022). With just over 100 teachers certified each year in the first 12 years of implementation, it would take another 88 years, at the current rate, to reach the 2025 target.

Recognising high performing teachers can have a positive impact on education systems. Professional certification also has the capacity to raise the status of the teaching profession (Aspland, 2006). Additionally, where certification is not mandatory, accredited teachers have been shown to be far less likely to leave the profession than their non-accredited counterparts (Darling-Hammond & Sykes, 2003). It is worth noting, however, that professional standards are not a substitute for professional development, nor are they a perfect way to measure the incredibly complex work that teachers undertake each day (Day, 2019). Whilst there is little evidence to suggest that the existence of the APST has a direct impact on student outcomes (Taylor, 2021), they remain a nationally recognised, if imperfect, way of describing and celebrating the work that teachers do.

## Methodology

This study was conducted as part of a broader, Design-Based Research project that answers the research question: "What are the design principles for an effective professional development program targeting professional accreditation?" (Graham et al., 2023, p. 1385). Design-Based Research, sometimes referred to as "design research" or "developmental research" (Anderson & Shattuck, 2012, p. 16) is a solutions-based methodology that attempts to achieve the goals of both basic and applied research. It aims to produce outcomes in experimental classrooms that can be implemented in average classrooms (Brown, 1992).

The design principles presented in this paper have been iteratively developed, refined and contextualised over the course of the wider study to be applicable, not only to professional development targeting HALT certification, but to professional development within and beyond the teaching profession. Initially, a systematic literature review was conducted in Graham et al. (2024) to create a set of initial

design principles for effective professional development. A stakeholder analysis was then undertaken in Graham et al. (2025a) to refine these design principles for the context of New South Wales teachers. Finally, the refined design principles, shown in Table 11, were used to create a professional development program that would support teachers through the process of gaining HALT certification under the APST and be evaluated to create a set of final design principles, specific to that context.

Table 11: Revised Design Principles for Effective Professional Development (Graham et al., 2025a)

<b>Revised Design Principle (DP)</b>	<b>Principle (effective professional development should...)</b>
DP 1	be collaborative and promote active participation of participants
DP 2	be tailored to the needs/context of participants
DP 3	be evidence-based and align with current school/system priorities
DP 4	be sustained and provide teachers with adequate time/resources for change
DP 5	provide opportunities for participants to enhance skills/knowledge
DP 6	challenge participants and encourage reflective practice
DP 7	determine its impact through rigorous evaluation <i>of</i> and <i>by</i> participants
DP 8	clearly articulate its goals/learning intentions
DP 9	be aligned to relevant professional standards and seek to improve student outcomes

It was at this point that another question was raised. Even with a professional development program that was created using evidence-based design principles and informed by the needs and views of participants, teachers were still reluctant to participate in the program. Graham et al. (2025c) presents the professional development program designed using the revised design principles. However, after numerous attempts to recruit participants, the researchers were unable to find an available cohort large enough to engage in the collaborative elements of the program.

Design-Based Research is an iterative process that incorporates cycles of design, implementation and evaluation (Edelson, 2006). With this in mind, it was decided that an additional stakeholder analysis would be conducted to answer the original research question in addition to the new question raised. The research questions answered in this paper are:

1. What factors affect teacher engagement with Highly Accomplished or Lead Teacher certification under the Australian Professional Standards for Teachers?
2. What are the design principles for an effective professional development program targeting Highly Accomplished and Lead applicants under the Australian Professional Standards for or Teachers?

### *Data Collection*

To answer the two research questions posed, semi-structured interviews were conducted with a range of stakeholders in the process of gaining HALT certification in NSW, Australia. Semi-structured interviews were selected as they “are well suited for the exploration of the perceptions and opinions of respondents regarding complex and sometimes sensitive issues” (Barriball & While, 1994, p. 328). They also allow researchers to ask follow-up questions based on participant responses and non-verbal cues (Kallio et al., 2016). This was important as the wide range of roles and experiences held by stakeholders meant that a single, rigid set of questions would be unlikely to serve as an effective data collection tool.

Interviews were conducted using Zoom videoconferencing (Zoom Video Communications Inc, n.d.) and lasted for between 10 and 30 minutes each. They were then transcribed by the research team. The use of videoconferencing allowed the researchers to collect data from a wider range of stakeholders, including those from interstate and national bodies, without losing the ability to record and analyse non-verbal cues and facial expressions, if needed. The questions were developed from the findings of the (Graham et al., 2024) systematic literature review. Appendix L shows the initial questions that were used to guide the semi-structured interviews.

### *Participants*

A total of 30 participants were interviewed over the course of the study. Participants were recruited and selected from networks within the three education sectors in NSW (Association of Independent Schools of NSW, n.d.; Catholic Schools NSW, n.d.; NSW Department of Education, n.d.-b). Stakeholders were categorised in the same groups as published in Graham et al. (2025a), however, a larger sample size (n=30) was interviewed to account for the additional research questions posed in this paper. The participant groupings and number of participants interviewed from each group is as follows:

- Representatives of academia with relevant research around the APST (4).
- Representatives from AITSL (1).
- Representatives of teacher accreditation authority (NSW Education Standards Authority) (2).
- Representatives of teacher employers:
  - NSW Department of Education (4);
  - Catholic Schools NSW (1); and
  - The Association of Independent Schools NSW (2).
- Representatives of the profession ie. teachers who have:
  - been accredited as either a Highly Accomplished or Lead Teacher (6);
  - started but not yet finished the higher accreditation process (4); and
  - been identified as suitable but have chosen not to start the higher accreditation process (6).

### *Data Analysis*

After all interviews were conducted and transcribed, a thematic analysis was undertaken to interpret the data collected. Thematic analysis was selected as the method of analysis due its flexibility and applicability to a wide range of qualitative data (Braun & Clarke, 2006). The process involves coding and theming data to

create “patterns of shared meaning underpinned or united by a core concept” (Braun & Clarke, 2019, p. 593). The interview transcripts were coded and themed to answer each of the research questions (Boyatzis, 1998). In the case of both questions, the approach taken to coding was largely a semantic one as the researchers were able to ask clarifying and follow-up questions when meaning or intent was unclear during the semi-structured interviews.

To answer Research Question 1, an inductive coding and theming process was used to generate a set of themes that reflects factors affecting teacher engagement with HALT certification. Efforts were made throughout this process to ensure that data was coded in context so that meaning could be retained (Bryman, 2016). Whilst coding and theming cannot be undertaken in an epistemological vacuum, the researchers analysed the data and looked for logical themes, demarcated by how the factor affects teachers and how it could be overcome.

A process of deductive and then inductive, coding was used to answer Research Question 2. Whilst no approach is ever wholly inductive or deductive (Byrne, 2022), data was examined in relation to each of the revised design principles to either support, change or remove them. Data was then coded inductively to produce any themes that could be included as additional design principles or other considerations. These themes were considered alongside those that were already generated in answering Research Question 1 and are unpacked in the next section.

## Results and Discussion

The results, in relation to the two research questions posed, are reported on in this section.

### *Research Question 1: What factors affect teacher engagement with Highly Accomplished or Lead Teacher certification under the Australian Professional Standards for Teachers?*

Six key themes were identified in the thematic analysis as factors that affect teacher engagement with HALT certification. These themes are discussed below. Some minor themes that contribute to overall understanding were also identified and are discussed at the end of this section.

#### *Additional time and workload*

A total of 14 participants interviewed spoke about “time” being a major factor in engaging with HALT certification. There were two aspects to this factor. Participants pointed out that teachers are already “time poor” with one participant noting “if you have a completely full-time load in the classroom, it makes it very difficult to fit that in and maintain your balance and your sanity”. This is consistent with wider literature on teacher engagement with professional development (Darling-Hammond et al., 2017; McChesney & Aldridge, 2021).

The other aspect spoken about was the amount of time that the certification process takes. Several participants acknowledged the assertions made by accreditation authorities that certification processes should align with other processes that

teachers already undertake (AITSL, 2017b), however, the additional workload that the certification process places on applicants is unavoidable. One participant noted:

I know it's things that we normally do. I know. I get that. But look, it's hard to be able to fit in time during the school term anyway to get evidence sets together, work with referees, upskill them- what they need to do. There is a lot of work behind the scenes.

Several participants suggested that additional time be given to applicants in the form of release from face-to-face teaching to allow them to navigate the process which aligns with literature in the field (McCray, 2018). However, many also conceded that this would be difficult to implement equitably, if at all, in the face of widespread teacher shortages. This sentiment is also reflected in Australian (Eacott, 2024) and global (Sullivan et al., 2019) discourse.

### The process is too difficult/onerous

In addition to the considerable amount of time that the HALT certification process takes, participants emphasised that the process is also a difficult one. One participant reflected that “it was far less effort for me to get Principalship or a Deputy Principalship than it would have been for me to become a Highly Accomplished or Lead Teacher”. The same participant also pointed out the significantly higher remuneration attached to the formal leadership positions.

Several participants noted that most teachers are not appropriately trained to undertake this process. With the first round of HALTs not being accredited until 2012, the vast majority of teachers currently practising in Australian schools completed their initial teacher education long before the HALT certification process was implemented. For those teachers who entered the profession within the last two decades, it is likely that they will have some experience with the portfolio-style process through the completion of the two levels of mandatory certification under the APST but for our country's most experienced teachers, this is likely the first time that they have been required to collect their work and justify its value (Willis et al., 2021). One participant noted “I think one of the worst things we ever did was grandfather everyone 2004 and before [in New South Wales] into the accreditation space and then, in some ways, enable learned helplessness around accreditation”. It was noted by participants that professional development for current teachers could address this problem. Additionally, teacher educators can ensure that the processes of reflective practice and articulating impact are taught to pre-service teachers in initial teacher education courses (Bradbury et al., 2020).

One participant also questioned “why are we asking people to put evidence in for every descriptor when, say, 40% of them don't discriminate? Everybody gets it right”. It is worth noting that in the time since the interviews took place, NSW teacher regulators have taken steps to simplify the application process and reduced the required number of standard descriptors from 37 to 20 (NESA, n.d.-a).

### Monetary costs associated with the process

The financial cost associated with the certification process was raised by seven participants. The cost for potential HALTs is an application fee, which does not

guarantee success. This cost varies between states but in NSW, where most participants in this study resided, the application fee is currently \$605 for Highly Accomplished Teacher and \$715 for Lead Teacher (NESA, n.d.-b). One participant noted “if I go through this process and don’t succeed, what a waste of six or seven hundred bucks”. This sentiment was reflected in the responses of several other participants.

It is worth noting that only one participant currently in a current teaching role spoke about cost as a factor. The other six participants who referenced it were all either in leadership or academic roles. This is consistent with other studies finding that money is not actually the primary consideration for teachers when making career decisions (Perryman & Calvert, 2020). One participant stated that “the incentive [to apply for HALT certification] was not so much financial but having an opportunity to reflect on your work”. Since participants were interviewed, the NSW Department of Education has also introduced a program to reimburse new HALTs for their application fees upon successful completion of accreditation (NSW Department of Education, n.d.-a). The impact of this initiative on engagement with the certification process may be of significance to future researchers in this field.

### Perceptions from colleagues

A key way that knowledge moves through a profession is through collegial discourse (Lefstein et al., 2020). This knowledge can also be an expression of teacher agency and may not always align with system priorities (Biesta et al., 2017). Several participants in this study either spoke negatively about the certification process themselves or spoke of times where colleagues had discussed the process negatively in conversation with them. One participant said “there’s a lot of myths and misconceptions about the process and the type of people who do it. The different sectors, NESA etc. haven’t really been clear on intent from the beginning, so they [teachers] have seen mixed messages”. Another participant insisted that “people don’t understand what the process is, and they only hear the churn of ‘this is too hard’” which reflected a general sentiment that discussions with colleagues served as a barrier to either gaining helpful information about the process or being encouraged to commence the process at all.

Several participants spoke of their perceptions of how colleagues viewed those who undertook the process. One participant stated that “there was this real perception that there was no point. Those who were doing it were basically just great at paperwork and weren’t really good in the classroom”. Another participant felt that there was a general perception in the profession that “people who went through the whole process were very self-promoting and were really in it for themselves rather than any sort of recognition of the expertise that they were having on their colleagues”. Other phrases such as “bullying” and “tall-poppy syndrome” were also used to describe colleagues’ attitudes towards HALTs. This is consistent with literature surrounding those in formal leadership positions and presents as a significant barrier for the HALT certification process (Msila, 2020).

It could be hypothesised that this theme is an articulation of stakeholder discontent with the HALT certification process, and by extension, those who undertake it. It could also be a reflection of a culture within schools that is quick to celebrate the achievements of others, yet largely unwilling to accept praise or acknowledge their

own (White, 2011). Future researchers may wish to further explore this phenomenon and examine other ways in which the profession can best celebrate the work of effective teachers.

### Lack of roles/remuneration upon completion

Advocates for the HALT certification process and many of the participants in this study described the process as “the best professional development that a teacher can undertake” but beyond this, the benefits of completing the process are unclear. Some teacher employers in Australia offer higher rates of remuneration for HALTs but no evidence could be found of any system where this increase matches or exceeds the pay of those in formal leadership positions (NSW Department of Education, 2017c). One participant questioned “if there’s no pay bump, why do it? If there is a pay bump, is it enough to make you want to do it?”. The responses from stakeholders in this study indicate that the answer is “no”. Another participant stated “I was an AP and went ‘it’s a lot of work. What do I get out of it?’. Well, the answer is ‘nothing’”.

Several participants spoke about HALT certification increasing employability when applying for formal promotions. Some who were successful in the process, also noted that the increased responsibility in their current position was incentive enough. Participants generally noted, however, that governments and teacher employers have not created job positions or career pathways for HALTs and because of this, they felt that the credential is not valued. This sentiment is summed up by one participant, saying:

we want teachers to have a system that says “you are valuable”. Then people will rise to that challenge. But if you say “look, HALT’s not for us. We don’t really value it. We’re not part of it” then no one is going to do it.

Whilst this barrier will not be overcome through even the most effective professional development, it highlights an important question for policy makers, echoed by other researchers (Cole, 2021); even if the profession does reach this ambitious target of one HALT in every school, what next?

### Support from principals/managers

At the time of interviewing participants, the NSW HALT application process required applicants to submit a record of a completed teaching observation by the applicant’s principal or service director. The aforementioned recent changes to the NSW certification process have removed this requirement (NESA, 2024a), however, an externally appointed assessor is still required to conduct a structured interview with the applicant’s principal or service director during the process (NESA, n.d.-a). Participants noted that successfully navigating this part of the process can be heavily contingent on the relationship between the applicant and their principal. One participant stated “teachers in a school where they don’t have good support structures or don’t have support from the senior executive or principal can’t actually do this”.

Teacher agency within a school is also often dependant on their relationship with the school’s management. Many of the standard descriptors describe roles and actions

that are beyond the role of a classroom teacher and the process assumes that teachers are “allowed” to perform that role. One participant expressed that “I’m a classroom teacher. I don’t have the opportunity to do that unless the executives say that I can do that”. Another participant spoke of when they were forced to resign from a previous position due to their principal not supporting them in the process. This teacher was then successful in attaining HALT certification at their next school. Principals play an important “gatekeeper” role in the HALT certification process (NESA, 2022c) but can also serve as yet another barrier for potential applicants. Additionally, these requirements can be burdensome on principals. Participants expressed that “principals of very large schools” and “new principals to a school” might not be able to effectively play their role in the process.

The extent to which this requirement impacts the certification process is unknown, but several participants articulated the need for additional professional development opportunities for principals and service directors. One participant expressed the importance of principal support, noting “there are some schools that have a principal who sees the value and benefits of people going through this process and having HALTs in their school [and some schools that don’t]”. Support from school leadership is also an important determining factor in the success of other forms of professional development (Hilton et al., 2015; Labone & Long, 2016).

#### Other considerations:

When asked about the inclusivity of the certification process, three participants spoke about elements of the process that appear to disadvantage certain groups of teachers. The process requires teachers to annotate evidence and demonstrate impact (AITSL, 2017b), which participants noted can be difficult for teachers where English is not their first language or for teachers who have not been trained in the nuances of persuasive writing. Another participant spoke of the additional challenges that neurodiverse teachers face throughout the process, stating “for people like me who have ADHD and find it hard to manage everything, I think it is especially difficult for them”. Effective professional development has the capacity to increase accessibility for participants (Harwell, 2003) and policy makers may wish to place greater emphasis on inclusivity when implementing future certification processes if they wish to increase stakeholder engagement.

The policy landscape around certification also varies between states and changes regularly. At the time of interviewing participants, the process, in NSW, had recently been changed to a “modular” one where teachers made submissions in three stages and received feedback after each submission (NESA, 2022a, 2022b). This change was generally well-received by participants but one spoke of their journey, stating that “I kind of did all the PL in the old accreditation and how it was done and then it changed”. Since interviewing participants, the NSW certification process has been changed again, further increasing the likelihood of misconceptions around the certification process.

The context of individual teachers was also mentioned as a potential barrier. Participants noted that for teachers in specialised roles such as librarians, special/inclusive educators and counsellors, HALT certification may be unattainable due to AITSL’s requirement of “an authentic teaching role ... in a classroom situation” (AITSL, 2017b, p. 11). This concern has also been expressed in literature (Uther &

Pickworth, 2014). Expressing and measuring the diverse and complex work of all teachers with a single tool is a near impossible feat (Ingvarson, 2005) but for those high-performing teachers who do not fit the mould of the APST and the current HALT certification process, they risk remaining uncelebrated, unremunerated and unaccredited.

*Research Question 2: What are the design principles for an effective professional development program targeting Highly Accomplished and Lead applicants under the Australian Professional Standards for Teachers?*

The themes generated in the data analysis process were applied to the Graham et al. (2025a) design principles to support, modify or remove each one. A set of final design principles, contextualised to professional development targeting HALT applicants, was then produced. Both sets of design principles are shown in Table 12.

*Table 12: Revised Design Principles (Graham et al., 2025a) and Final Design Principles*

<b>Revised Design Principle (DP) (effective professional development for NSW school teachers should...)</b>	<b>Final Design Principle (effective professional development targeting HALT applicants should...)</b>
DP 1: be collaborative and promote active participation of participants	DP 1: involve collaboration with other applicants and/or mentoring from current HALTs
DP 2: be tailored to the needs/context of participants	DP 2: explicitly teach reflective practice and how to use evidence to demonstrate impact
DP 3: be evidence-based and align with current school/system priorities	DP 3: align with school/system priorities and involve principals or service directors in learning
DP 4: be sustained and provide teachers with adequate time/resources for change	DP 4: be sustained and integrated into authentic practice
DP 5: provide opportunities for participants to enhance skills/knowledge	DP 5: unpack the APST and articulate the certification process
DP 6: challenge participants and encourage reflective practice	DP 6: build participant skills to lead and mentor others
DP 7: determine its impact through rigorous evaluation of and by participants	DP 7: acknowledge the prior knowledge of participants and frequently evaluate to meet participants at their point of need
DP 8: clearly articulate its goals/learning intentions	
DP 9: be aligned to relevant professional standards and seek to improve student outcomes	

The revised design principles were generally supported by the analysis, however, some participants expressed a desire for simplified guidance around professional development so that it can be “implemented at a deeper level”. Alterations to the

revised design principles are discussed in this section. The final design principles do not intend to replace the revised design principles but contextualise them. They could be used in conjunction with the revised design principles and the removal of certain elements within design principles only reflects that they were not specifically applicable to professional development targeting HALT applicants.

#### Final Design Principle 1: effective professional development targeting HALT applicants should involve collaboration with other applicants and/or mentoring from current HALTs

Most participants acknowledged that the people best placed to support HALT applicants through the certification process are HALTs, themselves. This is clearly the intention of the policy (AITSL, 2017b). It also aligns with Revised Design Principle 1 and Revised Design Principle 3. One participant expressed a desire to hear “insights and wisdom about how they [HALTs] got through it, how they sustain themselves through the process and what hints and tips they would give”. This is consistent with literature on the effectiveness of mentoring as professional development (Hudson, 2013). Formally embedding HALTs into the process also provides them with a platform to address the previously discussed misconceptions about the process.

Participants also noted that opportunities to collaborate with other HALT applicants could be a suitable alternative, with one stating “there's a real role for that collaboration for people going through the journey to be able to support each other”. Given the current dearth of accredited HALTs in Australian education systems, peer collaboration presents as a possible alternative to direct mentoring. In a study of beginning teachers, Eisenschmidt and Oder (2018) found that peer collaboration made participants more receptive to the effects of mentoring. As such, the researchers felt it appropriate to include the “and/or” in this design principle.

#### Final Design Principle 2: effective professional development targeting HALT applicants should explicitly teach reflective practice and how to use evidence to demonstrate impact

When asked what they would like to see in a professional development program targeting HALT applicants, two of the most common answers were “the explicit teaching of reflective practice” and “how to demonstrate impact”. Reflective practice was already a key component of Revised Design Principle 6 and is associated, in literature, with quality professional development (Osterman & Kottkamp, 2004). It is also more effective when it is based on evidence and data (Walsh & Mann, 2015). Identifying or creating this evidence, and using it to demonstrate the impact of a complex process like teaching, however, can be challenging (Gore et al., 2023). It is also not a skill that was traditionally taught to teachers in their initial training programs (Willis et al., 2021). As such, it was decided that this skill would be explicitly embedded in the final design principles.

By explicitly teaching the skills required to be successful in the HALT certification process, this theme addresses the noted barrier of the process being too difficult/onerous. Participants also suggested that these skills could, in some capacity, contribute to addressing the inclusivity considerations previously discussed. Nishimura (2014) found that reflection is a key component of inclusive professional

development and future researchers may wish to explore how these findings could be used to increase the inclusivity of teacher certification.

### Final Design Principle 3: effective professional development targeting HALT applicants should align with school/system priorities and involve principals or service directors in learning

Final Design Principle 3 incorporates a key element of Revised Design Principle 3 and concurrently addresses the barrier of support from principals/managers. One participant noted “it’s about them [principals] getting a clear understanding of embedding teaching standards, not just in the classroom, but in all the portfolio activities that happen within a school so that it’s easier for any level of accreditation”. Including formal leaders in professional development about an initiative also has the capacity to increase its likelihood of success (Whitworth & Chiu, 2015).

This design principle also aims to address the barrier of lack of roles/remuneration upon completion by exposing formal leaders to the increased skills and knowledge that applicants are said to gain throughout the certification process (AITSL, 2019), and how they contribute to school and system improvement (Abu-Tineh & Sadiq, 2017). The omission of the term “evidence-based” in Final Design Principle 3 does not diminish the importance of considering current evidence in the design of professional development. Rather, the literature and policy that underpins the final design principles embeds that evidence within them.

### Final Design Principle 4: effective professional development targeting HALT applicants should be sustained and integrated into authentic practice

This design principle reflects an overwhelming participant desire for a certification process that is embedded in the work that teachers already undertake. One participant noted that “accreditation has been, and still continues to be, something that we do rather than embedded in the work that we do”. This aligns with constructivist theories of learning, and specifically, calls for professional development that is grounded in teacher practice (Borko et al., 2010). Leveraging the work that teachers already perform in a targeted professional development program also reduces the amount of additional work that teachers will need to undertake to achieve certification.

Participants identified that professional development targeting HALT applicants cannot be a single event. One participant suggested that “individuals need to go back to their school and look at what they’re doing and do a big self-reflection process”. This aligns with Revised Design Principle 4 and relevant literature (Goodyear, 2017; Matherson et al., 2014). Another participant suggested that “you have to have deliverables between the sessions” which further embeds learning into authentic practice and promotes deeper, sustained learning (Darling-Hammond et al., 2017).

### Final Design Principle 5: effective professional development targeting HALT applicants should unpack the APST and articulate the certification process

Multiple participants called for more professional development that aligns with the APST which was captured in Revised Design Principle 9. Several also expressed a desire for these standards to be explicitly unpacked when that professional

development that targets HALT applicants. One participant suggested that a program examine the standard descriptors at each level and the *gap* between them. This gap can serve as the desired learning outcomes of the program and aligns with Revised Design Principle 8. It also provides another opportunity to address any misconceptions that applicants may have about the process.

Of the participants who expressed that the certification was too difficult/onerous, most spoke of the complexity of the APST, themselves. One participant noted that “it takes a long time to unpack those standards at the high levels because they’re so multifaceted”. This complexity has also been acknowledged by teacher regulators (NESA, 2019a). However, teaching standards are also often criticised for oversimplifying and decontextualizing the act of teaching (Mulcahy, 2011), and reducing teacher agency and capacity for decision making (Clarke & Moore, 2013). This illustrates the difficulty and importance of getting the policy right.

#### Final Design Principle 6: effective professional development targeting HALT applicants should build participant skills to lead and mentor others

When participants were asked what they would like to see in a professional development program targeting HALTs, two contrasting themes emerged. Participants in classroom teaching roles showed a clear preference for explicit, process-driven professional development. This is captured in Final Design Principle 2 and Final Design Principle 5. Those in system, academic and leadership roles, however, spoke about the importance of leadership “soft skills”. One participant from this group noted that “you’ll get some people whose main focus is on helping them become accredited, but the best thing you can do is to help them become leaders of other teachers”. This is evident in HALT policy documents where the terms “lead” and “mentor” are both frequently used to describe the actions of HALTs (AITSL, 2017b). Whilst the APST at the Highly Accomplished and Lead levels are not a perfect description of the role of middle leaders (Lipscombe et al., 2020), their role in school and system improvement is often likened to that of formal middle leaders (AITSL, 2023a). As such, the researchers deemed it appropriate for these skills to be embedded in the final design principles.

Education, like many other industries, can also fall prey to the assumption that good teachers will automatically make good leaders (Dozier, 2011). One participant noted that “if you’re presumed to be an effective teacher, then the belief is that skillset is transferable, and you’ll be a good mentor, and we know that that’s not the case”. The development of leadership and mentoring skills is associated with gaining formal promotions (Ghosh, 2013) and increased agency over teachers’ own work (Bellibaş et al., 2020). This increase in agency is also associated with praxeological teacher growth (Kemmis & Grootenboer, 2008). This design principle addresses the barrier of lack of roles/remuneration upon completion and aligns with Revised Design Principle 5.

#### Final Design Principle 7: effective professional development targeting HALT applicants should acknowledge the prior knowledge of participants and frequently evaluate to meet participants at their point of need

Of the teachers who had previously engaged in professional development around HALT certification, several expressed disappointment that the programs did not cater

to their specific needs. One participant stated “I think [the professional development] needs to be differentiated depending on where people are at in the process”. That participant then went on to share a story of a previous experience at a HALT professional development where:

we were told in advance to bring some evidence. We were going to analyse it ... we went into breakout groups and everyone in my breakout group hadn't done any initial PL about the process... and the whole time was just spent answering the questions already covered by the initial PL.

Effective professional development meets learners where they are at and then builds on their prior knowledge (Gabriel, 2010). This design principle is grounded in this notion and also aligns with Revised Design Principle 2 and Revised Design Principle 7.

## Limitations

The design principles produced in this paper can be used to produce effective professional development for teachers undertaking HALT certification under the APST. They also address a set of identified factors that affect teacher engagement with HALT certification and intend to promote greater teacher engagement with professional development. The data analysed and wider literature discussed in this paper suggests that the findings of this research could be applied to a range of other contexts within and beyond the teaching profession. Future researchers may wish to test this applicability in their own contexts. The final design principles presented in this paper were also iteratively constructed from a set of initial design principles (Graham et al., 2024) and revised design principles (Graham et al., 2025a). Future researchers and professional developers could also consider these more generalised design principles in their own contexts.

Whilst the design principles in this study aim to promote engagement with professional development and teacher certification, it is acknowledged that the participants in this study represent stakeholders in the higher certification process. As such, it is likely that these participants hold more favourable views towards professional development than the mean of the profession. The findings of this paper are presented as individual quotes and views rather than being representative of the wider profession and the researchers suggest that readers and future researchers interpret them as such.

## Conclusion

The Final Design Principles produced in this paper represent a contextualised version of the design principles developed in Graham et al. (2024) and revised in Graham et al. (2025a). These principles reflect ways in which professional development can be used to overcome some of the barriers for applicants in achieving HALT certification in Australia identified by participants in a stakeholder analysis.

These design principles could be adopted by governments, teacher employers and professional developers to strengthen policies and processes around professional

development, higher certification and other ways to recognise and celebrate high-achieving teachers. These design principles are contextualised to Highly Accomplished and Lead Teacher standards under the Australian Professional Standards for Teachers but future researchers may wish to apply these design principles in different teacher certification contexts or in the broader development of future educational leaders.

# Chapter 7

## Conclusion

This chapter provides an overview of the study and presents its findings in relation to each research question posed. It also discusses the limitations, recommendations and future implications of the research.

### Overview of Study

This thesis utilised Design-Based Research to develop an effective professional development program and a set of accompanying design principles to support researchers and practitioners in the design of future effective professional development programs. It also contributes to understanding of higher teacher certification processes and their surrounding arrangements, and how to effectively recognise and celebrate high-performing teachers.

The primary research question answered in this study was: what are the design principles for an effective professional development program targeting professional accreditation? A series of four sub-questions were also developed to assist in answering the primary research question:

1. How does current literature define effective professional development?
2. What do key stakeholders see as effective professional development?
3. What is the impact of an effective professional development program?
4. What factors affect teacher engagement with Highly Accomplished or Lead Teacher certification under the Australian Professional Standards for Teachers?

Two key outcomes were produced over the course of the study:

- a set of tested design principles, that will support the development of future effective professional development programs; and
- an artefact, in the form an effective professional development program, that will support teachers in achieving HALT certification.

The study was undertaken in four distinct phases which are reported on, in depth, in chapters 3-6. A summary of each chapter is below.

#### *Systematic Literature Review*

This chapter presented and discussed a systematic literature review that was undertaken, in line with the study's protocols, to establish a definition of effective professional development and produce the initial design principles (Graham et al., 2024). The chapter was written in line with the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) statement (Page et al., 2021).

#### *Stakeholder Analysis*

This chapter reported on a key stakeholder analysis that was undertaken, in line with the study's protocols, to evaluate and refine the initial design principles. Semi-

structured interviews were conducted with a range of stakeholders in the HALT certification process to evaluate the initial design principles and produce a set of nine revised design principles. It also discussed these revisions in relation to wider literature around effective professional development and the notions of agency and praxis (Graham et al., 2025a).

### *Intervention*

This chapter presented an intervention, in the form of a professional development program, that was created using the refined design principles discussed in Chapter 4. It drew on additional data collected through the stakeholder analysis to justify the content of the professional development program and situated the data in the broader academic understanding of middle leadership in schools. Ultimately, the requisite number of participants were unable to be recruited due to limited responses from suitably qualified participants, but the artefact and accompanying findings are presented to support the work of future researchers and professional developers (Graham et al., 2025c).

### *Additional Stakeholder Analysis*

This chapter presented the findings of an additional phase of the study. A second stakeholder analysis was undertaken to further evaluate and contextualise the revised design principles and better understand the factors that affect teachers in engaging with professional development. Semi-structured interviews were again conducted with a revised set of questions. This allowed the project to produce a set of final design principles as originally intended. These design principles are then discussed in relation to wider literature around teacher participation in professional development activities (Graham et al., 2025b).

## Findings

The findings for each phase of the study are reported on in chapters 3-6. This section summarises these findings and presents them in relation to the research question and sub-questions posed.

### *Research question: What are the design principles for an effective professional development program targeting professional accreditation?*

The answer to this question is drawn from Chapter 6 of this study. An additional stakeholder analysis was conducted to further refine and contextualise the revised design principles (Graham et al., 2025a) and produce a set of final design principles (Graham et al., 2025b). These design principles are shown in Table 13.

Table 13: Final design principles for effective professional development (Graham et al., 2025b).

<b>Final Design Principle (effective professional development targeting HALT applicants should...)</b>
DP 1: involve collaboration with other applicants and/or mentoring from current HALTs
DP 2: explicitly teach reflective practice and how to use evidence to demonstrate impact
DP 3: align with school/system priorities and involve principals or service directors in learning
DP 4: be sustained and integrated into authentic practice
DP 5: unpack the APST and articulate the accreditation process
DP 6: build participant skills to lead and mentor others
DP 7: acknowledge the prior knowledge of participants and frequently evaluate to meet participants at their point of need

The final design principles have been contextualised to professional development programs targeting HALT applicants and can be used by researchers and practitioners to support the certification of high performing teachers.

*Sub-question 1: how does current literature define effective professional development?*

This question is answered in Chapter 3 of this thesis. A systematic review of literature was undertaken to produce the initial design principles (Graham et al., 2024). These design principles are shown in Table 14.

Table 14: Initial design principles for effective professional development (Graham et al., 2024).

<b>Initial Design Principle (effective professional development should...)</b>
DP 1: be collaborative and involve participation from school/system leaders
DP 2: be tailored to the needs of participants
DP 3: be authentic and align with current school/system priorities
DP 4: be sustained and provide teachers with adequate time/resources for change
DP 5: focus on enhancing teacher skills/knowledge
DP 6: challenge participants and encourage self-reflection
DP 7: include rigorous evaluation <i>of</i> and <i>by</i> participants
DP 8: be evidence-based and of high quality
DP 9: clearly articulate the goals/learning intentions of the professional development
DP 10: encourage active participation of participants

The initial design principles were systematically derived from literature and intended to be universally applicable to professional development for teachers.

*Sub-question 2: what do key stakeholders see as effective professional development?*

This question is answered in Chapter 4 of this thesis. A key stakeholder analysis was conducted to refine the initial design principles (Graham et al., 2024) and

produce a set of revised design principles. These design principles are shown in Table 15.

*Table 15: Revised design principles for effective professional development (Graham et al., 2025a).*

<b>Revised Design Principle (effective professional development for NSW school teachers should...)</b>
DP 1: be collaborative and promote active participation of participants
DP 2: be tailored to the needs/context of participants
DP 3: be evidence-based and align with current school/system priorities
DP 4: be sustained and provide teachers with adequate time/resources for change
DP 5: provide opportunities for participants to enhance skills/knowledge
DP 6: challenge participants and encourage reflective practice
DP 7: determine its impact through rigorous evaluation of and by participants
DP 8: clearly articulate its goals/learning intentions
DP 9: be aligned to relevant professional standards and seek to improve student outcomes

The revised design principles were refined through stakeholder analysis to be universally applicable to professional development for teachers in NSW.

*Sub-question 3: what is the impact of an effective professional development program?*

This thesis aimed to answer Sub-question 3 in Chapter 5. An intervention, in the form of a professional development program, was created using the revised design principles and additional data collected through the key stakeholder analysis. Evidence of each design principle’s implementation is demonstrated in Appendix I. The intervention was to be implemented with a group of teachers recruited through the processes outlined in Chapter 2 (Graham et al., 2023). However, the study was unable to recruit enough participants to test the intervention in line with its protocols. A decision was made to delay the intervention by six months to allow additional time to recruit participants, but ultimately, the requisite number could not be reached. As such, this thesis was unable to answer this question in the way that was initially planned. A decision then needed to be made as to how, or whether at all, to implement an alternative approach to contextualising the design principles for HALT applicants.

Design-Based Research is both iterative and flexible (Wang & Hannafin, 2005). In line with these principles, it was determined that an additional stakeholder analysis would be undertaken to inform the final design principles and answer a new sub-question. This decision was ultimately made in 2024. Because of this, the additional stakeholder analysis and sub-question do not appear in the protocols outlined in Chapter 2 of this paper (Graham et al., 2023). These amendments are discussed throughout the thesis and do not intend to impact the claims made in its findings. However, they should be considered by users of this research when interpreting its findings.

Whilst it remains unclear whether the lack of participants recruited in this phase of the study is a reflection of teacher engagement with the APST, with professional

development, or a result of something else entirely, the additional stakeholder analysis provided an opportunity to use the knowledge gained from this experience to elicit participant insight into why so few teachers choose to engage with HALT certification and to determine other possible interventions.

*Sub-question 4: what factors affect teacher engagement with Highly Accomplished or Lead Teacher certification under the Australian Professional Standards for Teachers?*

This question is answered in Chapter 6 of this thesis. An additional stakeholder analysis was undertaken to determine the reasons for the study’s inability to recruit the requisite number of participants for the Intervention phase, and similarly, why so few teachers have successfully attained HALT certification. The identified factors are shown in Table 16.

*Table 16: Factors, identified by key stakeholders, that affect teacher engagement with HALT certification (Graham et al., 2025b).*

<b>Factor</b>
Additional time and workload
The process is too difficult/onerous
Monetary costs associated with the process
Perceptions from colleagues
Lack of roles/remuneration upon completion
Support from principals/managers

These factors can be used by policy makers and researchers to determine future policy and research directions around the certification and recognition of high-performing teachers.

Overall, the findings of this thesis offer both conceptual and practical contributions to the field of professional development. The final design principles provide an understanding of effective professional development that synthesises literature and teacher voice in a methodologically unique way. Where these two voices intersect may also be of value to future researchers seeking to understand evidence-based professional development that seeks to promote participant agency and praxeological growth. The professional development program produced from these design principles serves as a practical example of how the design principles can be implemented in the field of HALT certification in NSW. The program can be used by future professional developers in this field or adapted to suit other contexts within and beyond the teaching profession.

The study also contributes new knowledge to the field of voluntary teacher certification by exploring stakeholder views on HALT certification in Australia and the factors that contribute to the current low levels of engagement with certification processes. These findings reaffirm how professional development can be used as a potential intervention but also illustrate several wider issues that could be addressed at a policy level. Whilst this study was conducted in an Australian context, the findings of this study may be applicable to voluntary professional standards for teachers in a range of international contexts. Chapter 1 of this thesis discusses the policy landscape around teaching standards in a selection of comparable countries

and could be used, in conjunction with these findings, to determine the applicability of this research in other policy contexts.

## Limitations

The final design principles produced in this study were iteratively developed using a range of different research approaches. As such, the findings of this research should be read within the limitations of these approaches. Some of these limitations are outlined in this section.

Design Based Research was the overarching methodology used in this study. This allowed the study to achieve its dual purpose of creating an effective professional development program, whilst also producing a set of design principles for use by future researchers and practitioners. This was possible due to the responsive and flexible nature of DBR (Reeves et al., 2005). This same nature, however, means that the researchers were solely responsible for the design, development, and implementation of each phase of the study. This is a common criticism of more pragmatic research approaches (Denscombe, 2014) and should be considered in the interpretations of the study's findings (Zheng, 2015).

Chapter 3 of this study utilised a systematic literature review to produce the initial design principles (Graham et al., 2024). Systematic literature reviews are useful in sourcing a wide range of literature and reducing the implicit researcher bias associated with reviewing literature that is either already known to the researcher or limited to the researcher's preferred subject areas and networks (Mallett et al., 2012). However, it is impossible to remove all bias, and it is important for readers to consider that the declared protocols of this review were still informed by the context and experiences of the researchers. Codifying and theming data within the systematic review, whilst transparent and documented, is also inherently subjective (Jarwal et al., 2009). This should also be considered when interpreting the findings of this study.

Chapter 4 and Chapter 6 both utilise stakeholder analysis to revise and contextualise the study's design principles (Graham et al., 2025a, 2025b). This ensured that a wide range of voices and views were considered in the development of the intervention and its accompanying design principles. In doing this, semi-structured interviews were conducted to collect data. Semi-structured interviews were deemed the most appropriate method of collecting data as they provided a structured foundation for the interviews, allowing the researchers to theme data and make comparisons between individual participants and stakeholder groups. It also provided the flexibility for the researchers to ask follow-up questions and access participants' expert knowledge (DeJonckheere & Vaughn, 2019). Whilst the practical nature of semi-structured interviews provides several notable advantages, the method also carries many of the limitations of both structured and unstructured interviews.

Semi-structured interviews, like unstructured interviews, can rely on the knowledge and skills of the researchers to be effective (Mueller & Segal, 2014). This has the capacity to produce results of varying reliability. Whilst questions are not generally pre-written as they would be in a structured interview, researchers often have a

predetermined end point or set of prompts. These predeterminations have the capacity to increase the risk of bias and should be considered by those interpreting the findings of this study.

Thematic analyses were conducted in Chapters 4, 5 and 6 in order to code and theme the data collected in the semi-structured interviews (Graham et al., 2025a, 2025b, 2025c). Steps were taken to ensure contextual coding of data and reduce the likelihood of meaning being lost in the coding and theming process (Bryman, 2016). It should, however, be acknowledged that the identification of themes is often influenced by the prior knowledge and experiences of the researchers (Byrne, 2022). Therefore, it is possible for results to be framed by the initial hypotheses of the researchers.

This study also commenced in March 2020 and was conducted in a time of rapid change and uncertainty in educational research and wider society (Al-Bargi, 2021). COVID-19 changed the way in which schools operated and in which professional development was conducted within them. In NSW, Australia, widespread teacher shortages were exacerbated by vaccine mandates (NSW Parliament, 2022). This also led to a pause on allowing external research to be delivered in NSW public schools and those in other states, lasting until 2023 in some jurisdictions (Gannon et al., 2024). This impacted the way in which participants could be recruited and selected for the stakeholder analysis conducted in Chapters 4 and 6 of this thesis, requiring greater reliance on the professional networks of the researchers. This is discussed in the relevant chapters and should, again, be considered when interpreting the findings of this study.

As a result of COVID-19 and restrictions placed on in-person professional development, there has also been a dramatic increase in literature about online professional development over the time period in which this study was conducted (Perry, 2022). However, due to the lag between this research being conducted and being disseminated, it likely wasn't captured in the systematic literature review conducted in Chapter 3 which captures studies conducted until December 2021 (Graham et al., 2024). Some of this research is captured in subsequent chapters of this thesis.

Finally, the design principles produced throughout this study were created in the context of the teaching profession, and for professional development targeting teachers. However, it is hoped that they may have wider applicability and can be implemented, contextualised and further revised in other industrial contexts. The limitations of this applicability should be considered by researchers in these other contexts, and it is worth noting that each iteration of the design principles further contextualises them to the teaching profession.

## Recommendations

The design principles produced over the course of this thesis reflect an iterative journey of refining and contextualising both research and practice. It is intended that users of this research may draw their learnings from varying points across this journey. This section discusses recommendations for future DBR researchers, those

interested in professional development, and for practitioners and policy makers utilising the design principles within their own contexts.

The methodological selection in this thesis was driven by the needs of the study rather than by the ubiquity of more orthodox approaches (Patton, 2006). Design-Based Research was selected as the most appropriate methodology. Mixed methods approaches have the capacity to provide “converging evidence, presumably more compelling than might have been produced by any single method alone” (Onwuegbuzie & Johnson, 2006, p. 41). The findings of this study highlight the need for a thorough research plan to ensure methodological rigour and reduce the capacity for bias on behalf of the researcher.

DBR is both a flexible and responsive research methodology (Wang & Hannafin, 2005). However, these traits can also lead to less rigorous research, if not properly accounted for (Denscombe, 2014). This thesis recommends that future DBR researchers set clear protocols and parameters for each phase of the study and the methods within them. Chapter 2 of this thesis declares the search strategy, methodological quality assessments and synthesis methods of the systematic literature review (Graham et al., 2023). It also declares the sampling techniques, recruitment methods, research tools and synthesis methods of the stakeholder analysis intervention phases. In an exploratory approach to research, some deviation is unavoidable and any deviations from the declared protocols are discussed in the relevant chapters. Ensuring documentation and record-keeping that aligns with relevant research standards is also advisable for future DBR researchers.

The most notable deviation from the declared protocols in this study was the inability to recruit a sufficient number of participants to test the intervention. The recruitment methods that were attempted are discussed in Chapter 2 and Chapter 5 of this thesis. Future researchers and policy makers may wish to consider recruiting from a larger pool of potential candidates to ensure sufficient participation. As pandemic-era restrictions on research in schools ease, researchers might also consider involving teacher employers in the recruitment process. The length, intensity and mode of delivery could also be adjusted. Whilst online professional development addresses two major challenges of face-to-face professional development; cost and access (Bragg et al., 2021), it can also reduce the capacity for networking and lead to increased fatigue associated with videoconferencing (MacNeill et al., 2024). This could also lead to reduced participation rates.

Each iteration of the design principles produced in this study has implications and applicability for users of the research. The initial design principles shown in Table 14 were produced using a systematic literature review and reflect a wholly literature-based view of what constitutes effective professional development. These design principles may be the most widely applicable for use outside of the industry and country of this study.

The revised design principles shown in Table 15 incorporate the views of teachers by utilising stakeholder analysis to evaluate and refine the initial design principles. By incorporating the voice of teachers in the construction of professional development, they aim to promote professional development that is more likely to lead to growth in participant agency and praxis (Kemmis, 2021). This iteration of the design principles

may be most applicable for professional development targeted at Australian teachers in a wide range of topics.

The final design principles shown in Table 13 were contextualised for teachers undertaking Highly Accomplished or Lead Teacher certification under the Australian Professional Standards for Teachers. This was accomplished through an additional iteration of stakeholder analysis after the intervention could not be tested. The final design principles may be most applicable for researchers, professional developers and policy makers working in the fields of higher or voluntary accreditation for teachers.

A number of areas for future research arose over the course of the study. The initial design principles presented in Chapter 3 reflect the findings of a systematic literature on the topic of effective professional development. Whilst many of the of the design principles produced align with current discourse on the topic, there were also notable heavily-researched elements of professional development that did not appear in the findings. “Some examples include ‘communities of practice’, the notion of ‘follow-up’ in relation to the delivery of professional development and ‘subject-specific content’” (Graham et al., 2024). Whether this is simply a result of the review’s protocols or a new insight into the efficacy of these elements is a question that merits further exploration.

The stakeholder analysis reported on in Chapter 4 used semi-structured to evaluate the initial design principles. Whilst overall agreeance with the design principles was high, the results showed a stakeholder preference for more traditional, content-focussed styles of professional development. This finding does not align with much of the current literature in this field that suggest that agency and praxis-focussed professional development is more impactful (Edwards-Groves, 2008; Francisco et al., 2021). Further research would be useful in determining whether this participant preference is specific to the context of this study, or indicative of a wider trend.

The revised stakeholder analysis reported on in Chapter 6 identified a range of factors that affect teacher engagement with the HALT certification process. This thesis focussed on professional development as an intervention to support teachers through this process. However, the factors discussed in this chapter suggest that other policy-level interventions such as greater incentives and remuneration for HALTs, or changes to the certification process itself warrant further research as possible interventions.

This study contributes to wider academic understanding of effective professional development through the iterational development and dissemination of design principles that were informed by both academic and practitioner views. Four phases of Design-Based Research allowed for the refinement and contextualisation of these design principles for use in the context of Highly Accomplished and Lead Teacher applicants under the Australian Professional Standards for Teachers. The design principles, intervention and accompanying research findings can be used by practitioners, researchers and policy makers to improve the standard of professional development and the mechanisms employed to recognise and reward high-performing teachers in a range of contexts.

Effective professional development is fundamental to the growth and sustainability of professions. In the teaching profession, it affects teacher quality, and in turn, student outcomes. As such, its impact is both wide-reaching and intergenerational. By synthesising research and the views of professionals in the design of professional development, this thesis demonstrates how policy goals can be achieved alongside the promotion of professional agency and praxeological growth to produce better outcomes, within and beyond the teaching profession.

## References

- Abu-Tineh, A. M., & Sadiq, H. M. (2017). Characteristics and models of effective professional development: the case of school teachers in Qatar. *Professional Development in Education*, 44(2), 311-322.  
<https://doi.org/10.1080/19415257.2017.1306788>
- Accomplished California Teachers. (2015). A Coherent System of Teacher Evaluation for Quality Teaching. *Education policy analysis archives*, 23(17), 17.  
<https://doi.org/10.14507/epaa.v23.2006>
- Addey, C. (2015). Participating in international literacy assessments in Lao PDR and Mongolia: A global ritual of belonging. In B. Maddox, M. Hamilton, & C. Addey (Eds.), *Literacy as numbers: Researching the politics and practices of international literacy assessment* (pp. 147-164). Cambridge University Press.
- Adoniou, M., & Gallagher, M. (2016). Professional standards for teachers—what are they good for? *Oxford review of education*, 43(1), 109-126.  
<https://doi.org/10.1080/03054985.2016.1243522>
- AITSL. (2011). *Australian Professional Standards for Teachers*.  
<https://www.aitsl.edu.au/docs/default-source/national-policy-framework/australian-professional-standards-for-teachers.pdf>
- AITSL. (2012a). *Australian Charter for the Professional Learning of Teachers and School Leaders*. [https://www.aitsl.edu.au/docs/default-source/national-policy-framework/australian-charter-for-the-professional-learning-of-teachers-and-school-leaders.pdf?sfvrsn=6f7eff3c\\_6](https://www.aitsl.edu.au/docs/default-source/national-policy-framework/australian-charter-for-the-professional-learning-of-teachers-and-school-leaders.pdf?sfvrsn=6f7eff3c_6)
- AITSL. (2012b). *Australian Teacher Performance and Development Framework*.  
[https://www.aitsl.edu.au/docs/default-source/national-policy-framework/australian-teacher-performance-and-development-framework.pdf?sfvrsn=4a7fff3c\\_8](https://www.aitsl.edu.au/docs/default-source/national-policy-framework/australian-teacher-performance-and-development-framework.pdf?sfvrsn=4a7fff3c_8)
- AITSL. (2012c). *The Essential Guide to Professional Learning: Collaboration*.  
[https://www.aitsl.edu.au/docs/default-source/default-document-library/the-essential-guide-to-professional-learning---collaboration2dc5ac91b1e86477b58fff00006709da.pdf?sfvrsn=86a2ec3c\\_2](https://www.aitsl.edu.au/docs/default-source/default-document-library/the-essential-guide-to-professional-learning---collaboration2dc5ac91b1e86477b58fff00006709da.pdf?sfvrsn=86a2ec3c_2)
- AITSL. (2012d). *The Essential Guide to Professional Learning: Evaluation*.  
[https://www.aitsl.edu.au/docs/default-source/default-document-library/the-essential-guide-to-evaluationc02cad91b1e86477b58fff00006709da.pdf?sfvrsn=25a2ec3c\\_2](https://www.aitsl.edu.au/docs/default-source/default-document-library/the-essential-guide-to-evaluationc02cad91b1e86477b58fff00006709da.pdf?sfvrsn=25a2ec3c_2)
- AITSL. (2012e). *The Essential Guide to Professional Learning: Innovation*.  
[https://www.aitsl.edu.au/docs/default-source/default-document-library/the-essential-guide-to-professional-learning---innovationdc2cad91b1e86477b58fff00006709da.pdf?sfvrsn=e6a2ec3c\\_2](https://www.aitsl.edu.au/docs/default-source/default-document-library/the-essential-guide-to-professional-learning---innovationdc2cad91b1e86477b58fff00006709da.pdf?sfvrsn=e6a2ec3c_2)
- AITSL. (2012f). *The Essential Guide to Professional Learning: Leading Culture*.  
[https://www.aitsl.edu.au/docs/default-source/default-document-library/the-essential-guide-to-leading-culturece2cad91b1e86477b58fff00006709da.pdf?sfvrsn=c7a2ec3c\\_2](https://www.aitsl.edu.au/docs/default-source/default-document-library/the-essential-guide-to-leading-culturece2cad91b1e86477b58fff00006709da.pdf?sfvrsn=c7a2ec3c_2)
- AITSL. (2014a). *Australian Professional Standard for Principals and the Leadership Profiles*. [https://www.aitsl.edu.au/docs/default-source/national-policy-framework/australian-professional-standard-for-principals.pdf?sfvrsn=c07eff3c\\_6](https://www.aitsl.edu.au/docs/default-source/national-policy-framework/australian-professional-standard-for-principals.pdf?sfvrsn=c07eff3c_6)

- AITSL. (2014b). *Final Report – Evaluation of the Australian Professional Standards for Teachers*. <https://www.aitsl.edu.au/tools-resources/resource/final-report-evaluation-of-the-australian-professional-standards-for-teachers>
- AITSL. (2016). *Graduate to Proficient. Australian guidelines for teacher induction into the profession*. [https://www.aitsl.edu.au/docs/default-source/national-policy-framework/2020/final-graduate-to-proficient-\(web\).pdf?sfvrsn=1f16d53c\\_4](https://www.aitsl.edu.au/docs/default-source/national-policy-framework/2020/final-graduate-to-proficient-(web).pdf?sfvrsn=1f16d53c_4)
- AITSL. (2017a). *Enabling High Quality Professional Learning: A practical guide for leaders*. <https://www.aitsl.edu.au/docs/default-source/hqpl/enabling-high-quality-professional-learning---practical-guide.pdf>
- AITSL. (2017b). *Guide to the Certification of Highly Accomplished and Lead Teachers in Australia*. [https://www.aitsl.edu.au/docs/default-source/default-document-library/guide-to-cert\\_online.pdf?sfvrsn=95e9ec3c\\_0](https://www.aitsl.edu.au/docs/default-source/default-document-library/guide-to-cert_online.pdf?sfvrsn=95e9ec3c_0)
- AITSL. (2019). *Spotlight: Highly Accomplished and Lead Teachers*. <https://www.aitsl.edu.au/docs/default-source/research-evidence/spotlight/halt.pdf>
- AITSL. (2022). *Spotlight: Middle leadership in Australian schools*. <https://www.aitsl.edu.au/research/spotlights/middle-leadership-in-australian-schools>
- AITSL. (2023a). *Middle-leadership literature review and document analysis: Exploring middle leaders' profession and practice*. [https://www.aitsl.edu.au/docs/default-source/middle-leadership/middle-leadership-literature-review-and-document-analysis.pdf?sfvrsn=9578be3c\\_2](https://www.aitsl.edu.au/docs/default-source/middle-leadership/middle-leadership-literature-review-and-document-analysis.pdf?sfvrsn=9578be3c_2)
- AITSL. (2023b). *A Snapshot of National certification of Highly Accomplished and Lead Teachers (HALTs) in 2023*. Retrieved 17/6/2024 from <https://www.aitsl.edu.au/docs/default-source/certification/certification-snapshot-end-of-2023.pdf>
- AITSL. (2024). *Professional Standards for Middle Leaders*. <https://qed.qld.gov.au/our-publications/standards/Documents/professional-standards-middle-leaders.pdf>
- AITSL. (n.d.-a). *Become a leader in the classroom*. Retrieved 15/01/2025 from <https://www.aitsl.edu.au/teach/understand-certification-and-halt-status>
- AITSL. (n.d.-b). *Highly Accomplished and Lead Teacher Network*. Retrieved 25/06/2024 from <https://www.aitsl.edu.au/teach/understand-certification-and-halt-status/highly-accomplished-and-lead-teacher-network>
- Al-Bargi, A. (2021). Elt online teachers' professional development during the covid-19 pandemic outbreak: Perceptions, implications and adaptations. *Theory and Practice in Language Studies*, 11(10), 1161-1170.
- Allen, J., Rowan, L., & Singh, P. (2019). Status of the teaching profession – attracting and retaining teachers. *Asia-Pacific journal of teacher education*, 47(2), 99-102. <https://doi.org/10.1080/1359866X.2019.1581422>
- Ambussaidi, I., & Yang, Y.-F. (2019). The impact of mathematics teacher quality on student achievement in Oman and Taiwan. *International Journal of Education and Learning*, 1(2), 50-62.
- Andersen, L. B., Heinesen, E., & HolmPedersen, L. (2014). How Does Public Service Motivation Among Teachers Affect Student Performance in Schools? *Journal of public administration research and theory*, 24(3), 651-671. <https://doi.org/10.1093/jopart/mut082>
- Anderson, L. (2010). Embedded, Emboldened, and (Net)Working for Change: Support-Seeking and Teacher Agency in Urban, High-Needs Schools.

- Harvard educational review*, 80(4), 541-573.  
<https://doi.org/10.17763/haer.80.4.f2v8251444581105>
- Anderson, R. E. (2008). Implications of the Information and Knowledge Society for Education. In J. Voogt & G. Knezek (Eds.), *Springer International Handbook of Information Technology in Primary and Secondary Education* (pp. 5-22). Springer US. [https://doi.org/10.1007/978-0-387-73315-9\\_1](https://doi.org/10.1007/978-0-387-73315-9_1)
- Anderson, T., & Shattuck, J. (2012). Design-Based Research: A Decade of Progress in Education Research? *Educational researcher*, 41(1), 16-25.  
<https://doi.org/10.3102/0013189X11428813>
- Andrews, R. (2005). The Place of Systematic Reviews in Education Research. *British Journal of Educational Studies*, 53(4), 399-416.  
<https://doi.org/10.1111/j.1467-8527.2005.00303.x>
- Appel, M. (2020). Performativity and the demise of the teaching profession: The need for rebalancing in Australia. *Asia-Pacific journal of teacher education*, 48(3), 301-315. <https://doi.org/10.1080/1359866X.2019.1644611>
- Archibald, S., Cogshall, J. G., Croft, A., & Goe, L. (2011). High-Quality Professional Development for All Teachers: Effectively Allocating Resources. Research & Policy Brief. *National Comprehensive Center for Teacher Quality*.
- Argyris, C., & Schön, D. A. (1989). Participatory Action Research and Action Science Compared: A Commentary. *The American Behavioral Scientist*, 32(5), 612-623. <https://doi.org/10.1177/0002764289032005008>
- Ary, D., Jacobs, L. C., Irvine, C. K. S., & Walker, D. (2018). *Introduction to research in education*. Cengage Learning.
- Ashiedu, J. A., & Scott-Ladd, B. (2012). Understanding teacher attraction and retention drivers : addressing teacher shortages. *The Australian journal of teacher education*, 37(11), 17-35. <https://doi.org/10.14221/ajte.2012v37n11.1>
- Asia Society. (2010). *International Perspectives on U.S. Education Policy and Practice: What Can We Learn from High-Performing Nations?*  
<https://asiasociety.org/files/learningwiththeworld.pdf>
- Aspland, T. (2006). Changing patterns of teacher education in Australia. *Education, research and perspectives*, 33(2), 140-163.
- Association of Independent Schools of NSW. (2017). *Accreditation of Teachers at Highly Accomplished Teacher and Lead Teacher: Policy for AISNSW Member Schools*.  
[https://www.aisnsw.edu.au/Resources/WAL%20%20\[Open%20Access\]/Highly%20Accomplished%20and%20Lead%20Teacher%20Accreditation%20Policy.pdf](https://www.aisnsw.edu.au/Resources/WAL%20%20[Open%20Access]/Highly%20Accomplished%20and%20Lead%20Teacher%20Accreditation%20Policy.pdf)
- Association of Independent Schools of NSW. (2019). *Accreditation of Teachers at Highly Accomplished Teacher and Lead Teacher: Procedures for AISNSW Member Schools*.  
[https://www.aisnsw.edu.au/Resources/WAL%20%20\[Open%20Access\]/Highly%20Accomplished%20and%20Lead%20Teacher%20Accreditation%20Procedures.pdf](https://www.aisnsw.edu.au/Resources/WAL%20%20[Open%20Access]/Highly%20Accomplished%20and%20Lead%20Teacher%20Accreditation%20Procedures.pdf)
- Association of Independent Schools of NSW. (n.d.). *Homepage*. Retrieved 10/11/2024 from <https://www.aisnsw.edu.au/>
- Athanases, S. Z., Abrams, J., Jack, G., Johnson, V., Kwock, S., McCurdy, J., Riley, S., & Totaro, S. (2008). Curriculum for mentor development: Problems and promise in the work of new teacher induction leaders. *Journal of curriculum studies*, 40(6), 743-770. <https://doi.org/10.1080/00220270701784319>

- Attinello, J. R., Lare, D., & Waters, F. (2006). The Value of Teacher Portfolios for Evaluation and Professional Growth. *NASSP bulletin*, 90(2), 132-152. <https://doi.org/10.1177/0192636506288864>
- Australian Bureau of Statistics. (2023). *Schools*. Retrieved 01/07/2024 from <https://www.abs.gov.au/statistics/people/education/schools/latest-release>
- Australian Curriculum Assessment and Reporting Authority. (2013). *National Report on Schooling in Australia*. [https://www.acara.edu.au/resources/ANR\\_2013\\_Parts\\_1-6\\_8\\_and\\_10.pdf](https://www.acara.edu.au/resources/ANR_2013_Parts_1-6_8_and_10.pdf)
- Australian Curriculum Assessment and Reporting Authority. (2023). *Staff numbers*. Retrieved 08/10/2024 from <https://www.acara.edu.au/reporting/national-report-on-schooling-in-australia/staff-numbers>
- Australian Government Department of Education. (2022). *The National Teacher Workforce Action Plan*. <https://www.education.gov.au/download/17364/national-teacher-workforce-action-plan-publication/35084/document/pdf>
- Australian Government Department of Education. (2024). *Priority Area 3 - Keeping the teachers we have*. Retrieved 17/6/2024 from <https://www.education.gov.au/national-teacher-workforce-action-plan/priority-area-3-keeping-teachers-we-have>
- Bacchi, C. (2009). Introducing a 'whats the problem represented to be?' approach to policy analysis. In C. Bacchi (Ed.), *Analysing policy : what's the problem represented to be?* Pearson Higher Education AU.
- Bacchi, C. (2012). Introducing the 'What's the Problem Represented to be?' approach. In A. Bletas & C. Beasley (Eds.), *Engaging with Carol Bacchi: Strategic interventions and exchanges* (pp. 21-24). University of Adelaide Press.
- Bahr, N., & Mellor, S. (2016). Building quality in teaching and teacher education.
- Bailey, J. (2008). First steps in qualitative data analysis: transcribing. *Family Practice*, 25(2), 127-131. <https://doi.org/10.1093/fampra/cmn003>
- Baird, J., Isaacs, T., Johnson, S., Stobart, G., Yu, G., Sprague, T., & Daugherty, R. (2011). *Policy effects of PISA*. <http://oucea.education.ox.ac.uk/wordpress/wp-content/uploads/2011/10/Policy-Effects-of-PISA-OUCEA.pdf>
- Bakker, A. (2018). *Design research in education : a practical guide for early career researchers*. Routledge.
- Ball, S. J. (1990). *Politics and Policy Making in Education*. Routledge. <https://doi.org/10.4324/9780203808726-8>
- Barab, S., & Squire, K. (2016). Design-based research: Putting a stake in the ground. In *Design-based Research* (pp. 1-14). Psychology Press.
- Barnes, M., & Cross, R. (2021). 'Quality' at a cost: the politics of teacher education policy in Australia. *Critical studies in education*, 62(4), 455-470. <https://doi.org/10.1080/17508487.2018.1558410>
- Barrera-Pedemonte, F. (2016). High-Quality Teacher Professional Development and Classroom Teaching Practices: Evidence from Talis 2013. In. Paris: OECD Publishing.
- Barrett, C. A., & Pas, E. T. (2020). A cost analysis of traditional professional development and coaching structures in schools. *Prevention Science*, 21, 604-614. <https://doi.org/10.1007/s11121-020-01115-5>
- Barriball, K. L., & While, A. (1994). Collecting data using a semi-structured interview: a discussion paper. *Journal of advanced nursing*, 19(2), 328-335.

- Barry, D., Pendergast, D., & Main, K. (2020). Teacher perspectives on the use of the Australian professional standards for teachers as part of their evaluation process. *The Australian journal of teacher education*, 45(8), 1-22. <https://doi.org/10.14221/ajte.2020v45n8.1>
- Bell, P., Hoadley, C. M., Linn, M. C., & Davis, E. A. (2013). Design-Based Research in Education. In M. C. Linn, E. A. Davis, & P. Bell (Eds.), *Internet Environments for Science Education*. Routledge.
- Bellibaş, M. Ş., Gümüş, S., & Kılınc, A. Ç. (2020). Principals supporting teacher leadership: The effects of learning-centred leadership on teacher leadership practices with the mediating role of teacher agency. *European journal of education*, 55(2), 200-216. <https://doi.org/10.1111/ejed.12387>
- Bentley, P. J., Gulbrandsen, M., & Kyvik, S. (2015). The relationship between basic and applied research in universities. *Higher Education*, 70(4), 689-709. <https://doi.org/10.1007/s10734-015-9861-2>
- Biesta, G., Priestley, M., & Robinson, S. (2017). Talking about education: Exploring the significance of teachers' talk for teacher agency. *Journal of curriculum studies*, 49(1), 38-54. <https://doi.org/10.1080/00220272.2016.1205143>
- Biesta, G., & Tedder, M. (2007). Agency and learning in the lifecourse: Towards an ecological perspective. *Studies in the Education of Adults*, 39(2), 132-149. <https://doi.org/10.1080/02660830.2007.11661545>
- Blessing, L. T. M., & Chakrabarti, A. (2009). *DRM, a Design Research Methodology*. Springer. <https://doi.org/10.1007/978-1-84882-587-1>
- Bluer, R., & Carmichael, L. (1991). Award restructuring in teaching. *Unicorn (Carlton)*, 17(1), 24-29.
- Borg, S. (2018). Evaluating the Impact of Professional Development. *RELC journal*, 49(2), 195-216. <https://doi.org/10.1177/0033688218784371>
- Borko, H., Jacobs, J., & Koellner, K. (2010). Contemporary Approaches to Teacher Professional Development. In *International Encyclopedia of Education* (Vol. 7, pp. 548-556). <https://doi.org/10.1016/B978-0-08-044894-7.00654-0>
- Bourke, T., & Carter, J. (2016). "There's nothing standard about standards": exploring tensions between two standards documents in higher education. *Journal of geography in higher education*, 40(3), 409-424. <https://doi.org/10.1080/03098265.2016.1144730>
- Bourke, T., Ryan, M. E., & Lidstone, J. (2013). Reflexive professionalism: reclaiming the voice of authority in shaping the discourses of education policy. *Asia-Pacific journal of teacher education*, 41(4), 398-413. <https://doi.org/10.1080/1359866X.2013.838619>
- Bourke, T., & Willis, J. (2019). Quality Assurance as Teacher Professional Standards. In *Encyclopedia of Teacher Education* (pp. 1452-1457). Springer Nature Singapore. [https://doi.org/10.1007/978-981-16-8679-5\\_208](https://doi.org/10.1007/978-981-16-8679-5_208)
- Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development*. Sage.
- Bradbury, O., Fitzgerald, A., & O'Connor, J. (2020). Supporting Pre-Service Teachers in Becoming Reflective Practitioners Using Conversation and Professional Standards. *The Australian journal of teacher education*, 45(10), 18-34. <https://doi.org/10.14221/ajte.2020v45n10.2>
- Bradford, K., Pendergast, D., & Grootenboer, P. (2021). What is meant by 'teacher quality' in research and policy: A systematic, quantitative literature review. *Education Thinking*, 1(1), 57-76.

- Bragg, L. A., Walsh, C., & Heyeres, M. (2021). Successful design and delivery of online professional development for teachers: A systematic review of the literature. *Computers and education*, 166, 104158. <https://doi.org/10.1016/j.compedu.2021.104158>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>
- Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative research in sport, exercise and health*, 11(4), 589-597. <https://doi.org/10.1080/2159676x.2019.1628806>
- Brown, A. L. (1992). Design Experiments: Theoretical and Methodological Challenges in Creating Complex Interventions in Classroom Settings. *The Journal of the learning sciences*, 2(2), 141-178. [https://doi.org/10.1207/s15327809jls0202\\_2](https://doi.org/10.1207/s15327809jls0202_2)
- Bryman, A. (2016). *Social research methods* (5th ed.). Oxford University Press.
- Buchanan, J. (2017). How Do the Standards Stand up? Applying Quality Teacher Frameworks to the Australian Professional Standards. In J. Nuttall, A. Kostogriz, M. Jones, & J. Martin (Eds.), *Teacher Education Policy and Practice: Evidence of Impact, Impact of Evidence* (pp. 115-128). Springer Singapore. [https://doi.org/10.1007/978-981-10-4133-4\\_8](https://doi.org/10.1007/978-981-10-4133-4_8)
- Byrd, D. R., & Alexander, M. (2020). Investigating special education teachers' knowledge and skills: Preparing general teacher preparation for professional development. *Journal of Pedagogical Research*, 4(2), 72-82. <https://doi.org/10.33902/jpr.2020059790>
- Byrne, D. (2022). A worked example of Braun and Clarke's approach to reflexive thematic analysis. *Quality & Quantity*, 56(3), 1391-1412. <https://doi.org/10.1007/s11135-021-01182-y>
- Call, K. (2018). Professional Teaching Standards: A Comparative Analysis of Their History, Implementation and Efficacy. *Australian Journal of Teacher Education*, 43(3), 93-108. <https://doi.org/10.14221/ajte.2018v43n3.6>
- Call, K., Christie, M., & Simon, S. (2021). Do preservice teachers believe they use the Australian Professional Standards for Teachers to inform their professional learning? *The Australian journal of teacher education*, 46(6), 98-114. <https://doi.org/10.14221/ajte.2021v46n6.6>
- Cameron, S., Mulholland, J., & Branson, C. (2013). Professional Learning in the Lives of Teachers: Towards a New Framework for Conceptualising Teacher Learning. *Asia Pacific Journal of Teacher Education*, 41(4), 377-397. <http://dx.doi.org/10.1080/1359866X.2013.838620>
- Cappelletti, G., & Sajon, M. P. (2022). The reflective processes of principals as an engine of school change. *Reflective practice*, 23(2), 246-257. <https://doi.org/10.1080/14623943.2021.2014310>
- Cardoso, S., Tavares, O., & Sin, C. (2015). The quality of teaching staff: higher education institutions' compliance with the European Standards and Guidelines for Quality Assurance—the case of Portugal. *Educational assessment, evaluation and accountability*, 27(3), 205-222. <https://doi.org/10.1007/s11092-015-9211-z>
- Catholic Schools NSW. (2021). *Teacher Accreditation Authority Highly Accomplished/Lead Teacher Policy*. [https://www.csnsw.catholic.edu.au/wp-content/uploads/2021/07/CSNSW-TAA-A L-Policy-flnal\\_99462.pdf](https://www.csnsw.catholic.edu.au/wp-content/uploads/2021/07/CSNSW-TAA-A L-Policy-flnal_99462.pdf)

- Catholic Schools NSW. (n.d.). *Homepage*. Retrieved 10/11/2024 from <https://www.csnew.catholic.edu.au/>
- Centre for Development and Enterprise. (2017). *TEACHER PROFESSIONAL STANDARDS FOR SOUTH AFRICA*. <https://www.cde.org.za/wp-content/uploads/2018/06/CDE-Insight-Teacher-Professional-Standards-For-South-Africa.pdf>
- Centre for Education Statistics and Evaluation. (2014). *The elements of effective professional development*. <https://www.cese.nsw.gov.au//images/stories/PDF/The-elements-of-effective-professional-development.pdf>
- Centre for Education Statistics and Evaluation. (2017). *Workforce profile of the NSW teaching profession 2017*. NSW Retrieved from [https://www.cese.nsw.gov.au//images/stories/PDF/Workforce\\_profile\\_2017.pdf](https://www.cese.nsw.gov.au//images/stories/PDF/Workforce_profile_2017.pdf)
- Centre of Study for Policies and Practices in Education Chile. (2013). Learning Standards, Teaching Standards and Standards for School Principals. <https://doi.org/doi:https://doi.org/10.1787/5k3tsjtp90v-en>
- Chartered College of Teaching. (2024). *Chartered Status: A professional learning and accreditation pathway supporting career-long development*. <https://chartered.college/wp-content/uploads/2024/08/Chartered-Status-brochure-.pdf>
- Chevalier, A., Dolton, P., & McIntosh, S. (2007). Recruiting retaining teachers in the UK: An analysis of graduate occupation choice from the 1960s to the 1990s. *Economica (London)*, 74(293), 69-96. <https://doi.org/10.1111/j.1468-0335.2006.00528.x>
- Chung, H., & Kim, H. (2010). Implementing professional standards in teacher preparation programs in the United States: Preservice teachers' understanding of teaching standards. *KEDI journal of educational policy*, 7(2), 355-377. <https://doi.org/10.22804/kjep.2010.7.2.008>
- Chung, J. H. (2010). Finland, PISA, and the Implications of International Achievement Studies on Education Policy. *The Impact of International Achievement Studies on National Education Policymaking*, 13, 267-294. [https://doi.org/10.1108/S1479-3679\(2010\)0000013013](https://doi.org/10.1108/S1479-3679(2010)0000013013)
- Churchward, P., & Willis, J. (2019). The pursuit of teacher quality: identifying some of the multiple discourses of quality that impact the work of teacher educators. *Asia-Pacific journal of teacher education*, 47(3), 251-264. <https://doi.org/10.1080/1359866X.2018.1555792>
- Clarke, M., & Moore, A. (2013). Professional standards, teacher identities and an ethics of singularity. *Cambridge journal of education*, 43(4), 487-500. <https://doi.org/10.1080/0305764X.2013.819070>
- Clinton, J., Hattie, J., Dinham, S., Lingard, R., Gullickson, A., Savage, G., & Brookes, I. (2014). *InSights: Evaluation of the Implementation of the Australian Professional Standards for Teachers Interim Report on Baseline Implementation, 2013 Key Findings*. [https://www.aitsl.edu.au/docs/default-source/default-document-library/evaluation-of-the-implementation-of-the-australian-professional-standards-for-teachers---interim-report-on-baseline-implementation.pdf?sfvrsn=7a8aec3c\\_0](https://www.aitsl.edu.au/docs/default-source/default-document-library/evaluation-of-the-implementation-of-the-australian-professional-standards-for-teachers---interim-report-on-baseline-implementation.pdf?sfvrsn=7a8aec3c_0)
- Cochran-Smith, M., & Zeichner, K. M. (2005). *Studying teacher education: The report of the AERA Panel on research and teacher education*. Erlbaum. <https://doi.org/10.4324/9780203864043>

- Cockburn, I., Henderson, R., & Stern, S. (1999). *Balancing incentives: The tension between basic and applied research*.  
[https://www.nber.org/system/files/working\\_papers/w6882/w6882.pdf](https://www.nber.org/system/files/working_papers/w6882/w6882.pdf)
- Coggshall, J. G., Behrstock-Sherratt, E., & Drill, K. (2011). Workplaces that Support High-Performing Teaching and Learning: Insights from Generation Y Teachers. *American Institutes for Research*.
- Cohen, J., Wong, V., Krishnamachari, A., & Berlin, R. (2020). Teacher Coaching in a Simulated Environment. *Educational evaluation and policy analysis*, 42(2), 208-231. <https://doi.org/10.3102/0162373720906217>
- Cole, J. (2021). What boosts? What drags? A study of teacher views about the HALT certification process provided by the Australian Professional Standards for Teachers.
- Cole, J. (2022). Why the push for tremendous teachers ground to a HALT.  
<https://www.aare.edu.au/blog/?p=11794>
- Cole, R., Purao, S., Rossi, M., & Sein, M. (2005). Being proactive: where action research meets design research. ICIS 2005 proceedings,
- Collins, A., Joseph, D., & Bielaczyc, K. (2004). Design Research: Theoretical and Methodological Issues. *The Journal of the learning sciences*, 13(1), 15-42.  
[https://doi.org/10.1207/s15327809jls1301\\_2](https://doi.org/10.1207/s15327809jls1301_2)
- Collins, L. J., & Liang, X. (2015). Examining High Quality Online Teacher Professional Development: Teachers' Voices. *International Journal of Teacher Leadership*, 6(1), 18-34.
- Colombo, M. W. (2007). Developing Cultural Competence: Mainstream Teachers and Professional Development. *Multicultural Perspectives*, 9(2), 10-16.  
<https://doi.org/10.1080/15210960701386236>
- Committee for the Review of Teaching and Teacher Education. (2003). *Australia's teachers: Australia's future: advancing innovation, science, technology and mathematics : background data and analysis*.  
<https://webarchive.nla.gov.au/awa/20040224173253/http://dest.gov.au/schools/teachingreview/>
- Connell, R. (2009). Good teachers on dangerous ground: towards a new view of teacher quality and professionalism. *Critical studies in education*, 50(3), 213-229. <https://doi.org/10.1080/17508480902998421>
- Cordingley, P., Higgins, S., Greany, T., Buckler, N., Coles-Jordan, D., Crisp, B., Saunders, L., & Coe, R. (2015). *Developing great teaching: Lessons from the international reviews into effective professional development*. <https://durham-repository.worktribe.com/preview/1631243/15834.pdf>
- Cowan, J., & Goldhaber, D. (2016). National Board Certification and Teacher Effectiveness: Evidence From Washington State. *Journal of research on educational effectiveness*, 9(3), 233-258.  
<https://doi.org/10.1080/19345747.2015.1099768>
- Creemers, B., Kyriakides, L., & Antoniou, P. (2013). *Teacher Professional Development for Improving Quality of Teaching*. Springer Netherlands.  
<https://doi.org/10.1007/978-94-007-5207-8>
- Danielson, C., & McGreal, T. L. (2000). *Teacher evaluation to enhance professional practice*. Association for Supervision & Curriculum Development.
- Dao, L., Allen, J., Pullen, D., & Cowie, S. (2024). Addressing the teacher shortage in Australia: what do the Initial Teacher Education (ITE) completion data tell us? *Discover Education*, 3(1), 1-11.

- Darling-Hammond, L. (1998). Teacher learning that supports student learning. *Educational leadership*, 55(5), 6-11.
- Darling-Hammond, L. (2000). Teacher quality and student achievement. A review of state policy evidence. *Education policy analysis archives*, 8(1), 8:1. <https://doi.org/10.14507/epaa.v8n1.2000>
- Darling-Hammond, L. (2001). Standard setting in teaching: Changes in licensing, certification, and assessment. In V. Richardson (Ed.), *Handbook of research on teaching* (Vol. 4, pp. 751-776). American Educational Research Association.
- Darling-Hammond, L. (2004). Standards, Accountability, and School Reform. *Teachers College record* (1970), 106(6), 1047-1085. <https://doi.org/10.1111/j.1467-9620.2004.00372.x>
- Darling-Hammond, L., Hylar, M. E., & Gardner, M. (2017). *Effective teacher professional development*. <https://down.documentine.com/a5ee501c8bf0b5cc701c4d508086f34f.pdf>
- Darling-Hammond, L., & Sykes, G. (2003). Wanted: A National Teacher Supply Policy for Education: The Right Way To Meet the "Highly Qualified Teacher" Challenge. *Education policy analysis archives*, 11(33), 33. <https://doi.org/10.14507/epaa.v11n33.2003>
- Darling-Hammond, L., Wei, R. C., Andree, A., Richardson, N., & Orphanos, S. (2009). Professional learning in the learning profession. *Washington, DC: National Staff Development Council*, 12(10).
- Dasoo, N. (2020). Teacher advocacy for the enhancement of professional learning and development in continuous professional teacher development programmes [Article]. *South African Journal of Higher Education*, 34(4), 45-59. <https://doi.org/10.20853/34-4-3485>
- Daugherty, J. L. (2009). Engineering Professional Development Design for Secondary School Teachers: A Multiple Case Study. *Journal of Technology Education*, 21(1), 10-24. <https://doi.org/10.21061/jte.v21i1.a.1>
- Davies, M., & Edwards, G. (1999). Will the Curriculum Caterpillar Ever Learn to Fly? *Cambridge journal of education*, 29(2), 265-275. <https://doi.org/10.1080/0305764990290209>
- Davies, P. (2021). The Nature of a Profession. In P. Davies, L. Moran, & A. Roebuck (Eds.), *The New GP's Handbook: How to Make a Success of Your Early Years as a GP* (pp. 7-12). CRC Press. <https://doi.org/10.1201/9781846198281-2>
- Day, C. (2019). What is teaching about? Professionalism and the limitations of standards and competences. *European journal of education*, 54(3), 315-318. <https://doi.org/10.1111/ejed.12348>
- Day, C., Gu, Q., & Sammons, P. (2016). The Impact of Leadership on Student Outcomes. *Educational administration quarterly*, 52(2), 221-258. <https://doi.org/10.1177/0013161x15616863>
- De Nobile, J. (2018). Towards a theoretical model of middle leadership in schools. *School leadership & management*, 38(4), 395-416. <https://doi.org/10.1080/13632434.2017.1411902>
- De Nobile, J., Lipscombe, K., Tindall-Ford, S., & Grice, C. (2024). Investigating the roles of middle leaders in New South Wales public schools: Factor analyses of the Middle Leadership Roles Questionnaire. *Educational management, administration & leadership*. <https://doi.org/10.1177/17411432241231871>

- Dede, C. (2010). Comparing frameworks for 21st century skills. In J. A. Bellanca & R. S. Brandt (Eds.), *21st century skills: Rethinking how students learn* (Vol. 20, pp. 51-76).
- DeJonckheere, M., & Vaughn, L. M. (2019). Semistructured interviewing in primary care research: a balance of relationship and rigour. *Family medicine and community health*, 7(2), e000057-e000057. <https://doi.org/10.1136/fmch-2018-000057>
- Delandshere, G., & Petrosky, A. (2004). Political rationales and ideological stances of the standards-based reform of teacher education in the US. *Teaching and teacher education*, 20(1), 1-15. <https://doi.org/10.1016/j.tate.2003.09.002>
- Denscombe, M. (2014). *The Good Research Guide : For Small-Scale Social Research Projects* (5th ed.). McGraw-Hill Education.
- Department for Education England. (2011). *Teachers' Standards: Guidance for school leaders, school staff and governing bodies*. Retrieved from [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/665520/Teachers\\_Standards.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/665520/Teachers_Standards.pdf)
- Department for Education England. (2014). *Teachers' Standards: How should they be used?* Retrieved from [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/283567/Teachers\\_standards\\_how\\_should\\_they\\_be\\_used.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/283567/Teachers_standards_how_should_they_be_used.pdf)
- Desimone, L. M. (2009). Improving Impact Studies of Teachers' Professional Development: Toward Better Conceptualizations and Measures. *Educational researcher*, 38(3), 181-199. <https://doi.org/10.3102/0013189X08331140>
- Dinham, S. (2007). *Leadership for exceptional educational outcomes : findings from AESOP* (9781921214110). (AESOP series, Issue. <https://www.emerald.com/insight/content/doi/10.1108/09578230910928124/full/html>
- Dinham, S. (2011). Improving the Quality of Teaching in Australia. *Education Canada*, 51(1).
- Dinham, S. (2013). The quality teaching movement in Australia encounters difficult terrain : a personal perspective. *The Australian journal of education*, 57(2), 91-106. <https://doi.org/10.1177/0004944113485840>
- Dinham, S. (2015). The worst of both worlds : how U.S. and U.K. models are influencing Australian education. *Education policy analysis archives*, 23(49), 1-16. <https://doi.org/10.14507/epaa.v23.1865>
- Dinham, S., Ingvarson, I., & Kleinhenz, E. (2008). How can we raise the quality of school education so that every student benefits. *Teaching talent: The best teachers for Australia's classrooms*.
- Dixon-Woods, M., Shaw, R. L., Agarwal, S., & Smith, J. A. (2004). The problem of appraising qualitative research. *Quality & safety in health care*, 13(3), 223-225. <https://doi.org/10.1136/qshc.2003.008714>
- Dolton, P., Marcenaro, O., Vries, R. d., & She, P.-W. (2018). *Global teacher status index 2018*. <https://repositorio.minedu.gob.pe/bitstream/handle/20.500.12799/6046/Global%20Teacher%20Status%20Index%202018.pdf?sequence=1&isAllowed=y>
- Dozier, T. K. (2011). Chapter seventeen: Turning good teachers into great leaders. In *Teacher Leadership: The "New" Foundations of Teacher Education* (Vol. 408, pp. 175-180). Counterpoints.

- Drago-Severson, E., & Blum-DeStefano, J. (2018). *Leading change together : developing educator capacity within schools and systems*. ASCD.
- Draper, K., Hofmeyr, J., & Johnston, A. (2017). *Teacher professional standards for South Africa: The road to better performance, development and accountability*. <https://cde.org.za/teacher-professional-standards-for-south-africa-the-road-to-better-performance-development-and-accountability/>
- Eacott, S. (2024). The systemic implications of housing affordability for the teacher shortage: the case of New South Wales, Australia. *The Australian Educational Researcher*, 51(2), 733-755. <https://doi.org/https://doi.org/10.1007/s13384-023-00621-z>
- Earley, P., & Porritt, V. (2014). Evaluating the impact of professional development: the need for a student-focused approach. *Professional Development in Education*, 40(1), 112-129. <https://doi.org/10.1080/19415257.2013.798741>
- Eaude, T. (2014). What makes primary classteachers special? Exploring the features of expertise in the primary classroom. *Teachers and teaching, theory and practice*, 20(1), 4-18. <https://doi.org/10.1080/13540602.2013.848513>
- Edelson, D. C. (2002). Design Research: What We Learn When We Engage in Design. *The Journal of the learning sciences*, 11(1), 105-121. [https://doi.org/10.1207/S15327809JLS1101\\_4](https://doi.org/10.1207/S15327809JLS1101_4)
- Edelson, D. C. (2006). Balancing innovation and risk In *Educational design research* (pp. 100-106). Routledge.
- Education Council of Aotearoa New Zealand. (2017). *Our Code Our Standards: Code of Professional Responsibility and Standards for the Teaching Profession*. Retrieved from <https://teachingcouncil.nz/professional-practice/our-code-our-standards/>
- Education Council of Aotearoa New Zealand. (2018). *Educational Leadership Capability Framework*. Retrieved from [https://teachingcouncilnz-uat.cwp.govt.nz/assets/Files/Leadership-Strategy/Leadership\\_Capability\\_Framework.pdf](https://teachingcouncilnz-uat.cwp.govt.nz/assets/Files/Leadership-Strategy/Leadership_Capability_Framework.pdf)
- Edwards-Groves, C. (2008). The praxis-oriented self: Continuing (self-) education. In *Enabling Praxis* (pp. 127-148). Brill.
- Eisenschmidt, E., & Oder, T. (2018). Does Mentoring Matter? On the Way to Collaborative School Culture. *Education process: international journal*, 7(1), 7-23. <https://doi.org/10.22521/edupij.2018.71.1>
- Ekinci, E., & Acar, F. E. (2019). Primary School Teachers; Opinions on Professional Development (Professional Development Model Proposal). *Journal of Education and Training Studies*, 7(4), 111-122. <https://doi.org/10.11114/jets.v7i4.4039>
- El Jihaoui, M., El Kheir Abra, O., & Mansouri, K. (2025). Factors Affecting Student Academic Performance: A Combined Factor Analysis of Mixed Data and Multiple Linear Regression Analysis. *IEEE access*, 13, 15946-15964. <https://doi.org/10.1109/ACCESS.2025.3532099>
- El Soufi, N., & See, B. H. (2019). Does explicit teaching of critical thinking improve critical thinking skills of English language learners in higher education? A critical review of causal evidence. *Studies in Educational Evaluation*, 60, 140-162. <https://doi.org/10.1016/j.stueduc.2018.12.006>
- El-Deghaidy, H., Mansour, N., Aldahmash, A., & Alshamrani, S. (2015). A Framework for Designing Effective Professional Development: Science Teachers' Perspectives in a Context of Reform. *EURASIA Journal of Mathematics*,

- Science and Technology Education*, 11(6), 1579-1601.  
<https://doi.org/10.12973/eurasia.2015.1424a>
- Emirbayer, M., & Mische, A. (1998). What is agency? *American journal of sociology*, 103(4), 962-1023. <https://doi.org/10.1086/231294>
- Ericsson, K. A. (2018). *The Cambridge handbook of expertise and expert performance* (2nd ed.). Cambridge University Press.
- Evans, L. (2008). Professionalism, professionalism and the development of education professionals. *British Journal of Educational Studies*, 56(1), 20-38.  
<https://doi.org/10.1111/j.1467-8527.2007.00392.x>
- Evans, L. (2019). Implicit and informal professional development: what it 'looks like', how it occurs, and why we need to research it. *Professional Development in Education*, 45(1), 3-16. <https://doi.org/10.1080/19415257.2018.1441172>
- Ewing, R. (2012). Competing issues in Australian primary curriculum: learning from international experiences. *Education 3-13*, 40(1), 97-111.  
<https://doi.org/10.1080/03004279.2012.635059>
- Fawcett, B., & Bal, C. S. (2009). *Social policy for social change*. Red Globe Press.
- Fischer, C., Fishman, B., Dede, C., Eisenkraft, A., Frumin, K., Foster, B., Lawrenz, F., Levy, A. J., & McCoy, A. (2018). Investigating relationships between school context, teacher professional development, teaching practices, and student achievement in response to a nationwide science reform. *Teaching and teacher education*, 72, 107-121. <https://doi.org/10.1016/j.tate.2018.02.011>
- Ford, C., McNally, D., & Ford, K. (2017). Using Design-Based Research in Higher Education Innovation. *Online learning (Newburyport, Mass.)*, 21(3).  
<https://doi.org/10.24059/olj.v21i3.1232>
- Forde, C., Hamilton, G., Ní Bhróithe, M., Nihill, M., & Rooney, A. M. (2019). Evolving policy paradigms of middle leadership in Scottish and Irish education: implications for middle leadership professional development. *School leadership & management*, 39(3-4), 297-314.  
<https://doi.org/10.1080/13632434.2018.1539962>
- Forde, C., McMahon, M. A., Hamilton, G., & Murray, R. (2016). Rethinking professional standards to promote professional learning. *Professional Development in Education*, 42(1), 19-35.  
<https://doi.org/10.1080/19415257.2014.999288>
- Fowler, S., Cutting, C., Fiedler, S. H. D., & Leonard, S. N. (2023). Design-based research in mathematics education : trends, challenges and potential. *Mathematics education research journal*, 35(3), 635-658.  
<https://doi.org/10.1007/s13394-021-00407-5>
- Francisco, S., Forssten Seiser, A., & Grice, C. (2021). Professional learning that enables the development of critical praxis. *Professional Development in Education*, 1-15. <https://doi.org/10.1080/19415257.2021.1879228>
- Fransson, G., Gallant, A., & Shanks, R. (2018). Human elements and the pragmatic approach in the Australian, Scottish and Swedish standards for newly qualified teachers. *Journal of educational change*, 19(2), 243-267.  
<https://doi.org/10.1007/s10833-018-9321-8>
- Freeman, J., & Simonsen, B. (2015). Examining the Impact of Policy and Practice Interventions on High School Dropout and School Completion Rates: A Systematic Review of the Literature. *Review of educational research*, 85(2), 205-248. <https://doi.org/10.3102/0034654314554431>

- Fu, K. K., Yang, M. C., & Wood, K. L. (2016). Design Principles: Literature Review, Analysis, and Future Directions. *Journal of mechanical design (1990)*, 138(10). <https://doi.org/10.1115/1.4034105>
- Gabriel, R. (2010). The case for differentiated professional support: Toward a phase theory of professional development. *Journal of Curriculum and Instruction*, 4(1), 86-95. <https://doi.org/10.3776/joci.2010.v4n1p86-95>
- Gale, T. (2006). How did we ever arrive at the conclusion that teachers are the problem?: A critical reading in the discourses of Australian schooling. *English in Australia*, 41(2), 12-26.
- Galletta, A. (2013). *Mastering the semi-structured interview and beyond : from research design to analysis and publication*. NYU Press.
- Gannon, S. (2012). Changing lives and standardising teachers: The possibilities and limits of professional standards. *English Teaching: Practice and Critique*, 11(3), 59-77.
- Gannon, S., D'warte, J., Naidoo, L., & Dove, J. (2024). Learning from Lockdown: The Impact of the COVID-19 pandemic on Australian Students, Families, and Teachers. *Western Sydney University*. <https://doi.org/10.26183/ywg7-kc69>
- Garm, N., & Karlsen, G. E. (2004). Teacher education reform in Europe: the case of Norway; trends and tensions in a global perspective. *Teaching and teacher education*, 20(7), 731-744. <https://doi.org/10.1016/j.tate.2004.07.004>
- Gavin, M., McGrath-Champ, S., Wilson, R., Fitzgerald, S., & Stacey, M. (2022). Teacher Workload in Australia: National reports of intensification and its threats to democracy. In *New Perspectives on Education for Democracy. Creative Responses to Local and Global Challenges* (Vol. 1, pp. 110-123). Routledge. <https://doi.org/10.4324/9781003145806-11>
- Ghosh, R. (2013). Mentors Providing Challenge and Support: Integrating Concepts From Teacher Mentoring in Education and Organizational Mentoring in Business. *Human resource development review*, 12(2), 144-176. <https://doi.org/10.1177/1534484312465608>
- Goepel, J. (2012). Upholding public trust: an examination of teacher professionalism and the use of Teachers' Standards in England. *Teacher Development*, 16(4), 489-505. <https://doi.org/10.1080/13664530.2012.729784>
- Goldhaber, D. (2002). The Mystery of Good Teaching. *Education next*, 2(1).
- Goldhaber, D., Perry, D., & Anthony, E. (2004). The National Board for Professional Teaching Standards (NBPTS) process: Who applies and what factors are associated with NBPTS certification? *Educational evaluation and policy analysis*, 26(4), 259-280. <https://doi.org/10.3102/01623737026004259>
- Goodwin, A. L. (2008). Defining teacher quality: Is consensus possible? In (3rd ed., pp. 398-403). Routledge. <https://doi.org/10.4324/9780203938690-48>
- Goodwin, A. L. (2021). Teaching standards, globalisation, and conceptions of teacher professionalism. *European journal of teacher education*, 44(1), 5-19. <https://doi.org/10.1080/02619768.2020.1833855>
- Goodwyn, A. (2016). *Expert teachers: An international perspective*. Taylor & Francis.
- Goodyear, V. A. (2017). Sustained Professional Development on Cooperative Learning: Impact on Six Teachers' Practices and Students' Learning [Article]. *Research Quarterly for Exercise and Sport*, 88(1), 83-94. <https://doi.org/10.1080/02701367.2016.1263381>
- Gore, J., Barron, R. J., Holmes, K., & Smith, M. (2016). Who says we are not attracting the best and brightest? Teacher selection and the aspirations of

- Australian school students. *Australian educational researcher*, 43(5), 527-549. <https://doi.org/10.1007/s13384-016-0221-8>
- Gore, J., Rickards, B., & Fray, L. (2023). From performative to professional accountability: re-imagining 'the field of judgment' through teacher professional development. *Journal of education policy*, 38(3), 452-473. <https://doi.org/10.1080/02680939.2022.2080274>
- Goss, P., & Sonnemann, J. (2020). *Top teachers: Sharing expertise to improve teaching*. Grattan Institute Melbourne.
- Govil, P. (2013). Ethical considerations in educational research. *International journal of advancement in education and social sciences*, 1(2), 17-22.
- Graham, M., Grice, C., & Cotton, W. (2023). Design-based research protocols to support effective PD for emerging Highly Accomplished and Lead Teachers. *Issues in Educational Research*, 33(4), 1380-1402.
- Graham, M., Grice, C., & Cotton, W. (2024). Design principles of effective professional development for school teachers: A systematic literature review. *Issues in Educational Research*, 34(4), 1260.
- Graham, M., Grice, C., Cotton, W., & Hilal, Y. Y. (2025a). Effective Professional Development in Schools and School Systems: A Stakeholder Analysis. *Australian Journal of Teacher Education [Manuscript submitted for publication]*.
- Graham, M., Grice, C., Cotton, W., & Hilal, Y. Y. (2025b). Ground to a HALT: Design Principles for Effective Professional Development that Support Highly Accomplished and Lead Teacher Applicants. *AERA Open [Manuscript submitted for publication]*.
- Graham, M., Grice, C., Cotton, W., & Hilal, Y. Y. (2025c). Supporting Teachers who Support Teachers: Effective Professional Development for Higher Teacher Accreditation Applicants. *Teaching and Teacher Education [Manuscript submitted for publication]*.
- Grasby, K. L., Little, C. W., Byrne, B., Coventry, W. L., Olson, R. K., Larsen, S., & Samuelsson, S. (2020). Estimating Classroom-Level Influences on Literacy and Numeracy: A Twin Study. *Journal of educational psychology*, 112(6), 1154-1166. <https://doi.org/10.1037/edu0000418>
- Greenblatt, D. (2018). Neoliberalism and teacher certification. *Policy futures in education*, 16(6), 804-827. <https://doi.org/10.1177/1478210318771827>
- Grek, S. (2009). Governing by numbers: the PISA 'effect' in Europe. *Journal of education policy*, 24(1), 23-37. <https://doi.org/10.1080/02680930802412669>
- Grice, C. (2019). 007 Spies, surveillance and pedagogical middle leadership: For the good of the empire of education. *Journal of Educational Administration and History*, 51(2), 165-181. <https://doi.org/10.1080/00220620.2019.1583173>
- Grierson, A. L., & Woloshyn, V. E. (2013). Walking the talk: supporting teachers' growth with differentiated professional learning. *Professional Development in Education*, 39(3), 401-419. <https://doi.org/10.1080/19415257.2012.763143>
- Grootenboer, P., Edwards-Groves, C., & Rönnerman, K. (2015). Leading practice development: voices from the middle. *Professional Development in Education*, 41(3), 508-526. <https://doi.org/10.1080/19415257.2014.924985>
- Grootenboer, P., Tindall-Ford, S., Edwards-Groves, C., & Attard, C. (2023). Establishing an evidence-base for supporting middle leadership practice development in schools. *School leadership & management*, 43(5), 454-472. <https://doi.org/10.1080/13632434.2023.2271957>

- Groundwater-Smith, S., & Sachs, J. (2002). The Activist Professional and the Reinstatement of Trust. *Cambridge journal of education*, 32(3), 341-358. <https://doi.org/10.1080/0305764022000024195>
- Guo, K. L., & Yong, Y. (2013). Policies and practices of professional development in China : what do early childhood teachers think? *The Australian journal of teacher education*, 38(6), 88-102. <https://doi.org/10.14221/ajte.2013v38n6.4>
- Guskey, T. (2000). *Evaluating professional development*. Corwin Press.
- Guskey, T. (2002a). Does it make a difference? Evaluating professional development. *Educational leadership*, 59(6), 45-51. <https://eric.ed.gov/?id=EJ640979>
- Guskey, T. (2002b). Professional Development and Teacher Change. *Teachers and teaching, theory and practice*, 8(3), 381-391. <https://doi.org/10.1080/135406002100000512>
- Halász, G., & Michel, A. (2011). Key Competences in Europe: interpretation, policy formulation and implementation. *European journal of education*, 46(3), 289-306. <https://doi.org/10.1111/j.1465-3435.2011.01491.x>
- Hall, E. (2009). Engaging in and Engaging with Research: Teacher Inquiry and Development. *Teachers and Teaching: Theory and Practice*, 15(6), 669-681. <https://doi.org/10.1080/13540600903356985>
- Hallinger, P. (2005). Instructional leadership and the school principal: A passing fancy that refuses to fade away. *Leadership and policy in schools*, 4(3), 221-239. <https://doi.org/10.1080/15700760500244793>
- Hallinger, P., & Kulophas, D. (2020). The evolving knowledge base on leadership and teacher professional learning: a bibliometric analysis of the literature, 1960-2018. *Professional Development in Education*, 46(4), 521-540. <https://doi.org/10.1080/19415257.2019.1623287>
- Hammersley-Fletcher, L., & Qualter, A. (2010). Chasing improved pupil performance: The impact of policy change on school educators' perceptions of their professional identity, the case of further change in English schools. *British educational research journal*, 36(6), 903-917. <https://doi.org/10.1080/01411920903215853>
- Hardy, I. (2008). Competing priorities in professional development: an Australian study of teacher professional development policy and practice. *Asia-Pacific journal of teacher education*, 36(4), 277-290. <https://doi.org/10.1080/13598660802364135>
- Hardy, I. (2012). *The politics of teacher professional development : policy, research and practice*. Routledge. <https://doi.org/10.4324/9780203110386>
- Hardy, I., & Melville, W. (2019). Policy as praxis : Senior educators' enactment of assessment policy reform. *Power and education*, 11(1), 69-84. <https://doi.org/10.1177/1757743818819520>
- Hargreaves, A. (2000). Four Ages of Professionalism and Professional Learning. *Teachers and teaching, theory and practice*, 6(2), 151-182. <https://doi.org/10.1080/713698714>
- Harris, A., & DeFlaminis, J. (2016). Distributed leadership in practice: Evidence, misconceptions and possibilities. *Management in education*, 30(4), 141-146. <https://doi.org/10.1177/0892020616656734>
- Harris, D. N., & Sass, T. R. (2009). The effects of NBPTS-certified teachers on student achievement. *Journal of policy analysis and management*, 28(1), 55-80. <https://doi.org/10.1002/pam.20402> (Journal of Policy Analysis and Management)

- Harwell, S. H. (2003). *Teacher professional development: It's not an event, it's a process*.  
[https://www.academia.edu/download/62082661/teacher\\_professional\\_development20200212-102284-1hqtnzx.pdf](https://www.academia.edu/download/62082661/teacher_professional_development20200212-102284-1hqtnzx.pdf)
- Hattie, J. (2003). *Teachers Make a Difference, What is the research evidence?*  
[https://research.acer.edu.au/cgi/viewcontent.cgi?article=1003&context=research\\_conference\\_2003](https://research.acer.edu.au/cgi/viewcontent.cgi?article=1003&context=research_conference_2003)
- Hattie, J. (2019). *Implementing, Scaling Up, and Valuing Expertise to Develop Worthwhile Outcomes in Schools: John Hatti*. Australian Council for Educational Leaders.
- Hawley, W. D., & Valli, L. (2007). Design principles for learner-centered professional development. In *The keys to effective schools: Educational reform as continuous improvement* (Vol. 2, pp. 117-137).
- Hayse, H. V. (2018). *The Impact of Explicit Professional Development Concerning Student Engagement on Classroom Practices* ProQuest Dissertations & Theses].
- Heffernan, A., Longmuir, F., Bright, D., & Kim, M. (2019). *Perceptions of teachers and teaching in Australia*.  
[https://research.monash.edu/files/302824782/301566106\\_oa.pdf](https://research.monash.edu/files/302824782/301566106_oa.pdf)
- Herrington, A., Herrington, J., & Mantei, J. (2009). *Design principles for mobile learning*.  
[https://researchportal.murdoch.edu.au/view/pdfCoverPage?instCode=61MUN\\_INST&filePid=13136787090007891&download=true](https://researchportal.murdoch.edu.au/view/pdfCoverPage?instCode=61MUN_INST&filePid=13136787090007891&download=true)
- Herrington, J., McKenney, S., Reeves, T., & Oliver, R. (2007). Design-based research and doctoral students: Guidelines for preparing a dissertation proposal. EdMedia+ Innovate Learning,
- Hickey, W. D., & Harris, S. (2005). Improved Professional Development through Teacher Leadership. *Rural Educator*, 26(2), 12-16.  
<https://doi.org/10.35608/ruraled.v26i2.511>
- Hilton, A., Hilton, G., Dole, S., & Goos, M. (2015). School Leaders as Participants in Teachers' Professional Development: The Impact on Teachers' and School Leaders' Professional Growth. *Australian Journal of Teacher Education*, 40(12), 103-125. <https://doi.org/10.14221/ajte.2015v40n12.8>
- Hilton, G., Assunção Flores, M., & Niklasson, L. (2013). Teacher quality, professionalism and professional development: findings from a European project [Article]. *Teacher Development*, 17(4), 431-447.  
<https://doi.org/10.1080/13664530.2013.800743>
- Hoadley, C., & Campos, F. C. (2022). Design-based research: What it is and why it matters to studying online learning. *Educational psychologist*, 57(3), 207-220.  
<https://doi.org/10.1080/00461520.2022.2079128>
- Hochberg, E. D., & Desimone, L. M. (2010). Professional Development in the Accountability Context: Building Capacity to Achieve Standards. *Educational psychologist*, 45(2), 89-106. <https://doi.org/10.1080/00461521003703052>
- Holloway, J. (2020). Teacher accountability, datafication and evaluation: a case for reimagining schooling. *Education policy analysis archives*, 28(56).  
<https://doi.org/10.14507/epaa.28.5026>
- Holloway, J., Sørensen, T. B., & Verger, A. (2017). Global perspectives on high-stakes teacher accountability policies: An introduction. *Education policy analysis archives*, 25, 85. <https://doi.org/10.14507/epaa.25.3325>

- Holloway, J. H. (2006). Connecting Professional Development to Student Learning Gains. *Science Educator*, 15(1), 37-43.
- Hopfenbeck, T. N., Lenkeit, J., El Masri, Y., Cantrell, K., Ryan, J., & Baird, J.-A. (2018). Lessons Learned from PISA: A Systematic Review of Peer-Reviewed Articles on the Programme for International Student Assessment. *Scandinavian journal of educational research*, 62(3), 333-353. <https://doi.org/10.1080/00313831.2016.1258726>
- Hotaman, D. (2010). The teaching profession: knowledge of subject matter, teaching skills and personality traits. *Procedia-Social and Behavioral Sciences*, 2(2), 1416-1420. <https://doi.org/10.1016/j.sbspro.2010.03.211>
- Howell, E., Perez, S., & Abraham, W. T. (2020). Toward a Professional Development Model for Writing as a Digital, Participatory Process. *Reading Research Quarterly*, 56(1), 95-117. <https://doi.org/10.1002/rrq.294>
- Howie, M. (2006). Some Reflections on Quality Teaching, Teaching Standards, Professional Learning and Teacher Accreditation. *English in Australia*, 41(2), 69-72.
- Hudson, P. (2009). How can preservice teachers be measured against advocated professional teaching standards. *The Australian journal of teacher education*, 34(5), 65-73. <https://doi.org/10.14221/ajte.2009v34n5.6>
- Hudson, P. (2013). Mentoring as professional development: 'growth for both' mentor and mentee. *Professional Development in Education*, 39(5), 771-783. <https://doi.org/10.1080/19415257.2012.749415>
- Husbands, C. (2013). Great teachers or great teaching? Why McKinsey got it wrong. *IOE London blog*. <https://ioelondonblog.wordpress.com/2013/10/10/great-teachers-or-great-teaching-why-mckinsey-got-it-wrong/>
- Ingersoll, R. M. (2007). Misdiagnosing the Teacher Quality Problem. In *The State of Education Policy Research* (pp. 291-306). Routledge. <https://doi.org/10.4324/9781003064466-24>
- Ingvarson, L. (2002). *Development of a national standards framework for the teaching profession*. [https://research.acer.edu.au/cgi/viewcontent.cgi?article=1007&context=teaching\\_standards](https://research.acer.edu.au/cgi/viewcontent.cgi?article=1007&context=teaching_standards)
- Ingvarson, L. (2005). Teaching standards: Foundations for professional development reform. In *Fundamental change International Handbook of Educational Change* (pp. 336-361). Springer.
- Ingvarson, L. (2009). Developing and rewarding excellent teachers: the Scottish Chartered Teacher Scheme. *Professional Development in Education*, 35(3), 451-468. <https://doi.org/10.1080/19415250903016707>
- Ingvarson, L. (2010). Recognising accomplished teachers in Australia : where have we been? Where are we heading? *The Australian journal of education*, 54(1), 46-71. <https://doi.org/10.1177/000494411005400105>
- Ingvarson, L. (2011). Trust the teaching profession with the responsibilities of a profession. *Teaching science (Deakin West, A.C.T.)*, 57(3), 7-10.
- Ingvarson, L. (2018). *What remuneration levels should apply to Highly Accomplished and Lead Teacher certification*. <https://research.acer.edu.au/cgi/viewcontent.cgi?article=1005&context=workforce>
- Ingvarson, L., & Chadbourne, R. (1996). The rise and fall of the Advanced Skills Teacher in Australia. *Leading & managing*, 2(1), 49-69.

- Ingvarson, L., Reid, K., Buckley, S., Kleinhenz, E., Masters, G. N., & Rowley, G. (2014). *Best practice teacher education programs and Australia's own programs*. [https://research.acer.edu.au/cgi/viewcontent.cgi?article=1014&context=teacher\\_education](https://research.acer.edu.au/cgi/viewcontent.cgi?article=1014&context=teacher_education)
- Ingvarson, L., & Rowe, K. (2008). Conceptualising and evaluating teacher quality : substantive and methodological issues. *The Australian journal of education*, 52(1), 5-35. <https://doi.org/10.1177/000494410805200102>
- InPraxis Group Inc. (2006). *Effective Professional Development: What the Research Says*. <https://files.eric.ed.gov/fulltext/ED494706.pdf>
- Jacobs, J., Boardman, A., Potvin, A., & Wang, C. (2018). Understanding teacher resistance to instructional coaching. *Professional Development in Education*, 44(5), 690-703. <https://doi.org/10.1080/19415257.2017.1388270>
- Jacobsen, C. B., Hvitved, J., & Andersen, L. B. (2014). Command and Motivation: How the Perception of External Interventions Relates to Intrinsic Motivation and Public Service Motivation. *Public administration (London)*, 92(4), 790-806. <https://doi.org/10.1111/padm.12024>
- Jao, L., & McDougall, D. (2015). The Collaborative Teacher Inquiry Project: A Purposeful Professional Development Initiative. *Canadian journal of education*, 38(1), 1-22.
- Jarwal, S. D., Brion, A. M., & King, M. L. (2009). Measuring research quality using the journal impact factor, citations and 'Ranked Journals': blunt instruments or inspired metrics? *Journal of higher education policy and management*, 31(4), 289-300. <https://doi.org/10.1080/13600800903191930>
- Jones, K., & O'Brien, J. (2024). From INSET to professional learning: 50 years of change as seen through the pages of *Professional Development in Education*. In (Vol. 50, pp. 1-10): Taylor & Francis.
- Jones, K., Ostinelli, G., & Crescentini, A. (2024). *Innovation in teacher professional learning in Europe*. Abingdon: Routledge.
- Kallio, H., Pietilä, A.-M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: developing a framework for a qualitative semi-structured interview guide. *Journal of advanced nursing*, 72(12), 2954-2965. <https://doi.org/10.1111/jan.13031>
- Karlberg, M., & Bezzina, C. (2020). The professional development needs of beginning and experienced teachers in four municipalities in Sweden. *Professional Development in Education*, 1-18. <https://doi.org/10.1080/19415257.2020.1712451>
- Katsuno, M. (2012). Teachers' Professional Identities in an Era of Testing Accountability in Japan: The Case of Teachers in Low-Performing Schools. *Education research international*, 2012, 1-8. <https://doi.org/10.1155/2012/930279>
- Ke, Z., Yin, H., & Huang, S. (2019). Teacher participation in school-based professional development in China: does it matter for teacher efficacy and teaching strategies? *Teachers and teaching, theory and practice*, 25(7), 821-836. <https://doi.org/10.1080/13540602.2019.1662777>
- Kemmis, S. (2021). A practice theory perspective on learning: beyond a 'standard' view. *Studies in continuing education*, 43(3), 280-295. <https://doi.org/10.1080/0158037X.2021.1920384>

- Kemmis, S., & Grootenboer, P. (2008). Situating praxis in practice: Practice architectures and the cultural, social and material conditions for practice. In *Enabling Praxis* (pp. 37-62). Brill.
- Kemmis, S., & Smith, T. J. (2008). *Enabling Praxis : a Challenges for Education*. Brill.
- Kennelly, J., Taylor, N., & Serow, P. (2011). Education for Sustainability and the Australian Curriculum. *Australian journal of environmental education*, 27(2), 209-218. <https://doi.org/10.1375/ajee.27.2.209>
- Kenny-Clark, S. (2013). Research by design : design-based research and the higher degree research student. *Journal of learning design*, 6(2), 26-32. <https://doi.org/10.5204/jld.v6i2.128>
- Kenya Ministry of Education. (n.d.). *Directorate of Quality Assurance and Standards*. <https://www.education.go.ke/index.php/about-us/state-departments/education/quality-assurance-and-standards>
- Kertesz, J. L., & Brett, P. (2020). Defining and designing impact consciousness in teacher education. *Teaching education (Columbia, S.C.)*, 31(4), 363-380. <https://doi.org/10.1080/10476210.2019.1583728>
- Khan, K. (2003). *Systematic reviews to support evidence-based medicine : how to review and apply findings of healthcare research*. Royal Society of Medicine, Ltd.
- King, F. (2014). Evaluating the impact of teacher professional development: an evidence-based framework. *Professional Development in Education*, 40(1), 89-111. <https://doi.org/10.1080/19415257.2013.823099>
- King, F. (2022). Supporting teachers to lead by learning and learn by leading. *Professional Development in Education*, 48(3), 361-363. <https://doi.org/10.1080/19415257.2022.2082699>
- King, F., Poekert, P., & Pierre, T. (2023). A pragmatic meta-model to navigate complexity in teachers' professional Learning. *Professional Development in Education*, 1-20. <https://doi.org/10.1080/19415257.2023.2248478>
- Kirsten, N. (2020). A systematic research review of teachers' professional development as a policy instrument. *Educational Research Review*, 31, 100366. <https://doi.org/10.1016/j.edurev.2020.100366>
- Kitzinger, J. (2006). Focus groups. In *Qualitative research in health care* (pp. 21-31). Blackwell Publishing Ltd.
- Kleinhenz, E., & Ingvarson, L. (2004). Teacher accountability in Australia: current policies and practices and their relation to the improvement of teaching and learning: Making teachers more accountable: case studies of the modernization process in six countries. *Research papers in education*, 19(1), 31-49. <https://doi.org/10.1080/0267152032000176963>
- Kleinhenz, E., & Ingvarson, L. (2007). Standards for Teaching; Theoretical Underpinnings and Applications. *Australian Council for Educational Research (ACER)*. [https://research.acer.edu.au/teaching\\_standards/1/](https://research.acer.edu.au/teaching_standards/1/)
- Koellner, K., Jacobs, J., & Borko, H. (2011). Mathematics Professional Development: Critical Features for Developing Leadership Skills and Building Teachers' Capacity. *Mathematics Teacher Education and Development*, 13(1), 115-136.
- Kohn, A. (1998). Challenging Behaviorist Dogma: Myths About Money and Motivation. *Compensation and benefits review*, 30(2), 27-37. <https://doi.org/10.1177/088636879803000206>
- Kraft, M. A., Blazar, D., & Hogan, D. (2018). The Effect of Teacher Coaching on Instruction and Achievement: A Meta-Analysis of the Causal Evidence.

- Review of educational research*, 88(4), 547-588.  
<https://doi.org/10.3102/0034654318759268>
- Kraft, M. A., Brunner, E. J., Dougherty, S. M., & Schwegman, D. J. (2020). Teacher accountability reforms and the supply and quality of new teachers. *Journal of Public Economics*, 188, 104212.  
<https://doi.org/10.1016/j.jpubeco.2020.104212>
- Kristoffersson, A., & Linden, M. (2020). A Systematic Review on the Use of Wearable Body Sensors for Health Monitoring: A Qualitative Synthesis. *Sensors (Basel)*, 20(5). <https://doi.org/10.3390/s20051502>
- Labone, E., & Long, J. (2016). Features of effective professional learning: a case study of the implementation of a system-based professional learning model [Case Study]. *Professional Development in Education*, 42, 54-77.  
<https://doi.org/10.1080/19415257.2014.948689>
- Lagowski, J. J. (1986). Teaching as a profession, not an occupation. *Journal of chemical education*, 63(7), 555. <https://doi.org/10.1021/ed063p555>
- Larsen, E., Curtis, E., Nguyen, H. T., & Loughland, T. (2023). Perspectives on teacher standards in the mentoring process: insights from mentors and early career teachers in an Australian context. *Educational Review*, 1-17.
- Leaf, A., Wilson, R., & Odhiambo, G. (2024). Firefighters or deputy lead learners? Organizational, deputy and principal in-situ perspectives on the role of secondary deputy principals. *International journal of leadership in education*, 1-30. <https://doi.org/10.1080/13603124.2024.2342291>
- Lee, H.-J. (2004). Developing a Professional Development Program Model Based on Teachers' Needs. *Professional Educator*, 27(1), 39-49.
- Lee, S. W. (2018). Pulling Back the Curtain: Revealing the Cumulative Importance of High-Performing, Highly Qualified Teachers on Students' Educational Outcome. *Educational evaluation and policy analysis*, 40(3), 359-381.  
<https://doi.org/10.3102/0162373718769379>
- Lefstein, A., Louie, N., Segal, A., & Becher, A. (2020). Taking stock of research on teacher collaborative discourse: Theory and method in a nascent field. *Teaching and teacher education*, 88, 102954.  
<https://doi.org/10.1016/j.tate.2019.102954>
- Leigh, A., & Ryan, C. (2008). How and why has teacher quality changed in Australia? *Australian economic review*, 41(2), 141-159. <https://doi.org/10.1111/j.1467-8462.2008.00487.x>
- Leino, K., Nissinen, K., & Sirén, M. (2022). Associations between teacher quality, instructional quality and student reading outcomes in Nordic PIRLS 2016 data. *Large-Scale Assessments in Education*, 10(1), 25.  
<https://doi.org/10.1186/s40536-022-00146-4>
- Leithwood, K., Fullan, M., & Watson, N. (2003). *The Schools We Need: Recent Education Policy in Ontario* (Recommendations for Moving Forward, Issue). <https://michaelfullan.ca/wp-content/uploads/2016/06/13396053700.pdf>
- Leonard, S. N. (2012). Professional Conversations: Mentor Teachers' Theories-in-Use Using the Australian National Professional Standards for Teachers. *Australian journal of teacher education (online)*, 37(12), 78.  
<https://doi.org/10.14221/ajte.2012v37n12.7>
- Liou, Y.-H., & Carrinus, E. T. (2020). A capital framework for professional learning and practice. *International journal of educational research*, 100, 101527.  
<https://doi.org/10.1016/j.ijer.2019.101527>

- Lipscombe, K., Grice, C., Tindall-Ford, S., & De-Nobile, J. (2020). Middle leading in Australian schools: professional standards, positions, and professional development. *School leadership & management*, 40(5), 406-424. <https://doi.org/10.1080/13632434.2020.1731685>
- Lipscombe, K., Tindall-Ford, S., & Lamanna, J. (2023). School middle leadership : A systematic review. *Educational management, administration & leadership*, 51(2), 270-288. <https://doi.org/10.1177/1741143220983328>
- Lipsky, M. (1980). *Street-level bureaucracy : dilemmas of the individual in public services*. Russell Sage Foundation.
- Lo, C. K. (2021). Design principles for effective teacher professional development in integrated STEM education. *Educational Technology & Society*, 24(4), 136-152.
- Lockheed, M. (2013). Causes and Consequences of International Large-Scale Assessments In Developing Countries. In H.-D. Meyer & A. Benavot (Eds.), *PISA, power, and policy : the emergence of global educational governance*. Symposium Books.
- Louden, W. (2000). Standards for standards: The development of Australian professional standards for teaching. *The Australian journal of education*, 44(2), 118-134. <https://doi.org/10.1177/000494410004400203>
- Loughland, T., & Ellis, N. (2016). A Common Language? The Use of Teaching Standards in the Assessment of Professional Experience : Teacher Education Students' Perceptions. *The Australian journal of teacher education*, 41(7), 56-69. <https://doi.org/10.14221/ajte.2016v41n7.4>
- Ma Rhea, Z., Anderson, P., & Atkinson, B. (2012). *Improving teaching in Aboriginal and Torres Strait Islander education: Australian professional standards for teachers* (0987235184). <https://eprints.qut.edu.au/112637/1/improving-teaching-in-aboriginal-and-torres-strait-islander-education-professional-development-and-the-australian-professional-standards-for-teachers-monash-university.pdf>
- MacNeill, H., Paton, M., Schneeweiss, S., & Wiljer, D. (2024). Perceived Advantages and Disadvantages of Online Continuing Professional Development (CPD) During COVID-19: CPD Providers' Perspectives. *The Journal of continuing education in the health professions*, 44(2), 147-150. <https://doi.org/10.1097/CEH.0000000000000512>
- Mahon, K. (2020). *Pedagogy, education, and praxis in critical times*. Springer. <https://doi.org/10.1007/978-981-15-6926-5>
- Mahon, K., Heikkinen, H. L., & Huttunen, R. (2019). Critical educational praxis in university ecosystems: Enablers and constraints. *Pedagogy, Culture & Society*, 27(3), 463-480. <https://doi.org/10.1080/14681366.2018.1522663>
- Mahony, P., & Hextall, I. (2000). *Reconstructing teaching standards, performance, and accountability*. RoutledgeFalmer.
- Mallett, R., Hagen-Zanker, J., Slater, R., & Duvendack, M. (2012). The benefits and challenges of using systematic reviews in international development research. *Journal of development effectiveness*, 4(3), 445-455. <https://doi.org/10.1080/19439342.2012.711342>
- Mardis, M. A., & Hoffman, E. S. (2007). Getting Past" Shssh": Online Focus Groups as Empowering Professional Development for Teacher Librarians. IASL Annual Conference Proceedings,
- Marks, H. M., & Printy, S. M. (2003). Principal Leadership and School Performance: An Integration of Transformational and Instructional Leadership. *Educational*

- administration quarterly*, 39(3), 370-397.  
<https://doi.org/10.1177/0013161X03253412>
- Maskit, D., & Firstater, E. (2016). Preschool Teachers' Perspectives on Teaching as a Profession and Pedagogical Change. *Journal of research in childhood education*, 30(2), 200-210. <https://doi.org/10.1080/02568543.2016.1143417>
- Masters, G. (2015). Raising the Professional Status of teaching. *Teacher Magazine*. [https://research.acer.edu.au/cgi/viewcontent.cgi?article=1013&context=colum\\_nists](https://research.acer.edu.au/cgi/viewcontent.cgi?article=1013&context=colum_nists)
- Matherson, L. H., Wilson, E. K., & Wright, V. H. (2014). Need TPACK? Embrace Sustained Professional Development. *The Delta Kappa Gamma bulletin*, 81(1), 45.
- Mathew, P., Mathew, P., & Peechattu, P. (2017). Reflective practices: A means to teacher development. *Asia Pacific Journal of Contemporary Education and Communication Technology*, 3(1), 126-131.
- Mayer, D. (2009). *Conceptualising a voluntary certification system for highly accomplished teachers*. Teaching Australia–Australian Institute for Teaching and School Leadership.
- Mayer, D., Mitchell, J., Macdonald, D., & Bell, R. (2005). Professional Standards for Teachers: A Case Study of Professional Learning. *Asia Pacific Journal of Teacher Education*, 33(2), 159-179.
- Maynard-Moody, S. W., & Musheno, M. C. (2003). *Cops, teachers, counselors : stories from the front lines of public service*. University of Michigan Press. <https://doi.org/10.3998/mpub.11924>
- McChesney, K., & Aldridge, J. M. (2021). What gets in the way? A new conceptual model for the trajectory from teacher professional development to impact. *Professional Development in Education*, 47(5), 834-852. <https://doi.org/10.1080/19415257.2019.1667412>
- McCray, C. (2018). Secondary teachers' perceptions of professional development: a report of a research study undertaken in the USA. *Professional Development in Education*, 44(4), 583-585. <https://doi.org/10.1080/19415257.2018.1427133>
- McKenney, S. E., & Reeves, T. C. (2012). *Conducting educational design research*. Routledge. <https://doi.org/10.4324/9780203818183>
- McKinsey, & Company. (2007). How the world's best performing school systems come out on top. In: Author New York, NY.
- Merchie, E., Tuytens, M., Devos, G., & Vanderlinde, R. (2018). Evaluating teachers' professional development initiatives: towards an extended evaluative framework. *Research papers in education*, 33(2), 143-168. <https://doi.org/10.1080/02671522.2016.1271003>
- Michalke, S., Lohrenz, L., Siemon, D., Lattemann, C., & Robra-Bissantz, S. (2022). Design knowledge for digital business ecosystems: towards design principles for digital engagement platforms. In *Handbook on digital business ecosystems* (pp. 161-176). Edward Elgar Publishing.
- Ministry of Education (Korea). (n.d.). *Major Tasks*. Retrieved 25 February 2021 from <http://english.moe.go.kr/sub/info.do?m=040101&s=english>
- Mitchell, D., & Sutherland, D. (2020). *What really works in special and inclusive education: Using evidence-based teaching strategies*. Routledge.
- Mockler, N. (2011). Beyond 'what works': Understanding teacher identity as a practical and political tool. *Teachers and teaching*, 17(5), 517-528. <https://doi.org/10.1080/13540602.2011.602059>

- Mockler, N. (2013). Teacher professional learning in a neoliberal age: Audit, professionalism and identity. *Australian journal of teacher education (online)*, 38(10), 35-47. <https://doi.org/10.14221/ajte.2013v38n10.8>
- Mockler, N. (2018). Teaching quality is not teacher quality. How we talk about 'quality' matters, here's why. <https://www.aare.edu.au/blog/?p=2845>
- Mockler, N. (2022). Teacher professional learning under audit: reconfiguring practice in an age of standards. *Professional Development in Education*, 48(1), 166-180. <https://doi.org/10.1080/19415257.2020.1720779>
- Mohedas, I., Daly, S. R., Sienko, K. H., Cravens, G. L., & Huynh, L. (2016). Evaluating best practices when interviewing stakeholders during design. 2016 ASEE Annual Conference & Exposition,
- Molla, T., & Nolan, A. (2020). Teacher agency and professional practice. *Teachers and teaching, theory and practice*, 26(1), 67-87. <https://doi.org/10.1080/13540602.2020.1740196>
- Moloney, M., Pope, J., & Donnellan, A. (2023). Ethical Mentoring. In *Professional Mentoring for Early Childhood and Primary School Practice* (pp. 185-200). Springer.
- Msila, V. (2020). Revisiting Teacher Leadership in South Africa: A Study of Four Schools. *Africa education review*, 17(5), 95-112. <https://doi.org/10.1080/18146627.2021.1954535>
- Mueller, A. E., & Segal, D. L. (2014). Structured versus semistructured versus unstructured interviews. *The encyclopedia of clinical psychology*, 1(7).
- Mugambi, M. M., & Ochieng, R. J. (2014). Transforming the image of the teaching profession in Kenya. *International Journal of Education and Research*, 2(2).
- Mulcahy, D. (2011). Assembling the 'Accomplished' Teacher: The performativity and politics of professional teaching standards. *Educational philosophy and theory*, 43(S1), 94-113. <https://doi.org/10.1111/j.1469-5812.2009.00617.x>
- Mulford, B. (2005). Leadership for school and student learning—what do we know. *School Leadership Centre—BC Educational Leadership Research Ejournal*(4).
- Murray, J. (2016). *Designing and implementing effective professional learning*. Corwin.
- Musanti, S. I., & Pence, L. (2010). Collaboration and Teacher Development: Unpacking Resistance, Constructing Knowledge, and Navigating Identities. *Teacher education quarterly (Claremont, Calif.)*, 37(1), 73-89.
- National Assessment Program. (n.d.). NAPLAN. Retrieved 3/10/2024 from <https://www.nap.edu.au/naplan>
- National Board for Professional Teaching Standards USA. (1989). *What Teachers Should Know and Be Able to Do*. [https://www.cerra.org/uploads/1/7/6/8/17684955/what\\_teachers\\_should\\_know-2.pdf](https://www.cerra.org/uploads/1/7/6/8/17684955/what_teachers_should_know-2.pdf)
- National Board for Professional Teaching Standards USA. (2016). *What Teachers Should Know and Be Able to Do*. Retrieved from <http://accomplishedteacher.org/wp-content/uploads/2016/12/NBPTS-What-Teachers-Should-Know-and-Be-Able-to-Do-.pdf>
- National Board for Professional Teaching Standards USA. (2019). *2019 State Rankings by Total Number of National Board Certified Teachers*. [https://www.nbpts.org/wp-content/uploads/2019\\_StateRankings\\_All\\_NBCTs.pdf](https://www.nbpts.org/wp-content/uploads/2019_StateRankings_All_NBCTs.pdf)
- National Board for Professional Teaching Standards USA. (2022). *National Board Announces More Than 2,800 Teachers Earn National Board Certification*.

Retrieved 4/10/2024 from <https://www.nbpts.org/newsroom/national-board-announces-more-than-2800-teachers-earn-national-board-certification/#:~:text=There%20are%20now%20a%20total,learning%20and%20the%20teaching%20profession.>

- National Centre on Education and the Economy. (2020). *Japan: Teacher and Principal Quality*. Retrieved 26 January 2021 from <https://ncee.org/what-we-do/center-on-international-education-benchmarking/top-performing-countries/japan-overview/japan-teacher-and-principal-quality/>
- Naylor, R., & Sayed, Y. (2014). *Teacher quality: Evidence review*. Retrieved from <https://www.dfat.gov.au/sites/default/files/evidence-review-teacher-quality.pdf>
- NESA. (2010a). Evidence Guide for the Highly Accomplished Teacher Standards. <https://educationstandards.nsw.edu.au/wps/wcm/connect/404bb978-bf25-49b2-9d7f-c7761ed1f3e3/NESA+Highly+Accomplished+Teacher+-+Evidence+Guide.pdf?MOD=AJPERES&CVID=>
- NESA. (2010b). *Evidence Guide for the Lead Teacher Standards*. Retrieved from <https://educationstandards.nsw.edu.au/wps/wcm/connect/6ca313f0-5322-4f82-b19f-6c78dc82cc1a/NESA+Lead+Teacher+-+Evidence+Guide.pdf?MOD=AJPERES&CVID=>
- NESA. (2016). *Policy for Accreditation at Highly Accomplished and Lead Teacher*. Retrieved from <https://educationstandards.nsw.edu.au/wps/wcm/connect/872f1394-518c-46bc-90b1-a55bde1e92b0/NESA+Policy+for+Accreditation+at+Highly+Accomplished+an+d+Lead.pdf?MOD=AJPERES&CVID=>
- NESA. (2018). *Maintenance of Teacher Accreditation Policy*. Retrieved from <https://www.educationstandards.nsw.edu.au/wps/portal/nesa/teacher-accreditation/resources/policies-procedures/maintenance-of-teacher-accreditation-policy>
- NESA. (2019a). Moderating and Consistency Committee Advice to Teachers. <https://educationstandards.nsw.edu.au/wps/wcm/connect/d70e28fd-4c6d-48bc-9bb0-0240db7b5282/mcc-advice-to-teachers.pdf?MOD=AJPERES&CVID=>
- NESA. (2019b). *Proficient Teacher Accreditation Policy*. Retrieved from <https://educationstandards.nsw.edu.au/wps/wcm/connect/f5bfb718-2d02-41bd-8a7b-011160d7febe/proficient-teacher-accreditation-policy-2018.pdf?MOD=AJPERES&CVID=>
- NESA. (2022a). *Highly Accomplished Teacher Evidence Guide*. <https://www.nsw.gov.au/sites/default/files/noindex/2024-01/highly-accomplished-teacher-evidence-guide-for-applicants-working-in-k-12-schools.pdf>
- NESA. (2022b). *Lead Teacher Evidence Guide*. <https://www.nsw.gov.au/sites/default/files/noindex/2024-01/lead-teacher-evidence-guide-for-applicants-working-in-k-12-schools.pdf>
- NESA. (2022c). *Role of the Principal/Service Director Guide - Role of Principal/Service Director Highly Accomplished and Lead Teacher (HALT) accreditation*. <https://educationstandards.nsw.edu.au/wps/wcm/connect/25d30d5e-32b7-418d-8b46-2e6764663ba4/principal-service-director-guide-role.pdf?MOD=AJPERES&CVID=#:~:text=They%20provide%20colleagues%2C%20including%20pre,within%20their%20sphere%20of%20responsibility.>

- NESA. (2023a). *Highly Accomplished Teachers*.  
<https://educationstandards.nsw.edu.au/wps/portal/nesa/teacher-accreditation/apply/higher-levels/highly-accomplished-teachers>
- NESA. (2023b). *Lead Teachers*.  
<https://educationstandards.nsw.edu.au/wps/portal/nesa/teacher-accreditation/apply/higher-levels/lead-teachers>
- NESA. (2023c). *NSW welcomes 57 new teachers accredited at the highest levels*.  
<https://www.nsw.gov.au/education-and-training/nesa/news/all/nsw-welcomes-57-new-teachers-accredited-at-highest-levels#:~:text=NSW%20now%20has%20338%20HALT,childhood%20services%20across%20the%20state.>
- NESA. (2024a). *Changes to Highly Accomplished and Lead Teacher accreditation*. Retrieved 17/10/2024 from <https://www.nsw.gov.au/education-and-training/nesa/news/all/halt-accreditation-changes-for-teachers#:~:text=Key%20changes%20include%3A,are%20the%20applicant's%20own%20choice>
- NESA. (2024b). *Highly Accomplished Teacher Evidence Guide For applicants working in K–12 schools*.  
<https://www.nsw.gov.au/sites/default/files/noindex/2024-01/highly-accomplished-teacher-evidence-guide-for-applicants-working-in-k-12-schools.pdf>
- NESA. (2024c). *Maintain Proficient Teacher accreditation Meet your professional development requirements*. Retrieved 06/07/2024 from <https://www.nsw.gov.au/education-and-training/nesa/teacher-accreditation/maintain-accreditation/proficient-teacher/meet-your-professional-development-requirements>
- NESA. (n.d.-a). *Applying for Highly Accomplished and Lead Teacher Accreditation Procedure*. <https://www.nsw.gov.au/sites/default/files/noindex/2024-10/applying-for-halt-accreditation-procedure-for-teachers-k-12-and-early-childhood.pdf>
- NESA. (n.d.-b). *Begin your application*. Retrieved 04/02/2025 from <https://www.nsw.gov.au/education-and-training/nesa/teacher-accreditation/halt-accreditation/apply/begin-your-application>
- Nethsinghe, R., & Brown, B. (2023). An Analysis of the Status of Teacher Certification in the Australian Capital Territory Following the Introduction of the Modular Model. *Australian Journal of Teacher Education*, 48(4), 4.  
<https://doi.org/10.14221/1835-517x.6002>
- Netolicky, D. M. (2016). Rethinking professional learning for teachers and school leaders. *Journal of Professional Capital and Community*, 1(4), 270-285.  
<https://doi.org/10.1108/JPCC-04-2016-0012>
- Netolicky, D. M. (2019). *Transformational Professional Learning Making a Difference in Schools*. Routledge.
- Netolicky, D. M. (2020). School leadership during a pandemic: navigating tensions. *Journal of Professional Capital and Community*, 5(3/4), 391-395.  
<https://doi.org/10.1108/JPCC-05-2020-0017>
- Neumerski, C. M. (2013). Rethinking Instructional Leadership, a Review: What Do We Know About Principal, Teacher, and Coach Instructional Leadership, and Where Should We Go From Here? *Educational administration quarterly*, 49(2), 310-347. <https://doi.org/10.1177/0013161X12456700>

- Nishimura, T. (2014). Effective professional development of teachers: a guide to actualizing inclusive schooling. *International journal of whole schooling*, 10(1), 19.
- Northam, M. (2018). Pre-2004 teacher workforce accredited with NESA. *Newsmonth*, 38(2), 2.
- NSW Department of Education. (2015). *Performance and Development Framework for Principals, Executives and Teachers In NSW Public Schools*. Retrieved from [https://education.nsw.gov.au/content/dam/main-education/about-us/jobs-and-opportunities/media/documents/performance\\_development\\_framework.pdf](https://education.nsw.gov.au/content/dam/main-education/about-us/jobs-and-opportunities/media/documents/performance_development_framework.pdf)
- NSW Department of Education. (2017a). *Accreditation at Highly Accomplished and Lead Teacher Procedures*. Retrieved from <https://policies.education.nsw.gov.au/policy-library/associated-documents/accreditation-at-highly-accomplished-teacher-and-lead-teacher-procedures.pdf>
- NSW Department of Education. (2017b). *School Excellence Framework: Version 2*. Retrieved from <https://policies.education.nsw.gov.au/policy-library/related-documents/school-excellence-framework-version-2.pdf>
- NSW Department of Education. (2017c). *Standards Based Teacher Salary Procedure*. Retrieved from [https://www.teach.nsw.edu.au/documents/hr/salary/DOC16-1249032-Standards-Based-Teacher-Salary-Procedure-26\\_05\\_2017.pdf](https://www.teach.nsw.edu.au/documents/hr/salary/DOC16-1249032-Standards-Based-Teacher-Salary-Procedure-26_05_2017.pdf)
- NSW Department of Education. (2018a). *Accreditation at Proficient Teacher*. Retrieved from <https://policies.education.nsw.gov.au/policy-library/policies/accreditation-at-proficient-teacher-in-nsw-public-schools-policy>
- NSW Department of Education. (2018b). *Maintenance of teacher accreditation at Proficient, Highly Accomplished and Lead Teacher*. Retrieved from <https://policies.education.nsw.gov.au/policy-library/associated-documents/maintenance-accreditation-proficient-highly-accomplished-and-lead-procedures.pdf>
- NSW Department of Education. (2021a). Deputy Principal Role Description. <https://education.nsw.gov.au/policy-library/policies/pd-2004-0024/pd-2004-0024-02>
- NSW Department of Education. (2021b). *Strong Start Great Teachers*. Retrieved 7th February 2021 from <https://education.nsw.gov.au/teaching-and-learning/professional-learning/teacher-quality-and-accreditation/strong-start-great-teachers>
- NSW Department of Education. (2022a). *The Case for Change: A Briefing on Rewarding Excellence in Teaching*. <https://education.nsw.gov.au/content/dam/main-education/teaching-and-learning/rewarding-excellence/Rewarding-excellence-briefing-paperTODELETE.pdf>
- NSW Department of Education. (2022b). *Middle Leader Assistant Principal and Head Teacher Role Description*. <https://education.nsw.gov.au/policy-library/policies/pd-2004-0024/pd-2004-0024-04>
- NSW Department of Education. (2022c). *Rewarding Excellence in Teaching – Options Paper*. [https://education.nsw.gov.au/content/dam/main-education/teaching-and-learning/rewarding-excellence/Rewarding\\_Excellence\\_in\\_Teaching\\_-\\_Full\\_Options\\_Paper.pdf](https://education.nsw.gov.au/content/dam/main-education/teaching-and-learning/rewarding-excellence/Rewarding_Excellence_in_Teaching_-_Full_Options_Paper.pdf)

- NSW Department of Education. (2024). *School excellence*. Retrieved 30/07/2024 from <https://education.nsw.gov.au/policy-library/policies/pd-2016-0468#>
- NSW Department of Education. (n.d.-a). *Highly accomplished and lead teachers*. Retrieved 29/01/2025 from <https://education.nsw.gov.au/inside-the-department/human-resources/learning/highly-accomplished-and-lead-teachers>
- NSW Department of Education. (n.d.-b). *Homepage*. Retrieved 10/11/2024 from <https://education.nsw.gov.au/>
- NSW Department of Education and Communities. (2014). *Local Schools, Local Decisions: The Reform Agenda*. Retrieved from <http://currentreforms.weebly.com/uploads/2/6/9/9/26999857/lsld-overview-july2014.pdf>
- NSW Institute of Teachers. (2004). *Professional Teaching Standards*. [https://project-beam.weebly.com/uploads/5/3/9/5/5395095/professional\\_teaching\\_standards.pdf](https://project-beam.weebly.com/uploads/5/3/9/5/5395095/professional_teaching_standards.pdf)
- NSW Parliament. (2022). *Great teachers, great schools: Lifting the status of teaching, teacher quality and teacher numbers in New South Wales. Report of the inquiry into teacher shortages in New South Wales*. <https://www.parliament.nsw.gov.au/lcdocs/inquiries/2882/Report%20No.48%20-%20PC%203%20-%20Teacher%20Shortages%20in%20NSW.pdf>
- NSW Teachers Federation. (2020). *Teacher Salaries: Standards Based Remuneration*. [https://www.nswtf.org.au/files/schools\\_and\\_saturday\\_schools\\_salary\\_rates\\_2020-2021.pdf](https://www.nswtf.org.au/files/schools_and_saturday_schools_salary_rates_2020-2021.pdf)
- Nusche, D., Earl, L., Maxwell, W., & Shewbridge, C. (2011). *OECD reviews of evaluation and assessment in education* (Oslo: OECD, Issue). <https://www.oecd.org/norway/48632032.pdf>
- O'Sullivan, K.-A. (2016). Contested territories: Subject English, teacher education and professional standards in Australia. *English teaching : practice and critique*, 15(1), 55-73. <https://doi.org/10.1108/ETPC-09-2015-0073>
- OECD. (2009). *Creating Effective Teaching and Learning Environments First results from TALIS*. [https://www-oecd-ilibrary-org.ap1.proxy.openathens.net/education/talis-2018-results-volume-i\\_1d0bc92a-en](https://www-oecd-ilibrary-org.ap1.proxy.openathens.net/education/talis-2018-results-volume-i_1d0bc92a-en)
- OECD. (2012). *Strong Performers and Successful Reformers in Education: Lessons from PISA for Japan*. <http://www.oecd.org/education/school/programme-for-international-student-assessment-pisa/strong-performers-and-successful-reformers-in-education-lessons-from-pisa-for-japan.htm>
- OECD. (2019). *TALIS 2018 Results (Volume I)*. <https://doi.org/doi:https://doi.org/10.1787/1d0bc92a-en>
- OECD. (2020). *Education at a Glance 2020 OECD Indicators*. <https://www.oecd.org/education/education-at-a-glance/>
- OECD. (2023a). *PISA 2022 Assessment and Analytical Framework*. OECD Publishing.
- OECD. (2023b). *PISA 2022 Results (Volume I): The State of Learning and Equity in Education*. OECD Publishing. [https://www.oecd.org/en/publications/pisa-2022-results-volume-i\\_53f23881-en/full-report.html](https://www.oecd.org/en/publications/pisa-2022-results-volume-i_53f23881-en/full-report.html)
- OECD. (2024). *Programme for International Student Assessment (PISA)*. Retrieved 3/10/2024 from <https://www.oecd.org/en/about/programmes/pisa.html>

- Oliffe, J. L., Kelly, M. T., Gonzalez Montaner, G., & Yu Ko, W. F. (2021). Zoom Interviews: Benefits and Concessions. *International journal of qualitative methods*, 20. <https://doi.org/10.1177/16094069211053522>
- Oliver, P. (2012). *Succeeding with your literature review: a handbook for students*. McGraw-Hill Education.
- Ontario College of Teachers. (2020). *Registration Guide: Requirements for Becoming a Teacher of General Education in Ontario including multi-session programs*. Retrieved from [https://www.oct.ca/-/media/PDF/Requirements%20General%20Education%20Teacher/EN/general\\_education\\_teacher\\_e.pdf](https://www.oct.ca/-/media/PDF/Requirements%20General%20Education%20Teacher/EN/general_education_teacher_e.pdf)
- Onwuegbuzie, A. J., & Johnson, R. B. (2006). The validity issue in mixed research. *Research in the Schools*, 13(1), 48-63.
- Opfer, V. D., & Pedder, D. (2011). Conceptualizing Teacher Professional Learning. *Review of educational research*, 81(3), 376-407. <https://doi.org/10.3102/0034654311413609>
- Opper, I. M. (2019). *Teachers Matter: Understanding Teachers' Impact on Student Achievement*. RAND Corporation. <https://doi.org/10.7249/RR4312>
- OSF Registries. (2023). *Bringing Leadership to a HALT: A Systematic Literature Review of Quality Professional Development in Primary and Secondary Schools*. <https://osf.io/fwczq>
- Osterman, K. F., & Kottkamp, R. B. (2004). *Reflective practice for educators: Professional development to improve student learning*. Corwin Press.
- Owen, H. (2011). Personalised, Contextualised, Professional Learning Development: Putting It into Practice. *Journal of Open, Flexible and Distance Learning*, 15(1), 61-74. <https://doi.org/10.61468/jofdl.v15i1.13>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hrobjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S.,...Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *Syst Rev*, 10(1), 89. <https://doi.org/10.1186/s13643-021-01626-4>
- Paloniemi, S., & Goller, M. (2017). The Multifaceted Nature of Agency and Professional Learning. In (pp. 465-478). Springer International Publishing. [https://doi.org/10.1007/978-3-319-60943-0\\_23](https://doi.org/10.1007/978-3-319-60943-0_23)
- Patton, K., Parker, M., & Pratt, E. (2013). Meaningful Learning in Professional Development: Teaching without Telling. *Journal of teaching in physical education*, 32(4), 441-459. <https://doi.org/10.1123/jtpe.32.4.441>
- Patton, M. Q. (2006). Foreword: Trends and issues as context. *Research in the Schools*, 13(1), 1-2.
- Perry, E. (2022). Teacher professional development in changing circumstances: The impact of COVID-19 on schools' approaches to professional development. *Education Sciences*, 13(1), 48. <https://doi.org/10.3390/educsci13010048>
- Perry, J. L., & Wise, L. R. (1990). The Motivational Bases of Public Service. *Public administration review*, 50(3), 367-373. <https://doi.org/10.2307/976618>
- Perryman, J., & Calvert, G. (2020). What motivates people to teach, and why do they leave? Accountability, performativity and teacher retention. *British Journal of Educational Studies*, 68(1), 3-23. <https://doi.org/10.1080/00071005.2019.1589417>
- Phytanza, D. T. P., & Burhaein, E. (2020). The effects of tenure, teacher certification, and work motivation on special needs teacher performance. *Universal Journal*

- of Educational Research*, 8(9), 4348-4356.  
<https://doi.org/10.13189/ujer.2020.080962>
- Plomp, T. (2013). Educational design research: An introduction. *Educational design research*, 11-50.
- Podolsky, A., Darling-Hammond, L., Doss, C., & Reardon, S. (2019). California's Positive Outliers: Districts Beating the Odds. Positive Outliers Series. *Learning Policy Institute*.
- Poekert, P. E., Swaffield, S., Demir, E. K., & A. Wright, S. (2020). Leadership for professional learning towards educational equity: a systematic literature review. *Professional Development in Education*, 46(4), 541-562.  
<https://doi.org/10.1080/19415257.2020.1787209>
- Popova, A., Evans, D. K., Breeding, M. E., & Arancibia, V. (2022). Teacher Professional Development around the World: The Gap between Evidence and Practice. *The World Bank research observer*, 37(1), 107-136.  
<https://doi.org/10.1093/wbro/lkab006>
- Potter-Schwartz, M. G. (2022). Estimating Teacher Quality: Comparing Objective and Subjective Measures. *Atlantic economic journal*, 50(3-4), 159-170.  
<https://doi.org/10.1007/s11293-022-09759-0>
- Power, M. (1999). *The audit society rituals of verification*. Oxford University Press.
- Priestley, M., Biesta, G., Philippou, S., & Robinson, S. (2015). The teacher and the curriculum: Exploring teacher agency. *The SAGE handbook of curriculum, pedagogy and assessment*, 187-201.
- Queensland College of Teachers. (n.d.). *CPD requirements*. Retrieved 06/07/2024 from <https://www.qct.edu.au/professional-development/requirements>
- Raudenbush, S. W. (2004). Schooling, Statistics, and Poverty: Can We Measure School Improvement? *Educational Testing Service*.
- Reeves, T. C. (2000). Enhancing the worth of instructional technology research through “design experiments” and other development research strategies. *International perspectives on instructional technology research for the 21st century*, 27, 1-15.
- Reeves, T. C. (2006). Design research from a technology perspective. In J. J. H. v. d. Akker (Ed.), *Educational design research*. Routledge.
- Reeves, T. C., Herrington, J., & Oliver, R. (2005). Design research: A socially responsible approach to instructional technology research in higher education. *Journal of Computing in Higher Education*, 16(2), 96.  
<https://doi.org/10.1007/bf02961476>
- Richter, D., Kunter, M., Klusmann, U., Lüdtke, O., & Baumert, J. (2011). Professional development across the teaching career: Teachers’ uptake of formal and informal learning opportunities. *Teaching and teacher education*, 27(1), 116-126. <https://doi.org/10.1016/j.tate.2010.07.008>
- Rienstra, G. (2010). Standard practice. *Professional Educator; v.9 n.2 p.20-24; June 2010*, 9(2), 20-24. <https://search.informit.org/doi/10.3316/aeipt.183752>  
<https://search.informit.org/doi/full/10.3316/aeipt.183752>  
<https://search.informit.org/doi/pdf/10.3316/aeipt.183752>
- Roach, E. (2018). *Education in South Korea*.  
<https://wenr.wes.org/2018/10/education-in-south-korea>
- Robinson, V. M. J., & Timperley, H. S. (2016). The Leadership of the Improvement Teaching and Learning: Lessons from Initiatives with Positive Outcomes for Students. *Australian Journal of Education*, 51(3), 247-262.  
<https://doi.org/10.1177/000494410705100303>

- Rogers, J. (2015). Chapter 10: Education. In K. Price (Ed.), *Knowledge of life : aboriginal and Torres Strait Islander Australia*. Cambridge University Press.
- Rogers, J. (2018). Teaching the teachers: Re-educating Australian teachers in Indigenous education. *Promising practices in Indigenous teacher education*, 27-39. [https://doi.org/10.1007/978-981-10-6400-5\\_3](https://doi.org/10.1007/978-981-10-6400-5_3)
- Ross, M. (2017). Conceptions of teaching: an illustrated review. *The clinical teacher*, 14(1), 8-14. <https://doi.org/10.1111/tct.12622>
- Rouse, W. A. (2008). National Board certified teachers are making a difference in student achievement: Myth or fact? *Leadership and policy in schools*, 7(1), 64-86. <https://doi.org/10.1080/15700760701655458>
- Ryan, M., & Bourke, T. (2013). The teacher as reflexive professional: making visible the excluded discourse in teacher standards. *Discourse (Abingdon, England)*, 34(3), 411-423. <https://doi.org/10.1080/01596306.2012.717193>
- Ryan, M., Bourke, T., Lane, R., O'Brien, P., & L'Estrange, L. (2022). Impact in education: a discourse analysis of interpretations and negotiations across the field. *Teaching education (Columbia, S.C.)*, 33(1), 27-41. <https://doi.org/10.1080/10476210.2020.1801621>
- Sachs, J. (2005). Teacher Professional Standards: A Policy Strategy to Control, Regulate or Enhance the Teaching Profession? In N. Bascia, A. Cumming, A. Datnow, K. Leithwood, & D. Livingstone (Eds.), *International Handbook of Educational Policy* (Vol. 13, pp. 579-592). Springer Netherlands. [https://doi.org/10.1007/1-4020-3201-3\\_29](https://doi.org/10.1007/1-4020-3201-3_29)
- Sahlberg, P. (2010). Rethinking accountability in a knowledge society. *Journal of educational change*, 11(1), 45-61. <https://doi.org/10.1007/s10833-008-9098-2>
- Sahlberg, P. (2011). *Finnish lessons : what can the world learn from educational change in Finland*. Teachers College Press.
- Salo, P., Francisco, S., & Olin Almqvist, A. (2024). Understanding professional learning in and for practice. *Professional Development in Education*, 50(3), 444-459. <https://doi.org/10.1080/19415257.2024.2311108>
- Sancar, R., Atal, D., & Deryakulu, D. (2021). A new framework for teachers' professional development. *Teaching and teacher education*, 101, 103305. <https://doi.org/10.1016/j.tate.2021.103305>
- Sannino, A. (2010). Teachers' talk of experiencing: Conflict, resistance and agency. *Teaching and teacher education*, 26(4), 838-844. <https://doi.org/10.1016/j.tate.2009.10.021>
- Sarnacchiaro, P., Camminatiello, I., D'Ambra, L., & Palma, R. (2019). How does public service motivation affect teacher self-reported performance in an education system? Evidence from an empirical analysis in Italy. *Quality & Quantity*, 53, 2521-2533. <https://doi.org/10.1007/s11135-018-0772-z>
- Saunders, R. (2013). The role of teacher emotions in change: Experiences, patterns and implications for professional development. *Journal of educational change*, 14(3), 303-333. <https://doi.org/10.1007/s10833-012-9195-0>
- Schon, D. A. (2016). *The Reflective Practitioner : How Professionals Think in Action*. Routledge. <https://doi.org/10.4324/9781315237473>
- Schools Council for the National Board of Employment Education and Training. (1990). *Australia's teachers: an agenda for the next decade* (0644135956).
- Scribner, J. P. (1999). Professional development: Untangling the influence of work context on teacher learning. *Educational administration quarterly*, 35(2), 238-266. <https://doi.org/10.1177/00131619921968536>

- See, B. H., Morris, R., Gorard, S., & El Soufi, N. (2020). What works in attracting and retaining teachers in challenging schools and areas? *Oxford review of education*, 46(6), 678-697. <https://doi.org/10.1080/03054985.2020.1775566>
- Shacklock, G., Smyth, J., & Hattam, R. (1998). The effects of an Advanced Skills Teacher classification on teachers' work: From storied accounts to policy insight. *Journal of Curriculum and Supervision*, 13(4), 357.
- Shattuck, J., & Anderson, T. (2013). Using a Design-Based Research Study to Identify Principles for Training Instructors to Teach Online. *International review of research in open and distance learning*, 14(5), 186-210. <https://doi.org/10.19173/irrodl.v14i5.1626>
- Shepherd, C. E., & Hannafin, M. J. (2013). Reframing Portfolio Evidence Empowering Teachers through Single-Case Frameworks. *Journal of thought*, 48(1), 33-51. <https://doi.org/10.2307/jthought.48.1.33>
- Sims, S., & Fletcher-Wood, H. (2021). Identifying the characteristics of effective teacher professional development: a critical review. *School effectiveness and school improvement*, 32(1), 47-63. <https://doi.org/10.1080/09243453.2020.1772841>
- Sims, S., Fletcher-Wood, H., O'Mara-Eves, A., Cottingham, S., Stansfield, C., Van Herwegen, J., & Anders, J. (2021). What Are the Characteristics of Effective Teacher Professional Development? A Systematic Review and Meta-Analysis. *Education Endowment Foundation*.
- Skourdombis, A., Thomas, M. K. E., & Rawolle, S. (2024). Being critical of the student achievement problem in Australia. *Australian educational researcher*, 51(4), 1083-1099. <https://doi.org/10.1007/s13384-023-00629-5>
- Smeed, J. (2010). Accountability through high-stakes testing and curriculum change. *Leading and Managing*, 16(2), 1-15.
- Smith, R., Ralston, N. C., Naegele, Z., & Waggoner, J. (2020). Team Teaching and Learning: A Model of Effective Professional Development for Teachers. *Professional Educator*, 43(1), 80-90.
- Smith, T., Edwards-Groves, C., & Brennan Kemmis, R. (2010). Pedagogy, education and praxis. *Pedagogy, Culture & Society*, 18(1), 1-8. <https://doi.org/10.1080/14681360903556749>
- South African Council for Educators. (2016). *Code of Professional Ethics*. [https://www.sace.org.za/assets/documents/uploads/sace\\_12998-2020-09-09-SACE%20Booklet%20Yellow.pdf](https://www.sace.org.za/assets/documents/uploads/sace_12998-2020-09-09-SACE%20Booklet%20Yellow.pdf)
- South African Council for Educators. (2020). *PROFESSIONAL TEACHING STANDARDS*. [https://www.sace.org.za/assets/documents/uploads/sace\\_31561-2020-10-12-Professional%20Teaching%20Standards%20Brochure.pdf](https://www.sace.org.za/assets/documents/uploads/sace_31561-2020-10-12-Professional%20Teaching%20Standards%20Brochure.pdf)
- Sparks, D. (2002). *Designing powerful professional development for teachers and principals*. <https://files.eric.ed.gov/fulltext/ED470239.pdf>
- Stokes, D. E. (1997). *Pasteur's quadrant : basic science and technological innovation*. Brookings Institution Press.
- Strategic Data Project. (2011). *Learning About Teacher Effectiveness: The SDP Human Capital Diagnostic*. <https://cepr.harvard.edu/files/cepr/files/sdp-fcs-hc.pdf>
- Strom, K. J., & Viesca, K. M. (2021). Towards a complex framework of teacher learning-practice. *Professional Development in Education*, 47(2-3), 209-224. <https://doi.org/10.1080/19415257.2020.1827449>
- Stronge, J. H. (2018). *Qualities of effective teachers* (3rd ed.). ASCD.

- Sullivan, A., Johnson, B., & Simons, M. (2019). *Attracting and Keeping the Best Teachers Issues and Opportunities*. Springer Singapore.  
<https://doi.org/10.1007/978-981-13-8621-3>
- Sultoni, K., Peralta, L., & Cotton, W. (2021). Technology-Supported University Courses for Increasing University Students' Physical Activity Levels: A Systematic Review and Set of Design Principles for Future Practice. *International journal of environmental research and public health*, 18(11), 5947. <https://doi.org/10.3390/ijerph18115947>
- Suzuki, K., & Nemoto, J. (2016). Is Design-based Research desirable and feasible methodology for educational media and technology? *International Journal for Educational Media and Technology*, 10(1).
- Takayama, K. (2008). The politics of international league tables: PISA in Japan's achievement crisis debate. *Comparative education*, 44(4), 387-407.  
<https://doi.org/10.1080/03050060802481413>
- Talbot, D. (2016). Evidence for no-one: Standards, accreditation, and transformed teaching work. *Teaching and teacher education*, 58, 80-89.  
<https://doi.org/10.1016/j.tate.2016.05.006>
- Tan, J., & Gopinathan, S. (2000). *Education reform in Singapore: Towards greater creativity and innovation?* (1340-5268).  
[https://www.academia.edu/download/94037580/NIRA\\_Review-7-3-5.pdf](https://www.academia.edu/download/94037580/NIRA_Review-7-3-5.pdf)
- Tang, J., Bryant, D. A., & Walker, A. D. (2022). School middle leaders as instructional leaders: building the knowledge base of instruction-oriented middle leadership. *Journal of educational administration*, 60(5), 511-526.  
<https://doi.org/10.1108/JEA-01-2022-0018>
- Tang, S. Y. F., Cheng, M. M. H., & So, W. W. M. (2006). Supporting Student Teachers' Professional Learning with Standards-Referenced Assessment. *Asia-Pacific journal of teacher education*, 34(2), 223-244.  
<https://doi.org/10.1080/13598660600720629>
- Tarhan, H., Karaman, A., Lauri, K., & Aerila, J.-A. (2019). Understanding teacher evaluation in Finland: A professional development framework. *The Australian journal of teacher education*, 44(4), 33-50.  
<https://doi.org/10.14221/ajte.2018v44n4.3>
- Taubman, P. M. (2010). *Teaching by numbers: Deconstructing the discourse of standards and accountability in education*. Routledge.
- Taylor, A. (2021). The seductive power of teacher standards and alternative forms of self-care. *Leading & managing*, 27(2), 1-10.
- Taylor, A. J. (2016). *Teachers' experience of professional standards for teachers: A case study of the enactment of teaching standards in a high performing school system*.  
<https://scholar.archive.org/work/hckn4el5wfczdbqdvjr5kpoppu/access/wayback/http://researchbank.acu.edu.au/cgi/viewcontent.cgi?article=1597&context=theses>
- Teacher Quality Institute. (2024). *Maintaining Registration*. Retrieved 06/07/2024 from <https://www.tqi.act.edu.au/registration/Maintaining-Registration>
- Teacher Registration Board of Western Australia. (2023). *Professional Learning Activities (for the Renewal of Registration) Policy*.  
<https://www.trb.wa.gov.au/DesktopModules/mvc/TrbDownload/PublishedDoc.aspx?number=D19/065534>

- Teachers Registration Board of South Australia. (n.d.). *Professional learning*. Retrieved 06/07/2024 from <https://www.trb.sa.edu.au/home/Professional-Learning>
- Teachers Registration Board Tasmania. (n.d.). *Maintaining Your Registration*. Retrieved 06/07/2024 from <https://www.trb.tas.gov.au/renewal-of-registration/>
- Teachers' Council of Thailand. (2018). *Southeast Asia Teachers Competency Framework (SEA-TCF)*. [https://www.seameo-innotech.org/wp-content/uploads/2020/09/SEA-TCF\\_2018.pdf](https://www.seameo-innotech.org/wp-content/uploads/2020/09/SEA-TCF_2018.pdf)
- The Design-Based Research Collective. (2003). Design-Based Research: An Emerging Paradigm for Educational Inquiry. *Educational researcher*, 32(1), 5-8. <https://doi.org/10.3102/0013189X032001005>
- The EndNote Team. (2013). *EndNote*. In (Version EndNote20) [64 bit]. Clarivate.
- Thomas, K. (2004). A misrepresentation of practice for art education: The draft NSW teaching standards and the virtuoso art teacher. annual conference of the Australian Association for Research in Education (AARE), Melbourne, Australia,
- Thomson, S., De Bortoli, L., & Underwood, C. (2016). *PISA 2015: A first look at Australia's results*. <https://research.acer.edu.au/cgi/viewcontent.cgi?article=1021&context=ozpisa>
- Thomson, S., & Hilliman, K. (2019). *The Teaching and Learning International Survey 2018. Australian Report Volume 1: Teachers and School Leaders as Lifelong Learners*. <https://research.acer.edu.au/talis/6>
- Timperley, H. (2011). *A background paper to inform the development of a national professional development framework for teachers and school leaders* (Melbourne: AITSL, Issue. <https://docplayer.net/156309-A-background-paper-to-inform-the-development-of-a-national-professional-development-framework-for-teachers-and-school-leaders-october-2011.html>
- Timperley, H., Wilson, A., Barrar, H., & Fung, I. (2007). *Teacher professional learning and development: Best evidence synthesis iteration*. Ministry of Education.
- Tonna, M. A., Bjerkholt, E., & Holland, E. (2017). Teacher mentoring and the reflective practitioner approach. *International journal of mentoring and coaching in education*, 6(3), 210-227. <https://doi.org/10.1108/ijmce-04-2017-0032>
- Tuinamuana, K. (2011). Teacher Professional Standards, Accountability, and Ideology: Alternative Discourses. *Australian Journal of Teacher Education*, 36(12). <https://doi.org/10.14221/ajte.2011v36n12.8>
- Turner, K., Thielking, M., & Meyer, D. (2021). Teacher wellbeing, teaching practice and student learning. *Issues in Educational Research*, 31(4), 1293-1311.
- Uther, J., & Pickworth, M. (2014). TLs as leaders: Are you a Highly Accomplished teacher librarian? *Access (Online)*, 28(1), 20. <https://search.informit.org/doi/abs/10.3316/ielapa.141266371714280>
- Van den Akker, J. (1999). *Design approaches and tools in education and training*. Springer Science+Business Media, B.V. <https://doi.org/10.1007/978-94-011-4255-7>
- Van Veen, K., Zwart, R., & Meirink, J. (2012). What Makes Teacher Professional Development Effective?: A Literature Review. In K. van Veen & M. Kooy (Eds.), *Teacher Learning that Matters* (pp. 3-21). Routledge. <https://doi.org/10.4324/9780203805879-2>
- Vansteelandt, I., Mol, S. E., & Van Keer, H. (2019). Design principles for professionalizing primary school teachers on promoting reading motivation

- [Article]. *L1 Educational Studies in Language and Literature*, 19, Running Issue(Running Issue), 1-26. <https://doi.org/10.17239/l1esll-2019.19.04.01>
- Victorian Institute of Teaching. (n.d.). *Annual Registration*. Retrieved 06/07/2024 from <https://www.vit.vic.edu.au/maintain/annual-registration>
- Voogt, J., & Roblin, N. P. (2012). A comparative analysis of international frameworks for 21st century competences: Implications for national curriculum policies. *Journal of curriculum studies*, 44(3), 299-321. <https://doi.org/10.1080/00220272.2012.668938>
- Vrasidas, C., & Glass, G. V. (2006). *Online professional development for teachers*. IAP.
- Walsh, S., & Mann, S. (2015). Doing reflective practice: A data-led way forward. *Elt Journal*, 69(4), 351-362. <https://doi.org/10.1093/elt/ccv018>
- Wang, F., & Hannafin, M. J. (2005). Design-based research and technology-enhanced learning environments. *Educational technology research and development*, 53(4), 5-23. <https://doi.org/10.1007/bf02504682>
- Wang, J., Lin, E., Spalding, E., Klecka, C. L., & Odell, S. J. (2011). Quality Teaching and Teacher Education: A Kaleidoscope of Notions. *Journal of teacher education*, 62(4), 331-338. <https://doi.org/10.1177/0022487111409551>
- Wasserman, E., & Migdal, R. (2019). Professional Development: Teachers' Attitudes in Online and Traditional Training Courses. *Online learning (Newburyport, Mass.)*, 23(1), 132-143. <https://doi.org/10.24059/olj.v23i1.1299>
- Webster-Wright, A. (2009). Reframing Professional Development through Understanding Authentic Professional Learning. *Review of educational research*, 79(2), 702-739. <https://doi.org/10.3102/0034654308330970>
- Weppler, M., & Bourke, S. (1993). *Selection, Roles and Responsibilities of Advanced Skills Teachers in the New South Wales Department of School Education: An Alternate Career Pathway?* AARE Annual Conference, Fremantle.
- White, B. (2011). The Vulnerable Population of Teacher-Researchers; Or, "Why I Can't Name My Coauthors". *English education*, 43(4), 321-340. <https://doi.org/10.58680/ee201116343>
- White, S., Down, B., Mills, M., Shore, S., & Woods, A. (2021). Strengthening a research-rich teaching profession: An Australian study. *Teaching Education*, 32(3), 338-352. <https://doi.org/10.1080/10476210.2020.1737666>
- Whitworth, B. A., & Chiu, J. L. (2015). Professional Development and Teacher Change: The Missing Leadership Link. *Journal of science teacher education*, 26(2), 121-137. <https://doi.org/10.1007/s10972-014-9411-2>
- Wiggan, G., Smith, D., & Watson-Vandiver, M. J. (2021). The National Teacher Shortage, Urban Education and the Cognitive Sociology of Labor. *The Urban review*, 53(1), 43-75. <https://doi.org/10.1007/s11256-020-00565-z>
- Wilkinson, J. (2018). Re-imagining leadership as a resource of and for educational practice/praxis in neoliberal times. In *Challenges for Public Education: Reconceptualising Educational Leadership, Policy and Social Justice as Resources for Hope* (pp. 17-30). Routledge.
- Willis, J., Churchward, P., Bourke, T., Spooner-Lane, R., Crosswell, L., Spina, N., Saleh, A., Hazlewood, K., Cole, J., & Fuller, A. (2022). *Highly Accomplished and Lead Teachers-New narratives of possibility: A white paper to promote discussion*. [https://eprints.gut.edu.au/235370/1/Highly\\_Accomplished\\_and\\_Lead\\_Teachers\\_New\\_narratives\\_of\\_possibilities\\_White\\_Paper.pdf](https://eprints.gut.edu.au/235370/1/Highly_Accomplished_and_Lead_Teachers_New_narratives_of_possibilities_White_Paper.pdf)

- Willis, J., Churchward, P., Crosswell, L., Spooner-Lane, R., Wise, J., & Jessen, S. (2022). Recognising the impact of highly accomplished and lead teachers. *The Australian Educational Researcher*, 49(4), 691-709.
- Willis, J., Spooner-Lane, R., Crosswell, L., Gibson, A., Churchward, P., & Bray, E. (2021). *Representing the impact of Highly Accomplished and Lead Teachers: Final report for Independent Schools Queensland*.  
[https://eprints.qut.edu.au/213692/1/HALT\\_Report\\_210930.pdf](https://eprints.qut.edu.au/213692/1/HALT_Report_210930.pdf)
- Willis, L. D., Shaukat, S., & Low-Choy, S. (2022). Preservice teacher perceptions of preparedness for teaching: Insights from survey research exploring the links between teacher professional standards and agency. *British educational research journal*, 48(2), 228-252. <https://doi.org/10.1002/berj.3761>
- Winne, P. H. (2006). Meeting challenges to researching learning from instruction by increasing the complexity of research. In J. Elen & R. Clark (Eds.), *Handling complexity in learning environments: Research and theory* (pp. 221-236). Emerald Group Publishing.
- Wise, A. E. (2005). Establishing Teaching as a Profession: The Essential Role of Professional Accreditation. *Journal of teacher education*, 56(4), 318-331.  
<https://doi.org/10.1177/0022487105279965>
- Wosnitza, M., Delzepich, R., Schwarze, J., O'Donnell, M., Faust, V., & Camilleri, V. (2018). Enhancing Teacher Resilience: From Self-Reflection to Professional Development. In (pp. 275-288). Springer International Publishing.  
[https://doi.org/10.1007/978-3-319-76690-4\\_16](https://doi.org/10.1007/978-3-319-76690-4_16)
- Yates, S. M. (2007). Teachers' Perceptions of Their Professional Learning Activities. *International Education Journal*, 8(2), 213-221.
- Yoon, K. S., Duncan, T., Lee, S. W.-Y., Scarloss, B., & Shapley, K. L. (2007). Reviewing the evidence on how teacher professional development affects student achievement. issues & answers. rel 2007-no. 033. *Regional Educational Laboratory Southwest (NJ1)*.
- Zakharov, A., & Carnoy, M. (2021). Does teaching to the test improve student learning? *International journal of educational development*, 84, 102422.  
<https://doi.org/10.1016/j.ijedudev.2021.102422>
- Zawacki-Richter, O., Kerres, M., Bedenlier, S., Bond, M., & Buntins, K. (2020). *Systematic reviews in educational research: Methodology, perspectives and application*. Springer Nature.
- Zheng, L. (2015). A systematic literature review of design-based research from 2004 to 2013. *Journal of computers in education (the official journal of the Global Chinese Society for Computers in Education)*, 2(4), 399-420.  
<https://doi.org/10.1007/s40692-015-0036-z>
- Zoom Video Communications Inc. (n.d.). *Homepage*. Retrieved 16/08/2024 from <https://zoom.us/>

# Appendices

## Appendix A: University of Sydney Human Research Ethics Committee Approval- Stakeholder Analysis



Research Integrity & Ethics Administration  
HUMAN RESEARCH ETHICS COMMITTEE

Monday, 11 April 2022

Dr Wayne Cotton  
School of Education and Social Work Research Operations; Faculty of Arts and Social Sciences  
Email: wayne.cotton@sydney.edu.au

Dear Wayne,

The University of Sydney Human Research Ethics Committee (HREC) has considered your application.

I am pleased to inform you that after consideration of your response, your project has been approved.

Details of the approval are as follows:

**Project No.:** 2022/159  
**Project Title:** Bringing School Leadership to a HALT: A Design-based Intervention to Support the Development of Highly Accomplished and Lead Teachers in NSW Schools- Stakeholder Analysis  
**Authorised Personnel:** Cotton Wayne; Graham Michael; Grice Christine;  
**Approval Period:** 11/04/2022 to 11/04/2026  
**First Annual Report Due:** 11/04/2023

Documents Approved:

Date Uploaded	Version Number	Document Name
27/03/2022	Version 1	Introductory Email- indirect contact
27/03/2022	Version 2	Participant Information Statement ver 2
27/03/2022	Version 2	Introductory Email- direct contact ver 2
01/02/2022	Version 1	Participant Consent Form
01/02/2022	Version 1	Interview Questions

### Condition/s of Approval

- Research must be conducted according to the approved proposal.
- An annual progress report must be submitted to the Ethics Office on or before the anniversary of approval and on completion of the project.
- You must report as soon as practicable anything that might warrant review of ethical approval of the project including:
  - Serious or unexpected adverse events (which should be reported within 72 hours).
  - Unforeseen events that might affect continued ethical acceptability of the project.
- Any changes to the proposal must be approved prior to their implementation (except where an amendment is undertaken to eliminate *immediate* risk to participants).
- Personnel working on this project must be sufficiently qualified by education, training and experience for their role, or adequately supervised. Changes to personnel must be reported and approved.
- Personnel must disclose any actual or potential conflicts of interest, including any financial or other interest or affiliation, as relevant to this project.

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- Data and primary materials must be retained and stored in accordance with the relevant legislation and University guidelines.
- Ethics approval is dependent upon ongoing compliance of the research with the *National Statement on Ethical Conduct in Human Research*, the *Australian Code for the Responsible Conduct of Research*, applicable legal requirements, and with University policies, procedures and governance requirements.
- The Ethics Office may conduct audits on approved projects.
- The Chief Investigator has ultimate responsibility for the conduct of the research and is responsible for ensuring all others involved will conduct the research in accordance with the above.

This letter constitutes ethical approval only.

Please contact the Ethics Office should you require further information or clarification.

Sincerely,

Dr Kathryn Bartimote  
Acting Chair,  
Human Research Ethics Committee (HREC 2)

The University of Sydney of Sydney HRECs are constituted and operate in accordance with the National Health and Medical Research Council's (NHMRC) [National Statement on Ethical Conduct in Human Research \(2018\)](#) and the NHMRC's [Australian Code for the Responsible Conduct of Research \(2018\)](#)

# Appendix B: University of Sydney Human Research Ethics Committee Approval- Professional Development Program



Research Integrity & Ethics Administration  
Human Research Ethics Committee

Tuesday, 25 July 2023

Dr Wayne Cotton  
School of Education and Social Work Research Operations; Faculty of Arts and Social Sciences  
Email: wayne.cotton@sydney.edu.au

Dear Wayne,

The University of Sydney Human Research Ethics Committee (HREC) has considered your application.

After consideration of your response to the comments raised your project has been approved.

Approval is granted for a period of four years from 24/07/2023 to 24/07/2027

**Project No.:** 2023/479

**Project Title:** Bringing School Leadership to a HALT: A Design-based Intervention to Support the Development of Highly Accomplished and Lead Teachers in NSW Schools. Phase 2

**Authorised Personnel:** Cotton Wayne; Graham Michael; Grice Christine;

**First Annual Report due:** 24/07/2024

#### Documents Approved:

Date Uploaded	Version Number	Document Name
18/07/2023	version 2	Participant Consent Form ver 2 clean
18/07/2023	version 2	Participant Information Statement ver 2 clean
18/07/2023	version 2	Introductory Email- direct contact ver 2 clean
18/07/2023	version 2	Introductory Email- indirect contact ver 2 clean
29/05/2023	version 1	Participant Submission Evaluation Tool
29/05/2023	version 1	Semi-structured Interview Questions
29/05/2023	version 1	Program Session Outlines

#### Condition/s of Approval

- Research must be conducted according to the approved proposal.
- An annual progress report must be submitted to the Ethics Office on or before the anniversary of approval and on completion of the project.
- You must report as soon as practicable anything that might warrant review of ethical approval of the project including:
  - Serious or unexpected adverse events (which should be reported within 72 hours).
  - Unforeseen events that might affect continued ethical acceptability of the project.
- Any changes to the proposal must be approved prior to their implementation (except where an amendment is undertaken to eliminate *immediate* risk to participants).

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SYDNEY

- Personnel working on this project must be sufficiently qualified by education, training and experience for their role, or adequately supervised. Changes to personnel must be reported and approved.
- Personnel must disclose any actual or potential conflicts of interest, including any financial or other interest or affiliation, as relevant to this project.
- Data and primary materials must be retained and stored in accordance with the relevant legislation and University guidelines.
- Ethics approval is dependent upon ongoing compliance of the research with the *National Statement on Ethical Conduct in Human Research*, the *Australian Code for the Responsible Conduct of Research*, applicable legal requirements, and with University policies, procedures and governance requirements.
- The Ethics Office may conduct audits on approved projects.
- The Chief Investigator has ultimate responsibility for the conduct of the research and is responsible for ensuring all others involved will conduct the research in accordance with the above.
- The Clinical Trials Support Office has been notified as outlined in the University's Clinical Trials Policy where a clinical trial is being undertaken.

This letter constitutes ethical approval only.

Please contact the Ethics Office should you require further information or clarification.

Sincerely,

Associate Professor Stephen Fuller  
Chair  
Human Research Ethics Committee (HREC 2)

The University of Sydney HRECs are constituted and operate in accordance with the National Health and Medical Research Council's (NHMRC) current National Statement on Ethical Conduct in Human Research (2018) and the NHMRC's current Australian Code for the Responsible Conduct of Research (2018).

## Appendix C: Systematic Literature Review Inclusion Criteria

The following inclusion criteria have been developed to determine eligibility in the study's systematic literature review:

- the research evaluates the effectiveness of a professional development program,
- the professional development program targets teachers,
- the research was conducted in either a primary or secondary school setting,
- other conditions (location, political climate etc.) in the research are comparable to those in Australian schools,
- the research draws conclusions about what constitutes effective professional development,
- the findings/discussion of the research are not limited to the effectiveness of a single professional development program,
- the research measures the term “effective” by gains in teacher knowledge/skills/performance (ie. not improved student outcomes),
- the research is not conducted on a “niche” or “experimental” form of professional development (robotics, virtual reality, Massive Open Online Courses etc.),
- the research is not, itself, a review.

## Appendix D: Semi-structured Interview Questions

The following questions are anticipated to be asked in the study's semi-structured interviews:

- What is your current job role?
- What is your current level of accreditation?
- If accredited, are you interested in gaining higher accreditation? Why/why not?
- What do you understand to be the main policy goals of higher accreditation for teachers in Australia?
- What do you understand to be the main roles of Highly Accomplished and Lead Teachers in school improvement?
- Why do you think that so few teachers engage in the higher accreditation process?
- Do you see any elements of the higher accreditation process as advantageous/disadvantageous to certain groups of teachers?
- What are the indicators of effective professional development?
- What would an effective professional development program to support the higher accreditation process look like?
- In an effective professional development program to support the higher accreditation process, what would be an appropriate:
  - number of participants in the program?
  - overall length of the program?
  - number of sessions?
  - length for each session?
- How would you measure the effectiveness of such a program?
- Do you have anything else to add?

## Appendix E: Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) Checklist (Page et al., 2021)

Section and Topic	Item#	Checklist item	Location where item is reported
<b>TITLE</b>			
Title	1	Identify the report as a systematic review.	N/A
<b>ABSTRACT</b>			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Page 42
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Page 42-44
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Page 44
<b>METHODS</b>			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Page 45
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Page 45
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Page 45-46
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Page 46-47
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Page 47
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	N/A
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	N/A
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Page 47-48
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	N/A
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Page 48
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	N/A
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	N/A
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	N/A
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	N/A
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	N/A
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	N/A

Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	N/A
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Section and Topic	Item #	Checklist item	Location where item is reported
<b>RESULTS</b>			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Page 48-49
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	N/A
Study characteristics	17	Cite each included study and present its characteristics.	Appendix G
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Page 50
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Appendix G
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Page 50-53
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Page 50-53
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	N/A
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	N/A
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	N/A
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	Page 50-53
<b>DISCUSSION</b>			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Page 53-54
	23b	Discuss any limitations of the evidence included in the review.	Page 55
	23c	Discuss any limitations of the review processes used.	Page 55
	23d	Discuss implications of the results for practice, policy, and future research.	Page 55
<b>OTHER INFORMATION</b>			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Page 43
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Page 44, 46
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	N/A
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	N/A
Competing interests	26	Declare any competing interests of review authors.	N/A
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	N/A

# Appendix F: Search Protocols by Database

## British Education Index Protocols

Search ID#	Search Terms	Search Options	Actions
<input type="checkbox"/> S1	AB ( teacher* or educator* ) AND AB ( school* or college* ) AND AB ( 'professional development' or 'professional learning' or training ) AND AB ( quality or effective* or success* or impact* )	<b>Limiters</b> - Full Text; Publication Date: 20040101-20211231; Publication Type: Academic Journal; Language: English <b>Expanders</b> - Apply equivalent subjects <b>Search modes</b> - Boolean/Phrase	<a href="#">View Results (1,071)</a>   <a href="#">View Details</a>   <a href="#">Edit</a>

## Web of Science Protocols

**2,446 results from Web of Science Core Collection for:**

Q teacher\* or educator\* (Abstract) and school\* or college\* (Abstract) and "professional development" or "professional learning" or t...

Refined By: Document Types: Articles X Languages: English X Open Access X Clear all

- Abstract | teacher\* or educator\* X
- And | Abstract | school\* or college\* X
- And | Abstract | "professional development" or "professional learning" or training X
- And | Abstract | quality or effective\* or success\* or impact\* X
- And | Author | Example: O'Brian C\* OR O'Brian C\* AZ
- Publication Date | 2004-01-01 to 2021-12-31

## ERIC (OVID) Protocols

#	Searches	Results	Type	Actions	Annotations
<input type="checkbox"/> 1	((teacher* or educator*) and (school* or college*) and ('professional development' or 'professional learning' or training) and (quality or effective* or success* or impact*)).ab.	21743	Advanced	<a href="#">Display Results</a> <a href="#">More</a>	<input type="checkbox"/>
<input type="checkbox"/> 2	limit 1 to (full text and english language and journal articles and peer reviewed and yr=2004 - 2021')	2933	Advanced	<a href="#">Display Results</a> <a href="#">More</a>	<input type="checkbox"/>

## Scopus Protocols

3,970 document results

( TITLE-ABS-KEY ( teacher\* OR educator\* ) AND TITLE-ABS-KEY ( school\* OR college\* ) AND TITLE-ABS-KEY ( "professional development" OR "professional learning" OR training ) AND TITLE-ABS-KEY ( quality OR effective\* OR success\* OR impact\* ) ) AND PUBYEAR > 2003 AND PUBYEAR < 2022 AND ( LIMIT-TO ( PUBSTAGE , "final" ) ) AND ( LIMIT-TO ( OA , "all" ) ) AND ( LIMIT-TO ( DOCTYPE , "ar" ) ) AND ( LIMIT-TO ( LANGUAGE , "English" ) ) AND ( LIMIT-TO ( SRCTYPE , "j" ) )

## Appendix G: Data Extraction and Summary Tool

Study- Author (Year)	Research Context	Research Question/Objectives	Methodology	Participants	Methodological Quality Assessment Rating (0-7)	Key Findings
Abu-Tineh and Sadiq (2017)	Country: Qatar  Context: independent schools	“What are the characteristics of effective professional development as perceived by independent school teachers in Qatar?” (p 314)  “What are the most and the least effective models of professional development as perceived by independent school teachers in Qatar?” (p 314)	Survey	Teachers  631 responses (63.1% response rate)  1000 participants selected through random stratified sampling (14000 population)	7	Top 5 characteristics of effective professional development: <ol style="list-style-type: none"> <li>1. Enhances teachers' content and pedagogic knowledge</li> <li>2. Promotes collegiality and collaboration</li> <li>3. Focuses on individual and school improvement</li> <li>4. Models high-quality instruction</li> <li>5. Aligns with other reform initiatives (p 316)</li> </ol> Top 5 effective professional development models: <ol style="list-style-type: none"> <li>1. Providing professional support from experienced teacher to newly hired teachers</li> <li>2. Workshops at schools</li> <li>3. Teacher study groups</li> <li>4. Peer observation</li> <li>5. Extended training courses (series of workshops) (p 316)</li> </ol>
Cameron et al. (2013)	Country: Australia  Context: a regional school cluster	The study “sheds light on factors that can influence teachers' willingness to access professional learning opportunities” (p. 380).	Mixed method (open-ended survey and interviews)	Teachers  56 participants (six school leaders, 50 teachers)  Self-selected from five schools	2	Beneficial teacher learning can occur not only through the deliberate enhancement of professional skills, knowledge, and attitudes but also through meaningful attention to personal learning needs. (p391)  “... educational systems need to broaden the ways in which teacher learning is supported...at particular junctures in their career journeys.” (p391)  “... teachers, when planning their professional growth, should be free to choose at least some learning opportunities focussed on their personal needs” (p391)
Collins and Liang (2015)	Country: USA  PD Type: online professional development  Funding Source: Race to the Top	“Which features of high quality online professional development were noted by participating educators in a state-wide online teacher professional development program?” (p 4)	Survey (21 Likert scale and 8 open-ended questions)	Teachers  895 responses  Population / sampling unknown	4	<i>Duration:</i> “30 hours or more in programs having positive effects” (p 12)  <i>Participation:</i> “a number (of participants) commented they would have benefitted from being able to discuss questions, concerns, or ideas that came up during the PD experience, similar to discussions and interactions in face-to-face PD sessions” (p 12)  <i>Design:</i> “online activities should provide flexible scaffolding and authenticity of purpose for teachers” (p 14)  Clear communication of program goals and careful backward planning are key elements in successful PD and working with adult learners. (p 14)
Colombo (2007)	Country: USA	“This article discusses the elements of PD that are essential to	Mixed method (observation, participant	Teachers	2	“... effective PD provides workshops that create a sense of being lost, includes authentic field experiences, and eloquently links workshops and field experience activities” (p 16)

	<p>Context: Riverdale Schools cluster</p> <p>PD Type: cultural competence</p> <p>Funding source: The Office of English Language Acquisition (OELA)</p>	<p>increasing cultural competence in mainstream teachers” (p 10)</p>	<p>evaluation and interviews)</p>	<p>27 responses from 105 selected participants</p>		
Dasoo (2020)	<p>Country: South Africa</p> <p>Context: network of independent schools</p>	<p>This article “focuses on the key role of teachers in the decision-making process concerning the design and implementation of Continuous Professional Teacher Development (CPTD) at a network of independent schools in Johannesburg” (p 45)</p>	<p>Mixed method (semi-structured interviews, questionnaires, and document analysis)</p>	<p>Teachers</p> <p>15 participants from five schools</p> <p>Stratified sampling (beginning, mid-career, late-career teachers)</p>	4	<p>Teachers in this study wanted to learn and develop in a collaborative manner and environment. (p 53)</p> <p>Participants understood that theoretical knowledge of schooling and education is crucial but ... requested hands-on information and skills that they could apply in the everyday learning context of the classroom (p 53)</p> <p>Teachers reflected that they want to work and learn in dedicated teams or groups of teachers who share similar subjects or grades (p 55)</p> <p>Consulting with teachers regarding CPTD is a positive step in creating CPTD that will not only inspire teachers about their learning and development, but also promote their interest in schooling and educational issues (p 55)</p>
Daugherty (2009)	<p>Country: USA</p> <p>Context: STEM teachers</p> <p>PD Type: engineering pedagogy</p>	<p>“What are the primary design elements used to deliver engineering-oriented professional development (logistics, format, activities, instructors, and instructional strategies) and why were these elements selected?” (p 11)</p>	<p>Case Studies</p>	<p>Teachers</p> <p>63 responses from participants of five PD programs</p>	4	<p>Projects should incorporate rigorous evaluation into the design of their professional development so that they can provide a better understanding of how teachers learn engineering, change, and impact student learning. (p 21)</p> <p>Secondary level engineering-oriented professional development should also move toward more comprehensive designs to account for the minimal teacher preparation in engineering at the pre-service level. (p 21)</p> <p>A clear vision of teaching and learning engineering needs to drive the design of the professional development. Teachers’ needs, whether mathematics, science, technology, or a combination, should inform the design and should be continuously monitored. (p 22)</p> <p>The design should be a collaborative venture between professional development providers and the teachers so as to account for the particular contexts within which the teachers operate. (p 22)</p>

Ekinci and Acar (2019)	<p>Country: Turkey</p> <p>Context: primary school teachers</p>	<p>“What are the opinions of the teachers about the concept of professional development?” (p 112)</p> <p>“What are the opinions of the teachers about the process of professional development?” (p 112)</p> <p>“What are the opinions of primary school teachers about the characteristics of effective professional development?” (p 112)</p> <p>“What are the features of an competent professional development model?” (p 112)</p>	Interviews	Teachers 20 responses from one school district	4	<p>A professional development activity can respond to the needs, reflect life, be able to be used in class, solve class problems, and meet parents' expectations. (p 115)</p> <p>They should be given the right of choose their professional development activities which are suitable for individual differences, and they should plan their development. (p 115)</p> <p>The content of the professional development activities prepared for them was given; theoretically, they did not reach the application level, they were given as a shallow, repetition of the known things and they did not arouse any curiosity. (p 115)</p> <p>Self-control, reflective thinking, idealism, self-criticism, reasoning, being open to communication and empathy are the features of effective professional development. (p 115)</p> <p>they demand a professional development process with active participation, hands-on, micro-teaching demonstrations, case studies, one-to-one, face-to-face communication with small groups, sharing experiences, and school-based activities. (p 116)</p> <p>Another suggestion regarding the professional development of teachers is collaboration. (p116)</p> <p>Teachers need to define the need before starting an effective professional development process. (p 120)</p> <p>In the process of professional development, it should be clearly defined how professional development will be done, which tasks will be carried out and when they will be carried out and who will complete which tasks and in which position he/she will complete them. (p 120)</p> <p>The teacher's working environment and its facilities should be evaluated while planning professional development. (p 120)</p> <p>A suitable content should be prepared, and the information should be up-to-date, interesting, useful and ideal for new developments. (p 120)</p> <p>Teachers' requests should be taken into consideration while determining the place and time of professional development activities. (p 120)</p> <p>The active use of reflective thinking in the professional development process can accelerate the teacher's development. (p 120)</p> <p>The central element that increases the quality of the education process is an evaluation. (p 120)</p>
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						<p>Social, economic, and expert supports should be provided to teachers for healthy and regular progress in the effective professional development process. (p 120)</p> <p>Teachers should be monitored at every moment of professional development. (p 120)</p>
El-Deghaidy et al. (2015)	<p>Country: Saudi Arabia</p> <p>Context: science teachers</p> <p>PD Type: science pedagogy</p>	<p>“What are science teachers’ views of an effective CPD provision?” (p 1582)</p>	Questionnaire	<p>Teachers</p> <p>609 responses (304 to optional open-ended questions) from 1052 selected participants</p> <p>Population 3150 (three educational administrations)</p> <p>Stratified by district</p>	5	<p>Teachers did not seem to be involved in CPD programmes that require them to take active leadership roles. They seemed to be acquainted with always being passive receptors and being directed by others ... teachers are trapped in the mindset of the providers. (p 1592)</p> <p>There needs to be more emphasis on collaborative activities where teachers can share and exchange experiences together in a safe community that supports each other and increases collegiality, in addition to activities that require teachers to take leadership roles. (p 1595)</p>
Hickey and Harris (2005)	<p>Country: USA</p> <p>Context: one rural school</p> <p>PD Type: school leadership PD</p>	<p>The study determines:</p> <ul style="list-style-type: none"> <li>• “a discussion of the foundation of practitioner research” (p 12)</li> <li>• “a discussion of teachers as experts who can offer unique perspectives to their peers” (p 12)</li> <li>• “the need for collaborative efforts in school organizations will be addressed” (p 12)</li> <li>• “the utilization of teachers as leaders and the unique contributions they can create will be addressed” (p 12)</li> </ul>	Surveys (1x Likert scale and 1x open ended)	<p>Teachers</p> <p>Nine participants from one school</p> <p>62 teachers total at the school</p>	4	<p>Our results suggested that teachers have positive feelings from professional development led by peers. (p 15)</p> <p>It is suggested that districts incorporate the following six recommendations to encourage the growth of teachers as leaders:</p> <ol style="list-style-type: none"> <li>1. Identify teacher strengths;</li> <li>2. Match teacher strengths to professional development needs;</li> <li>3. Develop professional development programs with these strengths and needs in mind;</li> <li>4. Provide teachers with time to prepare for their presentation;</li> <li>5. Provide opportunities for informal presentations to reduce anxiety and stress of presenting; and</li> <li>6. Provide time throughout the year to take advantage of collaborative opportunities. (p 15)</li> </ol>
Hilton et al. (2015)	<p>Country: Australia</p> <p>Context: two school clusters (in</p>	<p>The study determines “whether the engagement of school leaders as <i>active co-participants</i> in teacher professional development has the</p>	Mixed methods (interviews, surveys, school visits, informal discussions,	<p>Teachers and school leaders</p> <p>70 teacher participants from 18 schools</p>	6	<p>“... co-participation by leaders in teacher professional development can have a profound influence on teachers’ professional growth.” (p 118)</p> <p>“... leaders and teachers contribute to one another’s professional learning.” (p 118)</p>

	Queensland and South Australia)  Low SES areas	potential to positively influence teachers' and indeed the leaders' professional growth and if so, how and why this might be the case." (p 105)	and workshop sharing and reflection sessions)	20 school leader participants from 11 schools		
Howell et al. (2020)	Country: USA  Context: midwestern school district  PD type: using technology to teach literacy	"How does a PD model, which includes gradual release of teacher inquiry, the social practice of writing, and digital tools, influence elementary teachers' abilities to make writing a more digital, participatory process?" (p 100)	Mixed method (observations, field notes, teacher reflections, semi-structured interviews and surveys)	Teachers  15 participants from five schools (self-selected)	5	Elements of a professional development model for technology integration 1. In-Service (I Do) 2. Coaching, Planning Sessions, Peer Observations (We Do) 3. Online Modules, Coaching, Collaborative Inquiry and Student Aid (You Do Together) 4. Individual Practice with Online Support (You Do Alone) (p 114)
Karlberg and Bezzina (2020)	Country: Sweden  Context: preschool, primary school and high school  Four municipalities within Sweden	The study is "identifying the perceptions of teachers across four municipalities in Sweden on continuing professional development" (p 1)	Survey	Teachers  1884 responses (37% response rate)	6	Perceived positive impact of previous forms of PD on teachers' development (highest to lowest): 1. University run courses 2. Sessions provided by NBE 3. Web-based learning 4. Study visits 5. Collaborative Learning 6. Mentoring 7. Planning meetings 8. School-based sessions 9. Network meetings 10. Sessions provided by municipality (p 7)  "... those with more than 5 years experience identify a significant impact on forms of PD that reinforce and promote collaborative practices, namely 'school-based sessions', 'collaborative learning' and 'network meetings'" (p 7)
Koellner et al. (2011)	Country: USA  PD type: mathematics pedagogy	<i>Not stated</i>	Mixed method (interviews, observations and knowledge assessments)	Teachers and school leaders  62 participants (10 school leaders and 52 teachers) from eight schools	3	"Modelled how to promote community... foster discussions focused on the current (and often changing) needs of the TLs ... encouraged thinking metacognitively, or reflecting on one's own thought processes, ... encouraged them to 'wear one hat at a time' ... encouraged the TLs to self reflect on both their learning from the ISMs and their facilitation during their workshops ... videotaped all of the TLs' workshops and provided opportunities for them to watch and reflect on their video, ... provided coaching or one-on-one learning opportunities for individual TLs. We conjecture that implementing these various processes, in combination, was essential to supporting TLs' ongoing efforts to develop community, foster KT, and adapt their workshops both to meet the needs of the participating teachers and to fit within their local context." (p 133)

Labone and Long (2016)	Country: Australia  Context: Sydney catholic school cluster	The study aims “to describe, in depth, how the system-based professional learning model was implemented at the individual school level” (p 61)	Case studies (interviews and surveys)	Schools  Three schools (number of teachers participants unclear)	2	<ul style="list-style-type: none"> <li>• Focus on content and instructional practices informed by awareness of student thinking;</li> <li>• learning components that are participant driven and feature experiential and active learning as well as modelling by teachers;</li> <li>• feedback, including group review and self-reflection;</li> <li>• collaborative practices that support the development of professional learning communities, trust and discourse;</li> <li>• temporal characteristics that require the professional learning to be sustained for a minimum of one semester and include follow-up with classroom-based support; and</li> <li>• coherence in teachers’ knowledge and beliefs as well as broader school and system-based policies (p 57-58)</li> </ul> <p>“... the findings suggest that system based professional learning is most likely to be successful and sustained when all elements are present and are supported by leaders who are committed to the initiative.” (p 76)</p>
Lee (2004)	Country: USA  PD type: teacher-needs based PD	“How to develop the various phases of an effective professional development program: Beginning, during, and after?” (p 41)	Mixed method (survey studies, interviews, concepts maps, participants’ assignments, site visits and participant reflections)	<i>Not declared</i>	1	<p>“... planning a PDP should start with the ends (outcomes) in mind and that teachers should be encouraged to be involved in the planning process.” (p 46)</p> <p>Recruiting Teachers from the Same Context ... The advantage of this recruiting process was that teachers from the same building came to the program with an existing support group and the team would have a strong potential influence on the mathematics curriculum in their school system. (p 46)</p> <p>Connecting Professional Learning and Professional Practice ... schools should provide participants with more time to grow, begin to measure what happens as a result of their participation, and provide teachers with follow-up to professional development, such as opportunities for practice in the classroom. (p 46)</p> <p>Building a Partnership Between University, Public Schools, and Local Education Agents. (p 47)</p>
McCray (2018)	Country: USA	“In what ways do middle and high school teachers view professional development?” (p 583)  “Do middle and high school teachers feel that there is an impact on their professional practices during the post professional development period?” (p 583)	Mixed method (participant journals, interviews and exit debriefings)	Teachers  10 participants (from a faculty of 45)	1	<p>“... by incorporating teacher leadership and input, teachers are able to engage in personalized dialog to improve their professional practices and student achievement.” (p 584)</p> <p>“... focused and aligned professional development increases learning.” (p 584)</p> <p>Teachers need time and support to implement the practices learned in professional development. (p 584)</p>

Vansteelandt et al. (2019)	Country: Belgium  PD Type: reading PD	<i>Not stated</i>	Questionnaire	Teachers  Eight participants (self-selected)	4	<p>Design principle 1 <i>Content focus</i>. The first design principle refers specifically to the content of the CPD. (p 12)</p> <p>Design principle 2 <i>Active learning</i>. The second design principle focuses on participants' continuing inquiry of practice, co-creation of and reflection on professional and academic knowledge and skills to increase students reading motivation. (p 15)</p> <p>Design principle 3 <i>Coherence</i>. The third design principle focuses on the alignment of the CPD program with participants' goals, beliefs and with current educational reforms and policies to increase students' reading motivation. (p 15)</p> <p>Design principle 4 <i>Duration</i>. The fourth design principle ensures that participants took part in an extended and intensive CPD program, of sufficient duration with activities that are spread out in time and include at least 20 hours of contact time. (p 15)</p> <p>Design principle 5 <i>Collective participation</i>. The fifth design principle focuses on the participants collaborating on each other's teaching practices to increase students' reading motivation. (p 16)</p> <p>Design principle 6 <i>Autonomy support</i>. The sixth design principle focuses on the participants' need for autonomy. (p 16)</p> <p>Design principle 7 <i>Competence support</i>. The seventh design principle focused on the participants' need for competence. (p 16)</p> <p>Design principle 8 <i>Relatedness support</i>. The eighth design principle focused on the participants' need for relatedness. (p 16)</p>
Yates (2007)	Country: Australia	The study "investigated primary and secondary teachers' perceptions of professional learning activities they had undertaken" (p 215)	Survey	Teachers  395 responses	4	<p>Principles of effective teacher professional development:</p> <ol style="list-style-type: none"> <li>1. Experiential, engaging teachers in concrete tasks that elucidate learning &amp; development</li> <li>2. Participant driven. Grounded in inquiry, reflection &amp; experimentation</li> <li>3. Collaborative, interactional, involving sharing knowledge</li> <li>4. Connected to and derived from teachers' work with students</li> <li>5. Supported by modelling, coaching &amp; collective problem solving around specific problems of practice</li> <li>6. Connected to &amp; integrated with comprehensive school change</li> <li>7. Sustained, ongoing and intensive (p214)</li> </ol> <p>"... teachers rated their experiences as providing professional renewal more highly if they undertook an ICT professional learning activity ... or if they undertook an experience of longer duration" (p 218)</p>

# Appendix H: Stakeholder Analysis Participant Questionnaire



## *Research Study: Bringing School Leadership to a HALT: A Design-based Intervention to Support the Development of Highly Accomplished and Lead Teachers in NSW Schools- Stakeholder Analysis*

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Mr Michael Graham | Email: [m.graham@sydney.edu.au](mailto:m.graham@sydney.edu.au)

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### 1. What is your current job role?

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### 2. What is your current level of accreditation?

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### 3. If accredited, are you interested in gaining higher accreditation? Why/why not?

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**4. What do you understand to be the main policy goals of higher accreditation for teachers in Australia?**

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**5. What do you understand to be the main roles of Highly Accomplished and Lead Teachers in school improvement?**

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**6. Why do you think that so few teachers engage in the higher accreditation process?**

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**7. Do you see any elements of the higher accreditation process as advantageous/disadvantageous to certain groups of teachers?**

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**8. What are the indicators of effective professional development?**

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**9. How important do you believe the following statements to be in contributing to effective professional development?**

<b>Effective professional development should:</b>	<b>Irrelevant</b>	<b>Desirable</b>	<b>Essential</b>
be collaborative and involve participation from school/system leaders			
be tailored to the needs of participants			
be authentic and align with current school/system priorities			
be sustained and provide teachers with adequate time/resources for change			
focus on enhancing teacher skills/knowledge			
challenge participants and encourage self-reflection			
include rigorous evaluation <i>of</i> and <i>by</i> participants			
be evidence-based and of high quality			
clearly articulate the goals/learning intentions of the professional development			
encourage active participation of participants			

**10. What are some other important characteristics of effective professional development?**

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**11. What would an effective professional development program to support the higher accreditation process look like?**

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**12. In an effective professional development program to support the higher accreditation process, what would be an appropriate:**

- a. number of participants in the program?
- b. overall length of the program?
- c. number of sessions?
- d. length for each session?

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**13. How would you measure the effectiveness of such a program?**

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**14. Do you have anything else to add?**

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## Appendix I: Professional Development Program Overview



### *Research Study: Bringing School Leadership to a HALT: A Design-based Intervention to Support the Development of Highly Accomplished and Lead Teachers in NSW Schools- Professional Development*

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### Program Overview

#### Session 1: 18/10/2023 4:00 – 5:30

#### Session Topic: Orientation and Accreditation processes

##### *Relevant Standards:*

**6.1.3** *Analyse the Australian Professional Standards for Teachers to plan personal goals, support colleagues to identify and achieve personal development goals and pre-service teachers to improve classroom practice.*

**7.2.3** *Support colleagues to review and interpret legislative, administrative and organisational requirements, policies and processes.*

**6.1.4** *Use comprehensive knowledge of the Australian Professional Standards for Teachers to plan and lead the development of professional learning policies and programs that address the professional learning needs of colleagues and pre-service teachers.*

**7.2.4** *Initiate, develop and implement relevant policies and processes to support colleagues' compliance with and understanding of existing and new legislative, administrative, organisational and professional responsibilities.*

#### Session Itinerary

- 4:00 Acknowledgement of country
- 4:05 Presenter introductions and WHS
- 4:15 Group norms and anticipated outcomes- evidence sets and presentations
- 4:30 The accreditation process
- 5:00 Setting breakout rooms, facilitated introductions, sharing of progress so far
- 5:25 Session feedback
- 5:30 Close

## **Session 2: 15/11/2023 4:00 – 5:30**

### **Session Topic: Data and Evidence**

#### *Relevant Standards:*

**5.4.3** *Work with colleagues to use data from internal and external student assessments for evaluating learning and teaching, identifying interventions and modifying teaching practice.*

**6.3.3** *Initiate and engage in professional discussions with colleagues in a range of forums to evaluate practice directed at improving professional knowledge and practice, and the educational outcomes of students.*

**5.4.4** *Co-ordinate student performance and program evaluation using internal and external student assessment data to improve teaching practice.*

**6.3.4** *Implement professional dialogue within the school or professional learning network(s) that is informed by feedback, analysis of current research and practice to improve the educational outcomes of students.*

#### **Session Itinerary**

- 4:00 Acknowledgement of country
- 4:05 Guest presenter
- 4:30 Breakout rooms- discussion of topic
- 4:45 Breakout rooms- discussion of evidence
- 5:25 Session feedback
- 5:30 Close

## **Session 3: 13/12/2023 4:00 – 5:30**

### **Session Topic: Reflective Practice**

#### *Relevant Standards:*

**6.3.3** *Initiate and engage in professional discussions with colleagues in a range of forums to evaluate practice directed at improving professional knowledge and practice, and the educational outcomes of students.*

**6.4.3** *Engage with colleagues to evaluate the effectiveness of teacher professional learning activities to address student learning needs.*

**6.3.4** *Implement professional dialogue within the school or professional learning network(s) that is informed by feedback, analysis of current research and practice to improve the educational outcomes of students.*

**6.4.4** *Advocate, participate in and lead strategies to support high-quality professional learning opportunities for colleagues that focus on improved student learning.*

#### **Session Itinerary**

- 4:00 Acknowledgement of country
- 4:05 Guest presenter
- 4:30 Breakout rooms- discussion of topic
- 4:45 Breakout rooms- discussion of evidence
- 5:25 Session feedback
- 5:30 Close

## Session 4: 14/02/2024 4:00 – 5:30

### Session Topic: Leading Learning

#### Relevant Standards:

**6.3.3** *Initiate and engage in professional discussions with colleagues in a range of forums to evaluate practice directed at improving professional knowledge and practice, and the educational outcomes of students.*

**6.4.3** *Engage with colleagues to evaluate the effectiveness of teacher professional learning activities to address student learning needs.*

**6.3.4** *Implement professional dialogue within the school or professional learning network(s) that is informed by feedback, analysis of current research and practice to improve the educational outcomes of students.*

**6.4.4** *Advocate, participate in and lead strategies to support high-quality professional learning opportunities for colleagues that focus on improved student learning.*

#### Session Itinerary

- 4:00 Acknowledgement of country
- 4:05 Guest presenter
- 4:30 Breakout rooms- discussion of topic
- 4:45 Breakout rooms- discussion of evidence
- 5:25 Session feedback
- 5:30 Close

## Session 5: 13/03/2024 4:00 – 5:30

### Session Topic: Coaching Mindset

#### Relevant Standards:

**6.3.3** *Initiate and engage in professional discussions with colleagues in a range of forums to evaluate practice directed at improving professional knowledge and practice, and the educational outcomes of students.*

**6.4.3** *Engage with colleagues to evaluate the effectiveness of teacher professional learning activities to address student learning needs.*

**6.3.4** *Implement professional dialogue within the school or professional learning network(s) that is informed by feedback, analysis of current research and practice to improve the educational outcomes of students.*

**6.4.4** *Advocate, participate in and lead strategies to support high-quality professional learning opportunities for colleagues that focus on improved student learning.*

#### Session Itinerary

- 4:00 Acknowledgement of country
- 4:05 Guest presenter
- 4:30 Breakout rooms- discussion of topic
- 4:45 Breakout rooms- discussion of evidence
- 5:25 Session feedback
- 5:30 Close

## Session 6: 10/04/2024 4:00 – 5:30

### Session Topic: Presentations and Evaluation

#### *Relevant Standards:*

**6.4.3** *Engage with colleagues to evaluate the effectiveness of teacher professional learning activities to address student learning needs.*

**7.4.3** *Contribute to professional networks and associations and build productive links with the wider community to improve learning and teaching*

**6.4.4** *Advocate, participate in and lead strategies to support high-quality professional learning opportunities for colleagues that focus on improved student learning.*

**7.4.4** *Take a leadership role in professional and community networks and support the involvement of colleagues in external learning opportunities.*

#### **Session Itinerary**

4:00 Acknowledgement of country

4:05 Participant presentations

5:15 Feedback and acknowledgements

5:30 Close

#### *Session fidelity checks*

1. *What was your knowledge of <session topic>:*
  - *before the session? (1-5 Likert scale)*
  - *after the session? (1-5 Likert scale)*
2. *Did the session meet the proposed standards/outcomes? If no, why?*
3. *What was one key point that you took away from the session?*



## Session Plan: Session 1

<b>Session Topic:</b> Orientation and Accreditation processes		
<b>Session Number:</b> 1	<b>Date:</b> 18/10/2023	<b>Time:</b> 4:00 – 5:30
<p><b>Relevant Standards (see APST):</b></p> <p><b>6.1.3</b> Analyse the Australian Professional Standards for Teachers to plan personal goals, support colleagues to identify and achieve personal development goals and pre-service teachers to improve classroom practice.</p> <p><b>7.2.3</b> Support colleagues to review and interpret legislative, administrative and organisational requirements, policies and processes.</p> <p><b>6.1.4</b> Use comprehensive knowledge of the Australian Professional Standards for Teachers to plan and lead the development of professional learning policies and programs that address the professional learning needs of colleagues and pre-service teachers.</p> <p><b>7.2.4</b> Initiate, develop and implement relevant policies and processes to support colleagues' compliance with and understanding of existing and new legislative, administrative, organisational and professional responsibilities.</p>	<p><b>Design Principle Index (effective professional development should):</b></p> <p><b>DP1</b> be collaborative and promote active participation</p> <p><b>DP2</b> be tailored to the needs/context of participants</p> <p><b>DP3</b> be evidence-based and align with current school/system priorities</p> <p><b>DP4</b> be sustained and provide teachers with adequate time/resources for change</p> <p><b>DP5</b> provide opportunities for participants to enhance skills/knowledge</p> <p><b>DP6</b> challenge participants and encourage reflective practice</p> <p><b>DP7</b> determine its impact through rigorous evaluation 'of and 'by' participants</p> <p><b>DP8</b> clearly articulate its goals/learning intentions</p> <p><b>DP9</b> be aligned to relevant professional standards and lead to improved student outcomes</p>	
<b>Timing:</b>	<b>Activity:</b>	<b>Facilitator Signoff:</b>
4:00	Acknowledgement of country	
4:05	<p>Introductions and WHS</p> <ul style="list-style-type: none"> <li>- Presenter to introduce themselves and ask participants to share name, school, reason for applying for higher accreditation.</li> <li>- Presenter to outline:               <ul style="list-style-type: none"> <li>o goals of the study- testing design principles, supporting participants in the accreditation process.</li> <li>o that the presenters are not NESAs affiliated/can't guarantee success.</li> </ul> </li> </ul> <p>the outcomes of the study for participants ie. participants will encouraged to produce an evidence set and share with the group, presenters will provide feedback on the evidence set to assist with submission, session focus on a different skill as determined by stakeholder analysis. <b>DP8</b></p>	
4:15	<p>Establish group norms. Ask participants how they would like sessions to run and suggest things like: confidentiality within the group (guaranteed by presenters but not for participants), sharing as much as you are comfortable sharing (discuss possible repercussions of 'oversharing'), asking for permission to use any evidence shared by other participants.</p>	
4:30	<p>Presenter to work through slides on the accreditation process to build participant knowledge of requirements. <b>DP5</b></p> <ul style="list-style-type: none"> <li>- Go through standards targeted in this session and how the learning aligns. <b>DP9</b></li> <li>- Discuss how the standards are visible throughout their evidence sets and in their leadership practice. <b>6.1.3, 6.1.4</b></li> </ul>	

	<ul style="list-style-type: none"> <li>- Discuss the role of HALTs and why this process is a government priority. <b>DP3, 7.2.3, 7.2.4</b></li> </ul>	
5:00	<p>Presenter to group participants into breakout rooms. Presenter to consider school setting, stage/faculty, geographical location of school, stage of accreditation that participants are at, to tailor groups to include participants with similar needs and contexts. <b>DP2</b></p> <p>Participants in breakout rooms to share name, context, subject, where they are up to on their accreditation journey, what level they are applying for, best moment/greatest achievement as a teacher to develop understanding of each other and begin process of collaboration. <b>DP1</b></p> <p>Explain to each room that they will get this time each session to collaborate, share resources and ask for feedback. Structured reflective questions will be provided each session but they can use this time in a way that best meets their needs. <b>DP4, DP6</b></p>	
5:25	<p>Bring groups back to main room.</p> <ul style="list-style-type: none"> <li>- Offer participants opportunity to share any learnings that they think would benefit the group.</li> <li>- Explain the structure of the next four sessions: <b>DP8</b> <ul style="list-style-type: none"> <li>o Topic presentations (topics selected based on previous stakeholder analysis). <b>DP8</b></li> <li>o Guided discussions to facilitate reflections on the topic and how to embed in evidence sets. <b>DP6</b></li> <li>o Collaborative work in groups on a piece of evidence. <b>DP1</b></li> </ul> </li> <li>- Encourage participants to bring a (preferably annotated) piece of evidence for next session.</li> <li>- Encourage participants to complete feedback survey through chat. <b>DP7</b></li> </ul>	
5:30	End session	
<b>Facilitator Notes:</b>		

## Session Plan: Session 2

Session Topic: Data and Evidence		
Session Number: 2	Date: 15/11/2023	Time: 4:00 – 5:30
<p><b>Relevant Standards (see APST):</b></p> <p><b>5.4.3</b> Work with colleagues to use data from internal and external student assessments for evaluating learning and teaching, identifying interventions and modifying teaching practice.</p> <p><b>6.3.3</b> Initiate and engage in professional discussions with colleagues in a range of forums to evaluate practice directed at improving professional knowledge and practice, and the educational outcomes of students.</p> <p><b>5.4.4</b> Co-ordinate student performance and program evaluation using internal and external student assessment data to improve teaching practice.</p> <p><b>6.3.4</b> Implement professional dialogue within the school or professional learning network(s) that is informed by feedback, analysis of current research and practice to improve the educational outcomes of students.</p>		<p><b>Design Principle Index (effective professional development should):</b></p> <p><b>DP1</b> be collaborative and promote active participation</p> <p><b>DP2</b> be tailored to the needs/context of participants</p> <p><b>DP3</b> be evidence-based and align with current school/system priorities</p> <p><b>DP4</b> be sustained and provide teachers with adequate time/resources for change</p> <p><b>DP5</b> provide opportunities for participants to enhance skills/knowledge</p> <p><b>DP6</b> challenge participants and encourage reflective practice</p> <p><b>DP7</b> determine its impact through rigorous evaluation 'of' and 'by' participants</p> <p><b>DP8</b> clearly articulate its goals/learning intentions</p> <p><b>DP9</b> be aligned to relevant professional standards and lead to improved student outcomes</p>
Timing:	Activity:	Facilitator Signoff:
4:00	Acknowledgement of country	
4:05	<p>Presenter to introduce the session including:</p> <ul style="list-style-type: none"> <li>- the topic of the session- data and evidence, and the relevant evidence base/policies; <b>DP3</b></li> <li>- any arising WHS notices;</li> <li>- the relevant standards for the session and how participants could demonstrate them/use them to support students; <b>DP9</b></li> <li>- the goals, intended outcomes and learning intentions of the session; <b>DP8</b></li> <li>- introduction of the guest presenter.</li> </ul>	
4:10	Guest presenter to deliver the presentation for the session on the topic of collecting evidence and using data to demonstrate impact. <b>DP5, 5.4.3, 6.3.3, 5.4.4, 6.3.4</b>	
4:40	<ul style="list-style-type: none"> <li>- Presenter to thank guest presenter.</li> <li>- Display and discuss slide on reflection questions and what a structured discussion on the topic might look like.</li> <li>- Explain to participants that they will be working in breakout rooms for the remainder of the session to focus on reflective discussions and collaborative work on evidence. <b>DP8</b></li> <li>- Organise participants into the breakout rooms formed in session 1 based on participant needs. <b>DP2</b></li> </ul>	
4:45	Participants to answer the reflection questions. Presenter to join breakout rooms intermittently to advance discussion, challenge participant views, support understanding as needed. <b>DP6</b>	
5:05 (or as discuss-	Presenter to call groups back to main room or discuss with individual breakout rooms:	

ions finish)	<ul style="list-style-type: none"> <li>- The remainder of the session has been set aside to give participants time to work on or discuss evidence (possibly in relation to session topic). <b>DP4</b></li> <li>- Participants can collaboratively ask each other for feedback on evidence or co-develop annotations, and presenter will join rooms intermittently to offer support. <b>DP1</b></li> </ul>	
5:25	<ul style="list-style-type: none"> <li>- Call groups back to main room. Offer participants opportunity to share any learnings that they think would benefit the group.</li> <li>- Encourage participants to bring a new (preferably annotated) piece of evidence for next session with the intention of having enough pieces to submit a module by the end of the program.</li> <li>- Encourage participants to complete feedback survey through chat. <b>DP7</b></li> </ul>	
5:30	End session	
<b>Facilitator Notes:</b>		



## Session Plan: Session 3

<b>Session Topic: Reflective Practice</b>		
<b>Session Number: 3</b>	<b>Date: 13/12/2023</b>	<b>Time: 4:00 – 5:30</b>
<p><b>Relevant Standards (see APST):</b>  <b>6.3.3</b> Initiate and engage in professional discussions with colleagues in a range of forums to evaluate practice directed at improving professional knowledge and practice, and the educational outcomes of students.  <b>6.4.3</b> Engage with colleagues to evaluate the effectiveness of teacher professional learning activities to address student learning needs.  <b>6.3.4</b> Implement professional dialogue within the school or professional learning network(s) that is informed by feedback, analysis of current research and practice to improve the educational outcomes of students.  <b>6.4.4</b> Advocate, participate in and lead strategies to support high-quality professional learning opportunities for colleagues that focus on improved student learning.</p>		<p><b>Design Principle Index (effective professional development should):</b>  <b>DP1</b> be collaborative and promote active participation  <b>DP2</b> be tailored to the needs/context of participants  <b>DP3</b> be evidence-based and align with current school/system priorities  <b>DP4</b> be sustained and provide teachers with adequate time/resources for change  <b>DP5</b> provide opportunities for participants to enhance skills/knowledge  <b>DP6</b> challenge participants and encourage reflective practice  <b>DP7</b> determine its impact through rigorous evaluation 'of' and 'by' participants  <b>DP8</b> clearly articulate its goals/learning intentions  <b>DP9</b> be aligned to relevant professional standards and lead to improved student outcomes</p>
<b>Timing:</b>	<b>Activity:</b>	<b>Facilitator Signoff:</b>
4:00	Acknowledgement of country	
4:05	<p>Presenter to introduce the session including:</p> <ul style="list-style-type: none"> <li>- the topic of the session- reflective practice, and the relevant evidence base/policies; <b>DP3</b></li> <li>- any arising WHS notices;</li> <li>- the relevant standards for the session and how participants could demonstrate them/use them to support students; <b>DP9</b></li> <li>- the goals, intended outcomes and learning intentions of the session; <b>DP8</b></li> <li>- introduction of the guest presenter.</li> </ul>	
4:10	<p>Guest presenter to deliver the presentation for the session on the topic of reflective practice and why it is important in teaching practice and when annotating evidence. <b>DP5, 5.4.3, 6.3.3, 5.4.4, 6.3.4</b></p>	
4:40	<ul style="list-style-type: none"> <li>- Presenter to thank guest presenter.</li> <li>- Display and discuss slide on reflection questions and what a structured discussion on the topic might look like.</li> <li>- Explain to participants that they will be working in breakout rooms for the remainder of the session to focus on reflective discussions and collaborative work on evidence. <b>DP8</b></li> <li>- Organise participants into the breakout rooms formed in session 1 based on participant needs. <b>DP2</b></li> </ul>	
4:45	<p>Participants to answer the reflection questions. Presenter to join breakout rooms intermittently to advance discussion, challenge participant views, support understanding as needed. <b>DP6</b></p>	
5:05 (or as	<p>Presenter to call groups back to main room or discuss with individual breakout rooms:</p>	

discussions finish)	<ul style="list-style-type: none"> <li>- The remainder of the session has been set aside to give participants time to work on or discuss evidence (possibly in relation to session topic). <b>DP4</b></li> <li>- Participants can collaboratively ask each other for feedback on evidence or co-develop annotations, and presenter will join rooms intermittently to offer support. <b>DP1</b></li> </ul>	
5:25	<ul style="list-style-type: none"> <li>- Call groups back to main room. Offer participants opportunity to share any learnings that they think would benefit the group.</li> <li>- Encourage participants to bring a new (preferably annotated) piece of evidence for next session with the intention of having enough pieces to submit a module by the end of the program.</li> <li>- Encourage participants to complete feedback survey through chat. <b>DP7</b></li> </ul>	
5:30	End session	
<b>Facilitator Notes:</b>		

## Session Plan: Session 4



<b>Session Topic: Leading Learning</b>		
<b>Session Number: 4</b>	<b>Date: 14/02/2024</b>	<b>Time: 4:00 – 5:30</b>
<p><b>Relevant Standards (see APST):</b>  <b>6.3.3</b> Initiate and engage in professional discussions with colleagues in a range of forums to evaluate practice directed at improving professional knowledge and practice, and the educational outcomes of students.  <b>6.4.3</b> Engage with colleagues to evaluate the effectiveness of teacher professional learning activities to address student learning needs.  <b>6.3.4</b> Implement professional dialogue within the school or professional learning network(s) that is informed by feedback, analysis of current research and practice to improve the educational outcomes of students.  <b>6.4.4</b> Advocate, participate in and lead strategies to support high-quality professional learning opportunities for colleagues that focus on improved student learning.</p>		<p><b>Design Principle Index (effective professional development should):</b>  <b>DP1</b> be collaborative and promote active participation  <b>DP2</b> be tailored to the needs/context of participants  <b>DP3</b> be evidence-based and align with current school/system priorities  <b>DP4</b> be sustained and provide teachers with adequate time/resources for change  <b>DP5</b> provide opportunities for participants to enhance skills/knowledge  <b>DP6</b> challenge participants and encourage reflective practice  <b>DP7</b> determine its impact through rigorous evaluation 'of' and 'by' participants  <b>DP8</b> clearly articulate its goals/learning intentions  <b>DP9</b> be aligned to relevant professional standards and lead to improved student outcomes</p>
<b>Timing:</b>	<b>Activity:</b>	<b>Facilitator Signoff:</b>
4:00	Acknowledgement of country	
4:05	<p>Presenter to introduce the session including:</p> <ul style="list-style-type: none"> <li>- the topic of the session- leading learning, and the relevant evidence base/policies; <b>DP3</b></li> <li>- any arising WHS notices;</li> <li>- the relevant standards for the session and how participants could demonstrate them/use them to support students; <b>DP9</b></li> <li>- the goals, intended outcomes and learning intentions of the session; <b>DP8</b></li> <li>- introduction of the guest presenter.</li> </ul>	
4:10	<p>Guest presenter to deliver the presentation for the session on the topic of leading learning and why instructional leadership is such an important skill for a HALT. <b>DP5, 5.4.3, 6.3.3, 5.4.4, 6.3.4</b></p>	
4:40	<ul style="list-style-type: none"> <li>- Presenter to thank guest presenter.</li> <li>- Display and discuss slide on reflection questions and what a structured discussion on the topic might look like.</li> <li>- Explain to participants that they will be working in breakout rooms for the remainder of the session to focus on reflective discussions and collaborative work on evidence. <b>DP8</b></li> <li>- Organise participants into the breakout rooms formed in session 1 based on participant needs. <b>DP2</b></li> </ul>	
4:45	<p>Participants to answer the reflection questions. Presenter to join breakout rooms intermittently to advance discussion, challenge participant views, support understanding as needed. <b>DP6</b></p>	
5:05 (or as	<p>Presenter to call groups back to main room or discuss with individual breakout rooms:</p>	

discussions finish)	<ul style="list-style-type: none"> <li>- The remainder of the session has been set aside to give participants time to work on or discuss evidence (possibly in relation to session topic). <b>DP4</b></li> <li>- Participants can collaboratively ask each other for feedback on evidence or co-develop annotations, and presenter will join rooms intermittently to offer support. <b>DP1</b></li> </ul>	
5:25	<ul style="list-style-type: none"> <li>- Call groups back to main room. Offer participants opportunity to share any learnings that they think would benefit the group.</li> <li>- Encourage participants to bring a new (preferably annotated) piece of evidence for next session with the intention of having enough pieces to submit a module by the end of the program.</li> <li>- Encourage participants to complete feedback survey through chat. <b>DP7</b></li> </ul>	
5:30	End session	
<b>Facilitator Notes:</b>		



## Session Plan: Session 5

<b>Session Topic: Coaching Mindset</b>		
<b>Session Number: 5</b>	<b>Date: 13/03/2024</b>	<b>Time: 4:00 – 5:30</b>
<p><b>Relevant Standards (see APST):</b></p> <p><b>6.3.3</b> Initiate and engage in professional discussions with colleagues in a range of forums to evaluate practice directed at improving professional knowledge and practice, and the educational outcomes of students.</p> <p><b>6.4.3</b> Engage with colleagues to evaluate the effectiveness of teacher professional learning activities to address student learning needs.</p> <p><b>6.3.4</b> Implement professional dialogue within the school or professional learning network(s) that is informed by feedback, analysis of current research and practice to improve the educational outcomes of students.</p> <p><b>6.4.4</b> Advocate, participate in and lead strategies to support high-quality professional learning opportunities for colleagues that focus on improved student learning.</p>		<p><b>Design Principle Index (effective professional development should):</b></p> <p><b>DP1</b> be collaborative and promote active participation</p> <p><b>DP2</b> be tailored to the needs/context of participants</p> <p><b>DP3</b> be evidence-based and align with current school/system priorities</p> <p><b>DP4</b> be sustained and provide teachers with adequate time/resources for change</p> <p><b>DP5</b> provide opportunities for participants to enhance skills/knowledge</p> <p><b>DP6</b> challenge participants and encourage reflective practice</p> <p><b>DP7</b> determine its impact through rigorous evaluation 'of' and 'by' participants</p> <p><b>DP8</b> clearly articulate its goals/learning intentions</p> <p><b>DP9</b> be aligned to relevant professional standards and lead to improved student outcomes</p>
<b>Timing:</b>	<b>Activity:</b>	<b>Facilitator Signoff:</b>
4:00	Acknowledgement of country	
4:05	<p>Presenter to introduce the session including:</p> <ul style="list-style-type: none"> <li>- the topic of the session- coaching mindset, and the relevant evidence base/policies; <b>DP3</b></li> <li>- any arising WHS notices;</li> <li>- the relevant standards for the session and how participants could demonstrate them/use them to support students; <b>DP9</b></li> <li>- the goals, intended outcomes and learning intentions of the session; <b>DP8</b></li> <li>- introduction of the guest presenter.</li> </ul>	
4:10	<p>Guest presenter to deliver the presentation for the session on the topic of coaching and how the principles of coaching can be used by HALTs to build the capacity of those around them. <b>DP5, 5.4.3, 6.3.3, 5.4.4, 6.3.4</b></p>	
4:40	<ul style="list-style-type: none"> <li>- Presenter to thank guest presenter.</li> <li>- Display and discuss slide on reflection questions and what a structured discussion on the topic might look like.</li> <li>- Explain to participants that they will be working in breakout rooms for the remainder of the session to focus on reflective discussions and collaborative work on evidence. <b>DP8</b></li> <li>- Organise participants into the breakout rooms formed in session 1 based on participant needs. <b>DP2</b></li> </ul>	
4:45	<p>Participants to answer the reflection questions. Presenter to join breakout rooms intermittently to advance discussion, challenge participant views, support understanding as needed. <b>DP6</b></p>	
5:05 (or as	<p>Presenter to call groups back to main room or discuss with individual breakout rooms:</p>	

discussions finish)	<ul style="list-style-type: none"> <li>- The remainder of the session has been set aside to give participants time to work on or discuss evidence (possibly in relation to session topic). <b>DP4</b></li> <li>- Participants can collaboratively ask each other for feedback on evidence or co-develop annotations, and presenter will join rooms intermittently to offer support. <b>DP1</b></li> </ul>	
5:25	<ul style="list-style-type: none"> <li>- Call groups back to main room. Offer participants opportunity to share any learnings that they think would benefit the group.</li> <li>- Encourage participants to bring a new (preferably annotated) piece of evidence for next session with the intention of having enough pieces to submit a module by the end of the program.</li> <li>- Encourage participants to complete feedback survey through chat. <b>DP7</b></li> </ul>	
5:30	End session	
<b>Facilitator Notes:</b>		

## Session Plan: Session 6

Session Topic: Presentations and Evaluation		
Session Number: 6	Date: 10/04/2024	Time: 4:00 – 5:30
<p><b>Relevant Standards (see APST):</b>  <b>6.4.3</b> Engage with colleagues to evaluate the effectiveness of teacher professional learning activities to address student learning needs.  <b>7.4.3</b> Contribute to professional networks and associations and build productive links with the wider community to improve learning and teaching  <b>6.4.4</b> Advocate, participate in and lead strategies to support high-quality professional learning opportunities for colleagues that focus on improved student learning.  <b>7.4.4</b> Take a leadership role in professional and community networks and support the involvement of colleagues in external learning opportunities.</p>		<p><b>Design Principle Index (effective professional development should):</b>  <b>DP1</b> be collaborative and promote active participation  <b>DP2</b> be tailored to the needs/context of participants  <b>DP3</b> be evidence-based and align with current school/system priorities  <b>DP4</b> be sustained and provide teachers with adequate time/resources for change  <b>DP5</b> provide opportunities for participants to enhance skills/knowledge  <b>DP6</b> challenge participants and encourage reflective practice  <b>DP7</b> determine its impact through rigorous evaluation 'of' and 'by' participants  <b>DP8</b> clearly articulate its goals/learning intentions  <b>DP9</b> be aligned to relevant professional standards and lead to improved student outcomes</p>
Timing:	Activity:	Facilitator Signoff:
4:00	Acknowledgement of country	
4:05	<p>Presenter to introduce the session including:</p> <ul style="list-style-type: none"> <li>- any arising WHS notices;</li> <li>- the relevant standards for the session and how participants could demonstrate them/use them to support students; <b>DP9</b></li> <li>- the goals, intended outcomes and learning intentions of the session (participant presentations of evidence and presenter feedback). <b>DP8</b></li> </ul>	
4:10	<ul style="list-style-type: none"> <li>- Presenter to thank participants for participation over the course of the program. Explain to participants that the overwhelming majority of HALT applicants interviewed in the stakeholder analysis wanted to see examples of evidence. <b>DP3</b></li> <li>- Presenter to encourage participants to present a piece of evidence. Ask for volunteers and create a roster for the session. <b>DP1</b></li> <li>- Presenter to collaboratively establish norms for the session's presentations based on the needs of participants. Suggested that participants are welcome to provide each other feedback but to keep feedback concise and constructive. <b>DP2</b></li> </ul>	
4:20	<p>Presenter to facilitate participants taking turns presenting a piece of evidence and giving each other feedback.                      Presenter to fill out Evidence Set Evaluation Tool for each presentation and email to each participant after the session.  <b>DP1, DP7</b></p>	
5:20	<p>Presenter to thank participants and offer to complete the Evidence Set Evaluation Tool for any other work that participants would like feedback on. Explain to participants that they may be contacted by the presenter in the next few</p>	

	weeks to participate in an interview to gain their feedback. <b>DP7</b>	
5:25	Encourage participants to complete feedback survey through chat. <b>DP7</b>	
5:30	End session	
<b>Facilitator Notes:</b>		

## Appendix J: Evidence Set Evaluation Tools

### Evidence Set Evaluation Tools



THE UNIVERSITY OF  
SYDNEY

*Research Study: Bringing School Leadership to a HALT: A Design-based Intervention to Support the Development of Highly Accomplished and Lead Teachers in NSW Schools- Professional Development*

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The following tools have been developed to assess participant evidence sets submitted at the conclusion of the study. The tool was developed using the Evidence Guide for the Lead Teacher Standards (NESA, 2010b) and the Evidence Guide for the Highly Accomplished Teacher Standards (NESA, 2010a).

# Evidence Set Evaluation Tool (Highly Accomplished)



## *Research Study: Bringing School Leadership to a HALT: A Design-based Intervention to Support the Development of Highly Accomplished and Lead Teachers in NSW Schools- Professional Development*

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Standard	Present	Not Present	Not Assessed
1.1.3 Select from a flexible and effective repertoire of teaching strategies to suit the physical, social and intellectual development and characteristics of students.			
1.2.3 Expand understanding of how students learn using research and workplace knowledge.			
1.3.3 Support colleagues to develop effective teaching strategies that address the learning strengths and needs of students from diverse linguistic, cultural, religious and socioeconomic backgrounds.			
1.4.3 Provide advice and support colleagues in the implementation of effective teaching strategies for Aboriginal and Torres Strait Islander students using knowledge of and support from community representatives.			
1.5.3 Evaluate learning and teaching programs, using student assessment data, that are differentiated for the specific learning needs of students across the full range of abilities.			
1.6.3 Work with colleagues to access specialist knowledge, and relevant policy and legislation, to develop teaching programs that support the participation and learning of students with disability.			
2.1.3 Support colleagues using current and comprehensive knowledge of content and teaching strategies to develop and implement engaging learning and teaching programs.			
2.2.3 Exhibit innovative practice in the selection and organisation of content and delivery of learning and teaching programs.			
2.3.3 Support colleagues to plan and implement learning and teaching programs using contemporary knowledge and understanding of curriculum, assessment and reporting requirements.			
2.4.3 Support colleagues with providing opportunities for students to develop understanding of and respect for Aboriginal and Torres Strait Islander histories, cultures and languages.			
2.5.3 Support colleagues to implement effective teaching strategies to improve students' literacy and numeracy achievement.			
2.6.3 Model high-level teaching knowledge and skills and work with colleagues to use current ICT to improve their teaching practice and make content relevant and meaningful.			
3.1.3 Develop a culture of high expectations for all students by modelling and setting challenging learning goals.			
3.2.3 Work with colleagues to plan, evaluate and modify learning and teaching programs to create productive learning environments that engage all students.			
3.3.3 Support colleagues to select and apply effective teaching strategies to develop knowledge, skills, problem solving and critical and creative thinking.			
3.4.3 Assist colleagues to create, select and use a wide range of resources, including ICT, to engage students in their learning.			

<b>3.5.3</b> Assist colleagues to select a wide range of verbal and non-verbal communication strategies to support students' understanding, engagement and achievement.			
<b>3.6.3</b> Work with colleagues to review current learning and teaching programs using student feedback, student assessment data, knowledge of curriculum and workplace practices.			
<b>3.7.3</b> Work with colleagues to provide appropriate and contextually relevant opportunities for parents/carers to be involved in their children's learning.			
<b>4.1.3</b> Model effective practice and support colleagues to implement inclusive strategies that engage and support all students.			
<b>4.2.3</b> Model and share with colleagues a flexible repertoire of strategies for classroom management to ensure all students are engaged in purposeful activities.			
<b>4.3.3</b> Develop and share with colleagues a flexible repertoire of behaviour management strategies using expert knowledge and workplace experience.			
<b>4.4.3</b> Initiate and take responsibility for implementing current school and/or system, curriculum and legislative requirements to ensure student well-being and safety.			
<b>4.5.3</b> Model and support colleagues to develop strategies to promote safe, responsible and ethical use of ICT in learning and teaching.			
<b>5.1.3</b> Develop and apply a comprehensive range of assessment strategies to diagnose learning needs, comply with curriculum requirements and support colleagues to evaluate the effectiveness of their approaches to assessment.			
<b>5.2.3</b> Select from an effective range of strategies to provide targeted feedback based on informed and timely judgements of each student's current needs in order to progress learning.			
<b>5.3.3</b> Organise assessment moderation activities that support consistent and comparable judgements of student learning.			
<b>5.4.3</b> Work with colleagues to use data from internal and external student assessments for evaluating learning and teaching, identifying interventions and modifying teaching practice.			
<b>5.5.3</b> Work with colleagues to construct accurate, informative and timely reports to students and parents/carers about student achievement making use of accurate and reliable records.			
<b>6.1.3</b> Analyse the Australian Professional Standards for Teachers to plan personal goals, support colleagues to identify and achieve personal development goals and pre-service teachers to improve classroom practice.			
<b>6.2.3</b> Plan for professional learning by accessing and critiquing relevant research, engage in high quality targeted opportunities to improve practice and offer quality placements for pre-service teachers where applicable.			
<b>6.3.3</b> Initiate and engage in professional discussions with colleagues in a range of forums to evaluate practice directed at improving professional knowledge and practice, and the educational outcomes of students.			
<b>6.4.3</b> Engage with colleagues to evaluate the effectiveness of teacher professional learning activities to address student learning needs.			
<b>7.1.3</b> Maintain high ethical standards and support colleagues to interpret codes of ethics and exercise sound judgement in all school and community contexts.			
<b>7.2.3</b> Support colleagues to review and interpret legislative, administrative and organisational requirements, policies and processes.			
<b>7.3.3</b> Demonstrate responsiveness in all communications with parents/carers about their children's learning and wellbeing.			
<b>7.4.3</b> Contribute to professional networks and associations and build productive links with the wider community to improve learning and teaching			

## Evidence Set Evaluation Tool (Lead)



THE UNIVERSITY OF  
SYDNEY

### *Research Study: Bringing School Leadership to a HALT: A Design-based Intervention to Support the Development of Highly Accomplished and Lead Teachers in NSW Schools- Professional Development*

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Standard	Present	Not Present	Not Assessed
1.1.4 Lead colleagues to select and develop teaching strategies to improve student learning using knowledge of the physical, social and intellectual development and characteristics of students.			
1.2.4 Lead processes to evaluate the effectiveness of teaching programs using research and workplace knowledge about how students learn.			
1.3.4 Evaluate and revise school learning and teaching programs, using expert and community knowledge and experience, to meet the needs of students with diverse linguistic, cultural, religious and socioeconomic backgrounds.			
1.4.4 Develop teaching programs that support equitable and ongoing participation of Aboriginal and Torres Strait Islander students by engaging in collaborative relationships with community representatives and parents/carers.			
1.5.4 Lead colleagues to evaluate the effectiveness of learning and teaching programs differentiated for the specific learning needs of students across the full range of abilities.			
1.6.4 Initiate and lead the review of school policies to support the engagement and full participation of students with disability and ensure compliance with legislative and/or system policies.			
2.1.4 Lead initiatives within the school to evaluate and improve knowledge of content and teaching strategies and demonstrate exemplary teaching of subjects using effective, research-based learning and teaching programs.			
2.2.4 Lead initiatives that utilise comprehensive content knowledge to improve the selection and sequencing of content into coherently organised learning and teaching programs.			
2.3.4 Lead colleagues to develop learning and teaching programs using comprehensive knowledge of curriculum, assessment and reporting requirements.			
2.4.4 Lead initiatives to assist colleagues with opportunities for students to develop understanding of and respect for Aboriginal and Torres Strait Islander histories, cultures and languages.			
2.5.4 Monitor and evaluate the implementation of teaching strategies within the school to improve students' achievement in literacy and numeracy using research-based knowledge and student data.			
2.6.4 Lead and support colleagues within the school to select and use ICT with effective teaching strategies to expand learning opportunities and content knowledge for all students.			
3.1.4 Demonstrate exemplary practice and high expectations and lead colleagues to encourage students to pursue challenging goals in all aspects of their education.			
3.2.4 Exhibit exemplary practice and lead colleagues to plan, implement and review the effectiveness of their learning and teaching programs to develop students' knowledge, understanding and skills.			
3.3.4 Work with colleagues to review, modify and expand their repertoire of teaching strategies to enable students to use knowledge, skills, problem solving and critical and creative thinking.			

<b>3.4.4</b> Model exemplary skills and lead colleagues in selecting, creating and evaluating resources, including ICT, for application by teachers within or beyond the school.			
<b>3.5.4</b> Demonstrate and lead by example inclusive verbal and non-verbal communication using collaborative strategies and contextual knowledge to support students' understanding, engagement and achievement.			
<b>3.6.4</b> Conduct regular reviews of teaching and learning programs using multiple sources of evidence including: student assessment data, curriculum documents, teaching practices and feedback from parents/carers, students and colleagues.			
<b>3.7.4</b> Initiate contextually relevant processes to establish programs that involve parents/carers in the education of their children and broader school priorities and activities.			
<b>4.1.4</b> Demonstrate and lead by example the development of productive and inclusive learning environments across the school by reviewing inclusive strategies and exploring new approaches to engage and support all students.			
<b>4.2.4</b> Initiate strategies and lead colleagues to implement effective classroom management and promote student responsibility for learning.			
<b>4.3.4</b> Lead and implement behaviour management initiatives to assist colleagues to broaden their range of strategies.			
<b>4.4.4</b> Evaluate the effectiveness of student well-being policies and safe working practices using current school and/ or system, curriculum and legislative requirements and assist colleagues to update their practices.			
<b>4.5.4</b> Review or implement new policies and strategies to ensure the safe, responsible and ethical use of ICT in learning and teaching.			
<b>5.1.4</b> Evaluate school assessment policies and strategies to support colleagues with: using assessment data to diagnose learning needs, complying with curriculum, system and/or school assessment requirements and using a range of assessment strategies.			
<b>5.2.4</b> Model exemplary practice and initiate programs to support colleagues in applying a range of timely, effective and appropriate feedback strategies.			
<b>5.3.4</b> Lead and evaluate moderation activities that ensure consistent and comparable judgements of student learning to meet curriculum and school or system requirements.			
<b>5.4.4</b> Co-ordinate student performance and program evaluation using internal and external student assessment data to improve teaching practice.			
<b>5.5.4</b> Evaluate and revise reporting and accountability mechanisms in the school to meet the needs of students, parents/carers and colleagues.			
<b>6.1.4</b> Use comprehensive knowledge of the Australian Professional Standards for Teachers to plan and lead the development of professional learning policies and programs that address the professional learning needs of colleagues and pre-service teachers.			
<b>6.2.4</b> Initiate collaborative relationships to expand professional learning opportunities, engage in research, and provide quality opportunities and placements for pre-service teachers.			
<b>6.3.4</b> Implement professional dialogue within the school or professional learning network(s) that is informed by feedback, analysis of current research and practice to improve the educational outcomes of students.			
<b>6.4.4</b> Advocate, participate in and lead strategies to support high-quality professional learning opportunities for colleagues that focus on improved student learning.			
<b>7.1.4</b> Model exemplary ethical behaviour and exercise informed judgements in all professional dealings with students, colleagues and the community.			
<b>7.2.4</b> Initiate, develop and implement relevant policies and processes to support colleagues' compliance with and understanding of existing and new legislative, administrative, organisational and professional responsibilities.			
<b>7.3.4</b> Identify, initiate and build on opportunities that engage parents/ carers in both the progress of their children's learning and in the educational priorities of the school.			
<b>7.4.4</b> Take a leadership role in professional and community networks and support the involvement of colleagues in external learning opportunities.			

## Appendix K: Professional Development Participant Interview Questions



### *Research Study: Bringing School Leadership to a HALT: A Design-based Intervention to Support the Development of Highly Accomplished and Lead Teachers in NSW Schools- Professional Development*

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How would you rate your knowledge of the APST:

- *before the program?*
- *after the program?*

How would you rate your motivation to complete your accreditation:

- *before the program?*
- *after the program?*

How would you rate your influence within your school:

- *before the program?*
- *after the program?*

Has your practice changed as a result of this program? Give examples.

Did/was this program:

- collaborative and involve participation from school/system leaders?
- tailored to the needs of participants?
- authentic and align with current school/system priorities?
- sustained and provide teachers with adequate time/resources for change?
- focus on enhancing teacher skills/knowledge?
- challenge participants and encourage self-reflection?
- include rigorous evaluation *of* and *by* participants?
- evidence-based and of high quality?
- clearly articulate the goals/learning intentions of the professional development?
- encourage active participation of participants?

Would you recommend this program to a colleague interested in gaining higher accreditation?

Do you feel confident to submit the evidence set that you worked on during this program? Why/why not?

Do you have any suggestions as to how this program could be improved?

## Appendix L: Revised Stakeholder Analysis Participant Questionnaire

**Research Study: Bringing School Leadership to a HALT: A Design-based Intervention to Support the Development of Highly Accomplished and Lead Teachers in NSW Schools- Stakeholder Analysis**

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### 1. What is your current job role?

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### 2. What is your current level of accreditation?

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### 3. Are you (or would you be) interested in gaining higher accreditation? Why/why not?

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**4. Why do you think that so few teachers engage in the higher accreditation process?**

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**5. Do you see any elements of the higher accreditation process as advantageous/disadvantageous to certain groups of teachers?**

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**6. Would a quality professional development program influence your likelihood of pursuing higher accreditation? What would you like to see in a program like this?**

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**7. Do you have anything else to add?**

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