



The Future of Best Practice Assessment

White Paper

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Introduction

This white paper provides guidance for teachers and school leaders about impactful assessment. It aims to assist educators to align their practices with evidence-based approaches to assessment and evaluation, ultimately enhancing the quality of education for all students.

This paper reviews what is needed for (1) formative assessment to positively impact students; and (2) for school evaluation to significantly improve the quality of teaching and learning. For many readers this discussion is not new. Rather, it serves as a useful reminder of previous readings and learning experiences, and as a reference when evaluating the suitability of assessment services and products for their schools.

The paper also envisions the future of best practice assessment. The assessment and reporting software, Brightpath Progress, is the result of years of empirical research conducted by Stephen Humphry and Sandy Heldsinger through the University of Western Australia. Humphry and Heldsinger have long believed it untenable to expect teachers and school leaders to independently discover and create their own assessment solutions. They therefore worked with professional associations to develop innovative methods of assessment; a synopsis of the empirical research base for Brightpath Progress is provided here.

3P Learning is confident, based on the depth of Humphry and Heldsinger’s research and its alignment with what is known about effective formative assessment and school evaluation, that Brightpath Progress represents “the future of best practice assessment”.

Formative assessment

Formative assessment—frequent, interactive assessments to review student progress and identify specific learning needs—has been empirically proven to significantly advance student learning, as recognised by the Organization for Economic Co-operation and Development (OECD, 2008). Further, readers may be familiar with the influential article, “Inside the Black Box: Raising standards through classroom assessment” (Black and Wiliam 1998), which argues that formative assessment has the most substantial impact on improving student learning.

Considerable research and development in the field of formative assessment followed Black and Wiliam’s groundbreaking article. As a testament to the effectiveness of formative assessment, references to its importance have become integral to education policies and advisory documents. Consequently, there is now a wide range of resources and support available to educators to assist them to observe and assess students effectively within their classrooms.

School evaluation

Black and Wiliam cautioned about the limited impact of externally imposed standardised assessments on improving teaching. Since then, however, understanding of the role that standardised testing plays in effective school leadership, and its critical role in establishing explicit and detailed school improvement agendas, has evolved significantly.

Effective schools now prioritise the analysis and discussion of systematically collected data on student outcomes, including progress or regression over time, as emphasised by Masters (2016). In this context, standardised test data has emerged as a pivotal element.

Formative assessment—frequent, interactive assessments to review student progress and identify specific learning needs—has been empirically proven to significantly advance student learning.

Assessment demands on educators

Research has provided extensive guidance about what is required for assessments and school evaluations to improve student achievement. However, the field of assessment is vast and multifaceted. Different aspects of learning often require distinct assessment methods—some necessitate extended performances, while others can be assessed through short-answer or multiple-choice questions. Each form of assessment demands a unique skill set and knowledge base.

The challenge for educators lies in either developing their assessment expertise or finding tools that enable them to implement research and advice effectively.

Worldwide, there is an ongoing quest to assist teachers and school leaders in improving assessment practices because high-quality assessment is inherently complex. The challenge for educators lies in either developing their assessment expertise or finding tools that enable them to implement research and advice effectively.

The future of best practice assessment

In 2003 Susan Brookhart made a compelling case for new theoretical developments in the area of measurement in the classroom (Brookhart 2003). She emphasised the need to apply the types of analysis employed in developing standardised tests to a classroom context.

This paper provides a synopsis of groundbreaking research undertaken by the University of Western Australia to meet Brookhart’s challenge—research that led to the development of Brightpath Progress.

Brightpath Progress represents a commitment to developing innovative methods of assessment and analysis that support teachers in formative assessment, while providing school leaders with comparable data to evaluate program success. The software not only harnesses advanced psychometric techniques to transform classroom assessment, but also heeds the advice of leading academics regarding the prerequisites for effective assessment and school evaluation. An Australian Government report identified Brightpath Progress as one of the few tools “aligned with well-constructed learning progressions and capable of providing information about the points students have reached in their learning and the growth they have made over time” (Cawsey et al. 2019).

This paper will assist teachers and school leaders to explore the ways that Brightpath Progress can advance assessment in their schools.

Effective formative assessment

In 2002, the United Kingdom's Assessment Reform Group published 10 principles of assessment for learning (Broadfoot et al. 2002). Although this framework for classroom practice was drafted two decades ago, its advice remains current (Table 1).

Table 1: Assessment for Learning: 10 Principles. Research-based principles to guide classroom practice

Principle 1: Assessment for learning should be part of effective planning of teaching and learning.

Principle 2: Assessment learning should focus on how students learn.

Principle 3: Assessment for learning should be recognised as central to classroom practice.

Principle 4: Assessment for learning should be regarded as a key professional skill for teachers.

Principle 5: Assessment for learning should be sensitive and constructive because any assessment has an emotional impact.

Principle 6: Assessment should take account of the importance of learner motivation.

Principle 7: Assessment for learning should promote a commitment to learning goals and a shared understanding of the criteria by which they are assessed.

Principle 8: Learners should receive constructive guidance about how to improve.

Principle 9: Assessment for learning develops learners' capacity for self-assessment so that they can become reflective and self-managing.

Principle 10: Assessment for learning should recognise the full range of achievements of all learners.

Principles 1, 2, 3 and 10 broadly relate to planning *for* and *from* assessment. **Principle 4** considers the importance of assessment as a professional skill for teachers. **Principles 5, 6, 7, 8 and 9** focus on assessment from the perspective of students. This paper uses these broad and overlapping groupings to explore the requirements for effective classroom formative assessment, to help teachers and school leaders reflect on the assessment practices in their schools.

Planning *for* assessments and planning *from* assessments

Assessments need to be an integral part of planning. When focused learning and assessment are intentionally planned together, assessments become a powerful tool for enhancing student learning.

Effective teachers plan how they will establish their students' learning progress (William 2011). Such preparation includes planning for their own observations, but also how they will incorporate more formal assessments. To provide nuanced evidence of learning, teachers often create carefully constructed rubrics, scoring guides and marking systems tailored to the specific learning objectives (Ridden and Heldsinger 2014). Ideally, assessments should encompass what students have already learned and the concepts they are yet to grasp.

This dual focus enables teachers to pinpoint where students stand in their learning and what areas require further attention (ibid.).

Effective teachers continually observe their students and interpret these observations in terms of how students are progressing; what they do and don't understand; or what misconceptions they hold (Louden et al. 2008; Wiliam 2017). These teachers do not simply add a few more observational schedules or tests to their existing teaching programs. Rather, they carefully plan the questions they will ask during a lesson and the content and types of classroom tasks they will give their students, so that they obtain valuable insights into their students' learning.

Expert teachers don't just collect information; they put it to meaningful use. They analyse student responses to discern strengths and weaknesses, guiding their decisions on the next learning experiences and necessary feedback. These educators possess a repertoire of follow-up strategies, each tailored to the unique insights gained from the assessment data. The collaboration between thoughtful assessment and informed teaching is the hallmark of effective education, leading to continuous improvement in both teaching and learning outcomes.

Much of what teachers and learners do in the classroom can be described as assessment. That is, tasks and questions prompt learners to demonstrate their knowledge, understandings and skills. What learners say and do is then observed and interpreted, and judgements are made about how learning can be improved. These assessment processes are an essential part of everyday classroom practice and involve both teachers and learners in reflection, dialogue and decision-making. (Broadfoot et al. 2002)

Planning for and planning from assessment requires:

- knowing what questions to pose to a class to find out how well students have understood a concept
- using assessment to inform immediate, medium-term and long-term lesson planning
- building assessment points into lesson plans and being able to immediately redirect a lesson based on the information collected
- providing feedback to students that is clear, meaningful and leads to further learning
- devising tasks that provide students with meaningful information about where they are in their learning
- devising success criteria and interpreting students' work in relation to those criteria
- understanding what assessment method is most appropriate, given the context and purpose, and how to use the method to gather dependable information about student achievement
- communicating assessment results effectively in reports, portfolios and teacher–student conferences
- understanding how to use assessment to maximise student motivation and learning by involving students as partners in assessment recording and communication.

The collaboration between thoughtful assessment and informed teaching is the hallmark of effective education, leading to continuous improvement in both teaching and learning outcomes.

Assessment as a key professional skill for teaching

The Assessment Reform Group framework recognises assessment as a core professional skill in its own right. Although the other assessment principles draw significantly from teachers' expert assessment knowledge, the principle that assessment "should be regarded as a key professional skill for teachers" could rightfully be seen as overarching. Proficiency in planning assessments; observing learning; analysing and interpreting evidence; and providing meaningful feedback are fundamental to implementing the other principles.

The most effective assessments for guiding learning improvements are those that teachers can administer regularly in their own classrooms, directly aligned with their instructional goals and objectives (Guskey 2007). Research shows that teachers who develop systematic processes to uncover their students' thoughts and knowledge, and who consistently and thoroughly evaluate their students' performances (such as through class discussions, informal notes and written responses), witness more substantial learning growth than those who engage less in these practices (Herman et al. 2011).

Despite the crucial role assessment plays in effective teaching, many educators lack the confidence to create their assessments. This can be partly attributed to the absence of formal training in assessment design and analysis. It may also be an unintended consequence of standardised testing programs, where assessment is often perceived as separate from the daily work of teachers. Additionally, the demanding nature of teaching leaves educators with limited time to dedicate to assessment development.

Pedagogical knowledge and assessment expertise are deeply interconnected and mutually reinforcing.

Leaders in successful schools implement strategies to support teachers in continuously developing deep understandings of how students learn (Masters 2016). These strategies involve advancing teachers' pedagogical knowledge and their assessment expertise because assessment serves as our window into comprehending how students learn (Heldsinger 2011).

Pedagogical knowledge and assessment expertise are deeply interconnected and mutually reinforcing. Assessment places demands on a teacher's subject matter and pedagogical knowledge. Without this foundational knowledge, formative assessment may lead to flawed decisions that hinder rather than foster student progress (Herman et al. 2011). Educators "who analyse student learning, consider potential obstacles or misconceptions limiting this learning, and reflect on the effectiveness of prior and subsequent next steps—may well deepen their content and pedagogical knowledge, particularly if such activities occur in the context of professional learning communities" (ibid. p2).

To be experts in assessment, teachers need to know how to:

- devise classroom assessment tasks and use a range of formative assessment strategies to reveal how their students think and what they know and can do
- establish where students are in their learning, so that they set goals that challenge students at their point of need, and hence provide targeted and timely feedback
- use evidence, including feedback from students and student assessment data, to inform planning
- collect student assessment data that is differentiated for specific learning needs of students across the full range of ability
- devise moderation processes that support consistent and comparable judgements of student learning
- use assessment to deepen their pedagogical knowledge and use their knowledge of student learning to inform their assessments. (ibid.)

Assessment from the perspective of students

Involving students in the classroom assessment process fosters increased engagement and a deeper motivation to learn (Davies 2007). It is common practice for teachers to share success criteria with their students. Students not only need to understand *What am I trying to achieve?* but also *How close am I to achieving this?* and *What do I need to do to get closer?*

Research has consistently demonstrated that feedback is one of the most influential factors in enhancing student achievement.

Research has consistently demonstrated that feedback is one of the most influential factors in enhancing student achievement (Hattie 2009). It provides a personalised opportunity to explain to students where they currently stand in their learning journey and what steps they should take next (Ridden and Heldsinger 2014).

Guskey (2007) recommends that teachers use assessments as sources of information for students as well as themselves. Importantly, he argues that assessments must be followed by high-quality corrective instruction, and students be given second chances to demonstrate success. “To charge ahead, knowing that certain concepts or skills have not been learned well, would be foolish. Teachers must therefore follow their assessments with instructional alternatives that present those concepts in new ways and engage students in different and more appropriate learning experiences.” (ibid. p21)

Feedback is not a universal remedy; if implemented poorly, it can hinder the learning process. The classroom environment must be nurturing, a safe space where students feel comfortable to make mistakes and understand how to learn from them (Hattie 2009). Effective feedback should closely align with students’ success criteria, offering specific suggestions for improvement while acknowledging their strengths and guiding their attention towards their next steps (Chappuis 2009).

Involving students in assessment requires:

- defining learning destinations, so students understand the goals they seek to achieve
- involving students as partners in co-constructing criteria
- providing feedback that “feeds forward”, so that students know how close they are to achieving their goals and what they need to do to achieve those goals
- engaging students in collecting, selecting, reflecting on and presenting evidence of their learning
- giving students second chances for success.

Impactful school evaluation

In 2012, the Australian Council for Educational Research (ACER) released a valuable resource known as “The National School Improvement Tool”, based on synthesis of international research about the practices of highly effective schools and school leaders (Masters 2016). The tool was crafted to aid schools in assessing their initiatives aimed at enhancing the quality of classroom teaching and learning.

The National School Improvement Tool encompasses nine interconnected “domains” (Table 2), each addressing an aspect of daily operations that has been empirically demonstrated to enhance student outcomes, encompassing both achievement levels and overall wellbeing (ibid.).

Table 2: The National School Improvement Tool

Domain 1: An explicit improvement agenda

Domain 2: Analysis and discussion of data

Domain 3: A culture that promotes learning

Domain 4: Targeted use of school resources

Domain 5: An expert teaching team

Domain 6: Systematic curriculum delivery

Domain 7: Differentiated teaching and learning

Domain 8: Effective pedagogical practices

Domain 9: School community partnerships

ACER’s research shows that school leadership teams can have a powerful impact on improving the quality of teaching and learning when they “create cultures of high expectations, provide clarity about what teachers are to teach and students are to learn, establish strong professional learning communities and lead ongoing efforts to improve teaching practices” (ibid. p1).

Effective school leaders:

- establish a strong improvement agenda around measurable student outcomes
- prioritise school-wide analysis and discussion of systematically collected data of a range of student outcomes
- lead the school in establishing a coherent and sequenced plan for curriculum delivery that has a clear reference for monitoring learning across the year levels
- require teachers to place a high priority on identifying and addressing the learning needs of individual students.

Each leadership theme is discussed in detail below.

A strong improvement agenda around measurable student outcomes

It is common observation that schools are awash with data, but data collection alone won’t necessarily create effective schools (Ridden and Heldsinger 2014). In highly effective schools, the leadership team believes that dependable data on student outcomes is crucial. Consequently, it establishes and executes a systematic plan for gathering, analysing and using student achievement data. Any evaluation of a school initiative or teaching program

needs to provide an informed answer to a question, rather than an answer based on presumption, anecdote or general impressions. Therefore, evaluation should begin with a question, such as *How well is our school doing in mathematics? Are we doing as well as we would expect? Is one teaching approach achieving better results than another? Why is Jeremy not 'getting it'? How might I help Jeremy more effectively? and What can I do to further challenge this group of capable students?* (ibid.)

The most impactful assessment and evaluation practices are those deeply embedded in a school's culture, where testing and information gathering are collaborative, agreed-upon processes. In such an environment, the school readily embraces the responsibility for assessment as an integral part of its overarching mission to facilitate and monitor learning and promote student wellbeing (Masters 2016).

Establishing a strong improvement agenda requires:

- knowing what questions to ask, and knowing what data to collect to answer those questions
- evaluating whether assessments are well-constructed and provide worthwhile information about student learning
- using data to identify gaps in student learning, to monitor improvement over time, and to monitor growth across the years on school
- manipulating and displaying data to examine patterns and relationships, such as the comparative performances of boys and girls
- using data to understand current and past student achievement levels
- leading staff conversations around key data concepts, such as value-adding, growth, improvement and statistical significance
- acting on the outcome of an evaluation
- helping teachers link assessment data back to individual students, so that the information can be acted upon in the classroom.

School-wide analysis and discussion of systematically collected data

The research reviewed to inform The National School Improvement Tool found that effective school leaders prioritise the school-wide analysis and discussion of systematically collected data on student outcomes, including academic, attendance and behavioural outcomes (Masters 2016).

It is of paramount importance that teachers and school leaders engage in these processes. In highly effective schools, every member of the teaching staff has access to a diverse array of student achievement data. This data is not merely collected but is used for analysis, examination of individual and group progress, and public presentation of results. Time is allocated for staff discussions about the data and the development of strategies for the continual enhancement of student outcomes. Furthermore, this data is harnessed to foster a culture of self-evaluation and reflection that permeates the entire school community.

For a school to be a model learning organisation, all faculty members should be professional learners: They should engage in deep, broad study of the learning they are charged to cause. What works? What doesn't? Where is student learning most successful, and why? How can we learn from that success? Where are students struggling to learn, and why? What can we do about it? Effectively tackling these questions is what the "professional" in "professional practice" means (Wiggins and McTighe 2006, p26).

In thriving schools, both educators and school leaders possess a deep understanding of students' present and past achievements. They are explicit in setting targets for improvement and are equally explicit about how to monitor progress toward those goals. These schools leverage both qualitative and quantitative data collected from teachers, as well as standardised test data. Teachers devise plans for self-reflection and the evaluation of their teaching practices. This commitment implies that educators are open to identifying and assessing both the intended and unintended consequences of any given initiative or program (Ridden and Heldsinger 2014).

Effective schools adopt a well-defined plan and systematic approach for collecting information about student learning. These schools make informed decisions that are well documented and specify which assessments are employed, for whom and when. Such assessments encompass a blend of standardised and class-based evaluations (ideally standardised in a manner that facilitates comparisons between classes and across academic years, even over extended periods) (Masters 2016).

In essence, school leaders play a pivotal role in enhancing the quality of teaching by devising and executing strategies for monitoring student learning consistently across different grade levels and over extended periods.

Sequenced plan for curriculum delivery and monitoring learning across the year levels

It is commonly agreed that learning is developmental—it is the process by which an individual builds upon previous learning in a progressive fashion (Humphry 2006, 2013). This concept is reflected in terms such as “developmental continuum” and “learning journey”, and it guides education departments in structuring sequenced curricula.

However, comprehending the nuances of developmental learning is a complicated task. When a teacher reaches the end of an academic year, they can keenly observe the progress their students have made, especially as they prepare to welcome a new cohort in the following year. Yet, tracking daily or weekly progress can be more challenging. This complexity is compounded by the observation that a student's learning path is not always linear; at times, they may appear to regress. Although discerning daily and weekly development is intricate, it is a fundamental aspect of effective formative assessment processes.

Monitoring student growth in learning across different academic years is a pivotal component of enhancing the learning experience. While it is relatively easier to intuitively appreciate developmental strides made over extended periods, the task of tracking student growth across academic years presents a significant challenge for educational institutions (Heldsinger 2011).

Monitoring student growth in learning across different academic years is a pivotal component of enhancing the learning experience.

The research reviewed by ACER into the practices of highly successful schools found:

A high priority is given to the school-wide analysis and discussion of systematically collected data on student outcomes, including academic, attendance and behavioural outcomes, and student wellbeing. Data analyses consider overall school performance as well as the performances of students from identified priority groups; evidence of improvement/regression over time; performances in comparison with similar schools; and, in the case of data from standardised tests, measures of growth across the years of school. (Masters 2016, p4)

There are very few assessments available to schools that allow them to measure growth across the years of schooling. There are, however, strategies that schools can employ to ensure sequenced learning plans and to gauge improvement in student performance. For example, by ensuring that assessments are conducted conscientiously and that an insecure teacher does not distort the data. That should not mean that teachers cannot assess their own students; teachers must learn to administer and report assessments correctly and with integrity. However, the school will have processes to oversee the administration of assessments and to train any teacher who is unclear about appropriate processes (Ridden and Heldsinger 2014).

School leadership teams that are committed to fostering high quality teaching and learning require their teachers to identify and address the learning needs of individual students.

The school leadership team can also cater for the collection of data in a range of areas, by a range of methods and for a range of purposes, as when defining a school evaluation plan. These assessments do not replace the day-to-day assessments used by teachers in their teaching. Rather, they are selected from such day-to-day assessments, or added to them, and add a level of objectivity that places the observations of student learning under a different microscope.

The data chosen must be appropriate, credible and meaningful. That is, teachers must have confidence that the assessments are a valid and reliable reflection of the quality of learning of students. A rigorous professional dialogue may be required to agree on a selection of assessments. It is also important that historical information about cohorts and individual students is available to successive teachers. To ignore the assessment data and insights acquired by a student's previous teachers is disrespectful of colleagues and a loss of valuable information (ibid.)

An aside is appropriate at this point. While national tests, such as Australia's NAPLAN (National Assessment Program—Literacy and Numeracy), provide useful information—not only to governments and systems but also to students, parents, teachers and the school—it is important that they are kept in perspective. An obsession with results can lead to an over-emphasis on practising past test papers, leading to stultifying teaching practices (e.g. Daliri-Ngametua et al. 2023).

Identification of the learning needs of individual students

School leadership teams that are committed to fostering high quality teaching and learning require their teachers to identify and address the learning needs of individual students. This aligns closely with the principles of effective formative assessment; the relationship between school evaluation and formative assessment is explored below.

Exemplary teachers deliver precise and constructive feedback. They tailor literacy instruction to accommodate the distinct needs of individual students, relying on a blend of formal and informal assessments to inform their instructional decisions (Louden et al. 2008).

To identify the learning needs of individual students, educators must possess the capacity of “being aware of what each and every student is thinking and knowing, to construct meaning and meaningful experiences in light of this knowledge, and have proficient knowledge and understanding of their content to provide meaningful and appropriate feedback, such that each student moves progressively through the curriculum levels” (Hattie 2009, p238).

The need to remain attuned to the abilities of a multitude of students is undoubtedly demanding. However, this knowledge is pivotal for identifying challenges that lie just beyond the current level of attainment for each student, as described by Vygotsky (1978) in the concept of the “zone of proximal development”.

Effective teachers administer assessments that reveal how students think rather than what they know, the quantity of work, or the presentation. They are interested in eliciting students’ pre-existing, sometimes incomplete understandings, and their misconceptions in order to identify appropriate starting points for personalised teaching and learning (Forster 2009, p5).

More broadly, in effective schools, teachers are committed to using assessment information to evaluate their school programs and procedures and their teaching practices. Hence, it is important for teachers—not just the school’s leadership team—to identify possible actions, to debate these actions, and to decide what actions to take as a school, a department, a year level and as individual teachers.

It is the attention to the purposes of innovations, the willingness to seek negative evidence (i.e. seeking evidence on where students are not doing well) to improve the teaching innovation, the keenness to see the effects on all students, and the openness to new experiences that make the difference. Interventions are not “change for change’s sake”, as not all interventions are successful. The major message is for teachers to pay attention to the formative effects of their teaching, as it is these attributes of seeking formative evaluation of the effects (intended and unintended) of their programs that makes for excellence in teaching. (Hattie 2009, p181)

It is also important to be accountable. This includes accountability for the action as well as outcomes of it. Each teacher can be held accountable to someone—even a peer in the next classroom—to ensure that they follow through with what they have decided to do. Assessments may be taken, before the following year, to gather feedback on how the action is impacting on learning (Ridden and Heldsinger 2014).

The future of best practice assessment

Successful school leadership and successful teaching are inextricably intertwined. In highly effective schools there is a symbiotic relationship between the use of formative classroom assessment and evaluative use of standardised test data; one is used to inform and advance use of the other.

Effective formative assessment requires not only that teachers are skilled in assessment but that they have sound pedagogical knowledge. A symbiosis exists here too—teachers with a sound understanding of how learning develops can more readily determine students' current levels of attainment and plan their next steps in learning. Such teachers are able to devise and administer assessments that reveal how students think rather than what they know. Their assessments—and particularly their students' responses to the assessments—give them further insights into how learning develops.

Efficacious schools prioritise professional development that builds teachers' and students' data literacy skills. They routinely support teachers in using student achievement data as evidence of successful teaching.

Across the globe, academics have contributed invaluable research to highlight the significance of formative assessment and school evaluation, and the prerequisites of these endeavours to enhance student achievement. Conference keynotes and workshops conducted by renowned researchers, such as Dylan Wiliam, Susan Brookhart, John Hattie, Andy Hargraves, Michael Fullan and Lyn Sharratt have garnered immense popularity.

The challenge for educators lies in either developing their assessment expertise or in finding tools that will allow them to implement research findings and advice. In 2010, the Western Australian Primary Principals' Association (WAPPA) surveyed its members about aspects of their work they found most challenging. Many reported that they needed help with assessment. The members reported frustration about mixed messages and conflicting advice from policy makers and academics about assessment (Anderson et al. 2020). In particular, members observed that the Department of Education promoted the use of formative assessment activities but simultaneously required that all initiatives needed to be data-driven. Other than data from the national testing program (NAPLAN), there were few other data sets that members could readily access.

The WAPPA survey revealed a growing unease about uninformed interpretations of NAPLAN data and inappropriate claims by politicians and bureaucrats (ibid.). Much more recently, research that drew on interviews with 27 teachers and seven school leaders at primary and secondary schools in Queensland, as well as in situ observations and analysis of artefact data, concluded: "When performance and policy decisions are dictated by a narrow measure such as NAPLAN scores, it severely inhibits the capacity for educators to do things differently." (Daliri-Ngametua et al. 2023)

The issue is not confined to Australia. Internationally, researchers have searched for a solution that would enable schools to be accountable for outcomes in ways that are both valid and reliable. In 2003 Susan Brookhart made a case for new theoretical developments in measurement in the classroom, arguing that there was need to use the types of analysis used in developing standardised tests to assessment conducted in a classroom context.

Spurred on by feedback from its members, WAPPA and researchers from the University of Western Australia began to explore an alternative to externally imposed, standardised tests, seeking a way of using teachers' assessments of their own students to meet their school accountability requirements. A long research partnership culminated in the development of

an innovative assessment process and of Brightpath Progress.

In March 2018, the Australian Government published a report that recommended ways that Australia could improve student outcomes. Compiled by an independent expert panel, *Through Growth to Achievement: Report of the review to achieve educational excellence in Australian schools* (2018) recommended that:

- schools measure student growth, not student achievement
- teachers be given practical support by creating an online, formative assessment tool to help diagnose a student's current level of knowledge, skill and understanding, to identify the next steps in learning to achieve the next stage in growth, and to track student progress over time against a typical development trajectory (Cawsey et al. 2019).

The expert panel identified Brightpath Progress as one of the few tools aligned with well-constructed learning progressions and capable of providing information about the points students have reached in their learning and their growth over time (ibid.).

This paper provides a synopsis of the empirical research basis for Brightpath Progress (Appendix 1) and the peer-reviewed research undertaken to develop the innovative components of Brightpath Progress (Appendix 2).

The expert panel identified Brightpath Progress as one of the few tools aligned with well-constructed learning progressions and capable of providing information about the points students have reached in their learning and their growth over time (ibid.).

Concluding comments

The primary aim of this paper has been to support educators and school leaders in evaluating their school assessment processes and tools with what is known about successful formative classroom assessment and school evaluation.

Assessment is a vast field, and this paper offers only a snapshot of the literature's central insights. The authors trust this paper has identified aspects of assessment where your school already excels and that you relate to the challenges of effective assessment, recognising the genuine, common difficulties schools encounter in this endeavour.

Stephen Humphry and Sandy Heldsinger, the researchers behind Brightpath Progress, have long held the conviction that expecting teachers and school leaders to independently discover and create their own assessment solutions is unfair. In 2013, Jim Watterson, then president of the Australian College of Educational Leaders, urged conference attendees to move beyond critiquing NAPLAN and instead seek additional measures for parental reporting. His admonition was a stern one. It has taken Humphry and Heldsinger numerous years of rigorous research to develop an assessment process and software that delivers data of a calibre equivalent to NAPLAN but derived from teachers' assessments of their own students (Heldsinger 2014). See Appendix 2 for the competitive research grants that funded much of the research behind Brightpath Progress.

3P Learning is confident, based on Drs Humphry and Heldsinger's many years of empirical research, that Brightpath Progress represents "the future of best practice assessment".

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Appendix 1: Empirical research basis for Brightpath Progress

Humphry and Heldsinger extensively researched using the method of comparative judgements to assess writing. While they found that teachers were highly consistent in judging relative differences in student writing performance, the comparisons are too time-consuming in their standard form to be viable as a general method for teacher assessment and that the process does not produce readily available diagnostic information (see Appendix 2: Heldsinger and Humphry 2010; Humphry and Heldsinger, 2013).

Two-stage method for assessing student writing

Humphry and Heldsinger pursued an alternative two-stage method of assessment that capitalises on the reliability afforded by the method of comparison judgements. The two-stage method is designed to be time-effective, informative, and accessible to classroom teachers.

Stage 1

A large number of performances are calibrated by asking teachers to compare performances and select the performance that is of a higher quality, and then analysing their judgements using the Bradley–Terry–Luce model (Bradley and Terry 1952; Luce 1959).

Once all the performances have been calibrated, a qualitative analysis of the calibrated performances is used to derive empirically based descriptions of the features of development evident in the performances (performance descriptions). A subset of performances is selected as exemplars.

Stage 2

Classroom teachers assess students by comparing the students' performances to the calibrated exemplars and performance descriptors.

The concept of using exemplars to support reliable judgements has been explored for some time. For example, a 1965 discussion pamphlet prepared by members of the London Association for the Teaching of English described an assessment process in which 28 imaginative compositions by 15-year-old students were arranged in order of merit and each was accompanied by a commentary. The distinctive feature of the systematic calibration of student performances using comparative judgements is that it creates a scale and ordering. The application of comparison also affords technical and practical advantages, such as enabling tests of internal consistency.

The exemplars and performance descriptions are displayed adjacent to a vertical scale within Brightpath Progress (Figure 1). In this display, performances to be assessed appear on the right-hand side and descriptors appear on the left-hand side. Thumbnails of calibrated exemplars appear adjacent to the scale in the centre.

The judges were provided with a guide to help make their judgements. It contained all the calibrated exemplars, the performance descriptors, and a close qualitative analysis of each exemplar. It was designed to help participants familiarise themselves with the exemplars and understand the features of each.

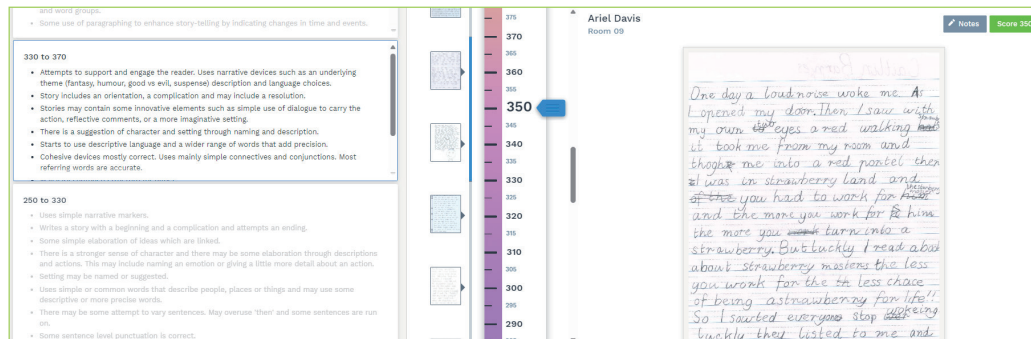


Figure 1. Stage 2: Teachers assess students by comparing their performances to the calibrated exemplars and performance descriptions.

Reliability of teacher assessment when using the two-stage assessment

Numerous studies have shown that the two-stage method of assessment developed by Humphry and Heldinger provides reliable teacher assessments for recount, narrative and persuasive writing. Although the teachers in this study were not assessing their own students' work, they were assessing student performances that are typical of those collected in primary classroom contexts. In addition, the assessment methodology required no specific training, other than time needed for teachers to become familiar with the exemplars and accompanying performance descriptions. In one such study, 37 classroom teachers scored a common set of 25 narrative performances; the mean inter-rater correlation was 0.927 (range 0.813–0.977), where 1.0 indicates perfect agreement.

Impact on student performance

The School Curriculum and Standards Authority commissioned research to examine the impact of Brightpath Progress on students' NAPLAN writing performance. The research looked at how schools that have been actively using Brightpath Progress performed compared to schools that are not using Brightpath.

Design of the study

Sample

Researchers identified high-usage Brightpath Progress schools by considering the number of teacher assessments per student in the school. Sixty-four schools were identified in this manner: 21 were early adopters of Brightpath Progress, using it since 2015, while the remaining 43 schools commenced using Brightpath Progress in 2016.

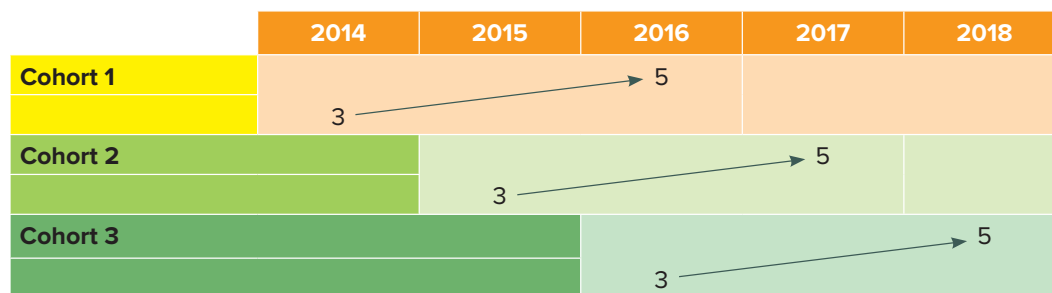
A control group was formed by matching individual Brightpath Progress schools on the Index of Community Socio-Educational Advantage (ICSEA), sector (government, Catholic Education Office and Australian Independent Schools, Western Australia) and school size.

The total sample size was of 12,177 students from 113 Western Australian primary schools.

NAPLAN performance

The evaluation matched individual students' Year 3 persuasive writing NAPLAN scores to their corresponding Year 5 NAPLAN scores for the same scale. Three cohorts were included in the study to examine the impact of schools implementing Brightpath Progress on their students' writing performance (Figure 2).

Figure 2: Three student cohorts



Findings

The study found that students in high-usage Brightpath Progress schools progressed substantially more than students in schools not using Brightpath—specifically an additional three months during the period between Years 3 and 5.

The study also found that students’ NAPLAN writing performance was not influenced by the timing of when schools commenced implementing Brightpath Progress and that high-usage 2015 adopters did not improve more relative to high-usage 2016 adopters.

Limitation

NAPLAN provides a standardised measure of Australian students’ writing achievement and was chosen as the outcome measure for this study. The NAPLAN writing assessment for 2014–18 was persuasive writing. Brightpath Progress schools, however, have predominantly been using the narrative writing scale. It is possible that a stronger association between Brightpath Progress and NAPLAN performance could be established if the students’ achievement outcome measure aligned with narrative writing.

Appendix 2: Brightpath Progress Research Articles

Much of the research that has informed the development of Brightpath Progress was conducted in conjunction with the University of Western Australia through the following Australian Research Council Linkage Projects grants.

Maintaining a precise, invariant unit in state, national and international educational assessment. Andrich D and Humphry S Ref: LP0882769

Controlling empirical factors to measure educational achievement in invariant units. Humphry S and Andrich D Ref: LP110100590

Innovative measurement approaches to optimise the comparability of large-scale and high-stakes performance assessments. Humphry S, Andrich D, Lazendic G, Kyngdon A and Surla D Ref: LP140100567

Central research papers

Heldsinger S and Humphry S (2010) 'Using the method of pairwise comparison to obtain reliable teacher assessments', *The Australian Educational Researcher*, 37(2):1–19.

Heldsinger SA and Humphry SM (2013) 'Using calibrated exemplars in the teacher-assessment of writing: an empirical study', *Educational Research*, 55(3):219–235.

Humphry SM and Heldsinger S (2019) 'A two-stage method for classroom assessments of essay writing', *Journal of Educational Measurement*, 56(3):505–520.

Humphry S and Heldsinger S (2019) 'Raters' perceptions of assessment criteria relevance', *Assessing Writing*, 41:1–13.

Humphry S and Heldsinger S (2020) 'A two-stage method for obtaining reliable teacher assessments of writing', *Frontiers in Education*, 5.

Humphry S, Heldsinger S and Andrich D (2014) 'Requiring a consistent unit of scale between the responses of students and judges in standard setting', *Applied Measurement in Education*, 27(1):1–18.

Humphry S, Heldsinger S and Dawkins S (2017) 'A two-stage assessment method for assessing oral language in early childhood', *Australian Journal of Education*, 61(2):124–140.

McGrane JA, Humphry SM and Heldsinger S (2018) 'Applying a Thurstonian, two-stage method in the standardized assessment of writing', *Applied Measurement in Education*, 31(4):297–311.

Related background papers

Humphry S, Adie L, Maxwell C and Sappl S (2023) 'Using pairwise comparison and ordered exemplars as a basis for a novel method of standard setting in narrative writing', *Frontiers in Education*, 8(13).

Humphry S and Bredemeyer K (2022) 'Pairwise comparison scale extension using core linking sets', *Frontiers in Education*, 7.

Humphry S and McGrane J (2015) 'Equating a large-scale writing assessment using pairwise comparisons of performances', *The Australian Educational Researcher*, 42(4):443–460.

Humphry S, Montuoro P and Maxwell C (in press) 'Cumulative ordering as evidence of construct validity for assessments of developmental attributes', *Journal of Psychoeducational Assessment*.

Wyatt-Smith C, Humphry S, Adie L and Colbert P (2020) 'The application of pairwise comparisons to form scaled exemplars as a basis for setting and exemplifying standards in teacher education', *Assessment in Education: Principles, Policy and Practice*, 27(1):65–86.

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