The Twenty-First Century Landscape of Assessment and Implications on Student Engagement

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Abstract

High-stakes testing has encouraged achievement at a low-level baseline and successfully disconnected many students from their passion to learn. Simultaneously, the globalised nature of the twenty-first century world requires students to develop additional skills and knowledge beyond the traditional core subjects to thrive. There is a dire need for better summative tests which encourage students to engage in real-world challenges, rather than regurgitate memorised information. Additionally, though summative and formative assessment are both necessary in the teaching and learning process, formative assessment is more effective in the learning process and complements the development of these needed twenty-first century skills. Therefore, teachers should actively emphasise and implement formative assessment in order to develop engaged learners prepared for the twenty-first century.

***Keywords**: Assessment, Twenty-First Century Learning, High-Stakes Testing, Summative, Formative, Feedback, Student Engagement, Te Kotahitanga*

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Introduction

As technology and globalisation continue to transform our rapidly changing world, there is a demand for education to adapt with it; teachers must prepare students for skills and challenges we do not yet know exist (Roberson, 2014; Trilling, Fadel, & Partnership for 21st Century Skills, 2009; Zhao, 2015). Trilling et al. (2009) created a "Knowledge and Skills Rainbow," which adds relevant twenty-first century themes like global awareness and environmental, financial, health, and civic literacy to the traditional core subjects, along with three sets of skills most in demand: learning and innovation; information, media, and technology; and life and career skills. Likewise, Zhao (2015) explains that education must rest on a paradigm that cultivates creativity, entrepreneurship, and global competence. As the curriculum responds to what must be taught, assessment – how students demonstrate their learning – must adapt to measure these twenty-first century skills too.

High-Stakes Summative Assessment

Summative assessment seeks to provide a measured summary statement of student capability at a particular time, usually at the end of an educational unit or course, and it is typically used for credentialing, selection, or as an accountability measure for educators (OECD/CERI, 2005; Falchikov, 2013; Ussher & Earl, 2010). As part of heavy-handed federal education reform, the No Child Left Behind (NCLB) Act was institutionalised in American schools in 2001 based on the need for a renewal in student performance on national and international standardised testing (Plake, 2011; Roberson, 2014). Summative assessment is considered "high-stakes" when it is used to make important decisions about the test-taker or those involved in the education process (Plake, 2011).

The NCLB reform assumed that teachers held accountable for their students' performance will teach better and students faced with high performance expectations will perform better (Roberson 2014). These assumptions did not uphold scrutiny and the US Department of Education finally replaced NCLB in 2015. Rather than seeing improvements and increases in learning, high-stakes testing over the last fifteen years has only created a culture among American public schools, and many other western world educational systems following in their wake, of an instructional focus of "teaching to the test" – tests that narrowly focus on core subjects at shallow, simple levels and mainly demand fact recall and regurgitation from students (Roberson, 2014; Zhao 2015). Roberson (2014) effectively illustrates the plight of American high-stakes testing in the Goals of Learning Model in which education is represented as a multi-story building the height represents simple to complex learning experiences, the width of portrays an instructional focus, and the ground level is the baseline of learning. Thus, the basement represents lower or simplistic learning and higher floors represent more complex learning. Most high-stakes standardised tests are designed to test minimum basic skills, so a score of "exemplary" only means that the minimum requirements – the 'first floor' of the house - have been met. Thus, any school that scores less is identified as being in the basement level. Ultimately, schools that "focus on high-stakes testing and mastering the test are limiting the exposure of students to more challenging and more complex learning environments and opportunities" (Roberson, 2014, p. 351). Hattie

(2003) corroborates this assertion, noting that too often, goals in education are too low, and that progress in itself, often set as just above zero, is not rigorous enough. The three examples of instructional focus in Roberson's (2014) Goals of Learning Model all demonstrate upper-level thinking and increasingly allow students to engage and operate in higher spheres of rigor, analysis, and application. Of these three, Daggett and McNulty's Rigor and Relevance Framework aligns with twenty-first century education, in which students use the knowledge they have and apply it to unfamiliar situations.

Standardised assessment is often described as the "tail that wags the dog," in which assessment defines the curriculum in all tiers of education, from primary through to higher education. Because summative assessments generally measure the base-level learning standards (as described above in the Goals of Learning Model), they limit students' exposure to more challenging types of instruction and do not effectively capture complex knowledge and skills (Roberson, 2014). Falchikov (2013) identifies other problems with summative assessment, including emphasis on exams, reliability issues and teacher marking bias, students "playing the game," and student stress. Additionally, the high-stakes in many summative assessments have a reverse effect on teaching and learning: both teachers and students narrow their focus to performance outcomes on the assessment, and students lose their curiosity to learn.

The quantity and pressure of final assessments is especially prevalent throughout the United States, but it is a worldwide concern (Rotberg, 2006). While assessment is supposed to enhance learning, the current practice overemphasises "the importance of assessment for progression and certification purposes" (Crisp, 2012, p. 33). Summative assessment is still a necessary and important facet to gauge and record student learning. However, it should be curbed and adjusted to test higher-level, comprehensive thinking. We do not need *more* tests; we just need *better* tests that measure more of the basic and applied skills students need in the twenty-first century (Trilling et al., 2009).

For instance, one question in an eleventh grade West Virginia online summative social studies test, moves beyond memorised fact knowledge to ask students to analyse graphs and charts to determine the changing nature of civic responsibility. In the College Work and Readiness Assessment (CWRA), "students use research reports, budgets, and other documents to help craft an answer to a complex problem, such as how to manage traffic congestion caused by population growth" (Trilling et al., 2009, p. 132). These are the types of assessments that more closely align with how students should creatively engage and display their ability to not only cope, but successfully participate in the dynamics of a changing global world.

Formative Assessment

The international over-emphasis on summative assessment (assessment of learning) has also undermined the value of formative assessment (assessment for learning). Formative assessment examples which align with a twenty-first century teaching philosophy focused on innovation and creativity include:

- Extended student essays
- Observation rubrics on a teacher's handheld device
- Online instant polls, quizzes, voting, and blog commentaries
- Progress tracked in solving online simulation challenges and design problems
- Portfolio evaluations of current project work and mid-project reviews
- Expert evaluations of ongoing internship and service work in the community (Trilling et al., 2009, p. 132)

There are no unanimous definitions of summative and formative assessment. Indeed, they can share many of the same types of learning activities; some of the examples on the bulleted list above could be summative assessments, and it is a fallacy to assume they are two entirely separate assessment types (Brookhart, 2001; Hattie, 2003). The difference is in the function, in how the learning outcomes are used – to inform, or to measure. In this review, formative assessment is understood as the frequent, interactive assessments of student understanding and progress to identify learning needs and room for improvement, which is then used for feedback (or feedforward) for both students and teachers (OECD/CERI, 2005; Falchikov, 2013; Hattie, 2003). Formative assessment allows teachers and students to answer three questions: Where am I going? How am I going? and Where to next? (Hattie, 2003). It also enables students to monitor their own learning process (Jiao, 2015).

Though properly integrated formative assessment scaffolds students to be more engaged and reflective in their learning, both formative and summative assessment influence future learning. A study collating interviews from motivated mathematics and English honors students revealed that highly successful students do not differentiate between formative and summative assessment, but integrate the two; they consider 'how well they did' on a test or final assignment while also realising that the formative preparation for the summative assessment gave them information to approach learning in the future (Brookhart, 2001). Teachers should aim to integrate summative and formative assessment and teach their students the usefulness of both; this kind of understanding and application of formative and summative assessment among students, however, is rare, so teachers should also focus on using formative assessment most effectively. Formative assessment is at the heart of effective teaching; it is central to education reform and student engagement – "promoting student achievement, equity of student outcomes, and 'learning to learn'" (OECD/CERI, 2005, p. 6).

Feedback on student work is an essential component to formative assessment, and it enables students to both review and improve their work (Brookhart, 2001; Jiao, 2015) However, it must be employed properly, being prompt, qualitative, and repetitive. It needs to be prompt enough so that students can continue working and complete the feedback loop (Jiao, 2015; Looney & Poskitt, 2005). In a study involving undergraduate students, Jiao (2015) analysed student learning behaviour with the use of a formative e-assessment computer program that provided instant feedback. This approach towards formative assessment, in which the e-assessment tool provided responses to students quickly so that they could continue working and improving, resulted in improved student performances and greater engagement in learning (Jiao, 2015). If marking is used in formative assessment at all, comments, rather than numeric or alphabetical marks, are better (Looney & Poskitt, 2005). However, in higher education, Jiao (2015) found that students will not do work unless it is worth marks, and written feedback to students did not have much impact.

Despite these setbacks, when formative assessment is effectively implemented, it engages more students (Falchikov, 2013). While high-stakes testing has increased over the last two

decades, research conclusions have simultaneously veered from the properties of restricted tests, "which are only weakly linked to the learning experiences of students" to focus on classroom learning and formative assessment (Black & Wiliam, 1998, p. 7). Research studies confirm that formative assessment improves standards and helps low achievers (Black & Wiliam, 1998; OECD/CERI, 2005). When coupled with timely feedback, formative assessments can significantly improve student learning outcomes (Crisp, 2012).

New Zealand Case Studies

In New Zealand, the Ministry actively began to promote formative assessment after piloting the *Māori Mainstream Programme (MMP)*, or *Te Kotahitanga*, in 2005. The project encouraged teachers to understand their own preconceptions and welcome Māori learners' identities into the classroom. *MMP* teachers at the pilot schools focused on "active, problem-based, and holistic learning" (Looney & Poskitt, 2005, p. 181). At Waitakere College, this included formative assessment techniques such as feed-forward with a focus on what students would learn and why, proper levels of scaffolding so that students have only as much information as they need in order to work problems out on their own, group work, and feedback, such as using exemplars to help close the gap between current and desired performance (Looney & Poskitt, 2005). Such techniques also engage students in reflective thinking and problem-solving – key skills for twenty-first century learners.

At Rosehill College, the whole school specifically focused on formative assessment in the classroom. They defined formative assessment as : "… basically giving kids feedback, feeding forward about how to improve their learning … looking at a piece of … work that a student's doing … and giving them some information about what's good about it and some next steps to improve" (Looney & Poskitt, 2005, p. 185). Teachers found the timing (in the moment rather than recorded) and specificity (comments instead of marks) of feedback to be crucial (Looney & Poskitt, 2005). Teachers were then able to identify and provide additional materials for aspects of learning that needed extra attention. Though these two case studies took place in 2005, *Te Kotahitanga* has steadily been phased into more New Zealand schools, and the report covering findings from 2007-2010 continued to emphasise the importance of feedback and feedforward (Bishop, Berryman, Wearmouth, Peter & Clapham, 2012). In contrast to high-stakes testing, formative assessment is much more conducive to the type of learning schools and educational curriculums should be encouraging in order to engage students in meaningful learning and to develop skills for the twenty-first century.

Twenty-First Century Teaching

Aligning with twenty-first century teaching, some formative assessment types also serve as particularly strong examples of how powerful learning can be when it is driven by real world problems. In 2003, six high school students from six different countries entered a ThinkQuest competition, in which they collaborated online to make a website on the SARS (Severe Acute Respiratory Syndrome) virus. The global team was responsible for all components of creating the site – research, interviewing, writing, designing, branding, and programming. Because of geographic and time zone differences, they utilised online tools to communicate and coordinate (Trilling et al., 2009). Such a project reflects the reality of our global world – one in which working together is essential and colleagues are likely to not be in the same physical location. In such a rapidly changing, technological world, it is worth noting that this example of assessment was cutting edge in 2003, but is now relatively outdated. In an age where messaging, filming, and the internet are all a touch away on smart phones and where website design has become common, one must question why these resources are so often under-utilised while summative assessments with little real world application are still in use. Regardless, ThinkQuest allowed the students to engage in a topic which they were passionate about, work together globally, and solve problems in a real world context.

Conclusion

Summative and formative assessment are both necessary educational pedagogies, and students need exposure to each type, to fully participate in the teaching and learning cycle. However, teachers should use as much classroom autonomy as possible in order to reduce both the perception and pressure of the high-stakes nature of many summative assessments. Favouring formative assessment, teachers can move beyond the "basement level" learning which high-stakes testing presently demands of students. In order to more fully engage students in their own learning, formative assessments should use prompt and repetitive feedback to inform students of how their learning is progressing, and, when possible, grading should not initially be provided in formative assessment so that students seriously consider the feedback they are given and strive to improve their own work. Most of all, regardless of the assessment type, educators need to ensure that their assessment practices prepare learners with twenty-first century skills – assessments that measure "a combination of content knowledge, basic skills, higher order thinking skills, deeper comprehension and understanding, applied knowledge, and 21st century skills performance" (Trilling et al., 2009, p. 131). In contrast to standardised testing in which students have simply mastered the art of "test taking," twenty-first century formative and summative assessment could offer a broader picture of the cognitive, emotional, physical, social, and ethical components of the "whole child" – one who is actively engaged in the learning process.

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