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In-Progress Reflection No. 13 on  
*Current and Critical Issues in Curriculum, Learning and Assessment*

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# Continuous Assessment for Improved Teaching and Learning: A Critical Review to Inform Policy and Practice



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## Open Note of the IBE

The IBE has launched the series In-Progress Reflections on *Current and Critical Issues in Curriculum, Learning and Assessment* to open a communal space for a global conversation, collective production and discussion on those issues of high concern for Member States. It intends to support country efforts in mainstreaming challenging issues within the processes of curriculum renewal and development across different levels, settings and provisions of the education system.

Initially, the focus areas of the In-Progress Reflections series encompass, among others,: (i) Early Childhood Care and Education (ECCE) as a foundation of holistic child development and learning; (ii) Reading and writing in early grades to support the development of essential competencies; (iii) Youth Culture and competencies for Youth in the early 21st century (covering formal, non-formal and informal education); (iv) ICT curricula and inclusive pedagogy contributing to relevant and effective learning outcomes; (v) STEM (Science, Technology, Engineering and Mathematics) curricula to foster sustainable development; (vi) Curriculum for Global Citizenship Education (peace, human rights, sustainable development, values, ethics, multiculturalism, etc.); (vii) Assessment to enhance and support learning opportunities; and (viii) Inclusive education as an over guiding principle of education systems.

The series of reflections covers a wide array of knowledge products, among them: discussion papers, policy briefs, frameworks, guidelines, prototypes, resource packs, learning tools and multimedia resources. These materials are discussed, refined, used and disseminated engaging education and curriculum agencies / institutes, and in particular curriculum developers and specialists, development experts, policy makers, teacher trainers, supervisors, principals, teachers, researchers and other educational stakeholders. In addition, they serve as reference materials for the IBE menu of capacity-development training on curriculum, learning and quality education – namely masters, diplomas, certificates and workshops – to forge policy and technical dialogue involving a diversity of stakeholders and to support sustainable country fieldwork.

Through blogs and e-forums, we encourage the audience to actively interact and bring in diverse perspectives. Effectively, the online space for reflection allows us to stay connected, facilitates exchange between experts from different regions of the world, and truly fosters continuous reflection on the issues concerned. The blog is structured to gather diverse resources, which include tools and documents (as previously mentioned) under specific themes to provide a complex and rich set of materials targeted to the specific needs of Member States. The In-Progress Reflections will capture relevant visions, views and comments shared by the audience, and serve as a key resource to support Member States' efforts in mainstreaming relevant findings and effective practices in national policies, curriculum frameworks and developments and in professional practices.

**Dr. Mmantsetsa Marope: Director, International Bureau of Education**



# Continuous Assessment for Improved Teaching and Learning: A Critical Review to Inform Policy and Practice

**Abstract:** The prominence of evaluation and assessment within the Incheon Declaration: Education 2030 mirrors simultaneously the vital importance of data in the pursuit of the new global Sustainable Development Goals (SDGs) and the decades-long trend of evermore student testing around the world. This report focuses specifically on continuous assessment and has two main aims: to elucidate what continuous assessment is and why it is important, and to identify a range of issues which are fundamental to the effective implementation and usefulness of continuous assessment in the classroom. The analysis focuses on classrooms in low-income countries that often face particularly problematic challenges. The concept and practice of continuous assessment is understood in part through its differences from standardized assessment, whilst at the same time it functions with summative and formative forms. The report aspires to deepen the distinctions between these two forms of continuous assessment, to demonstrate their complementarities, and to plumb their technical dimensions to promote its improved use. The hope is to help education systems, educators, and education partners, wherever they may be, to make decisions and take actions to reap the fullest advantage of continuous assessment as a key factor in achieving quality education.

**Keywords:** Continuous assessment – education quality – formative assessment – low-income countries – summative assessment

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... [Gauss] knew this area better than anyone. After all, he'd fixed every detail of it on the map. Sometimes it wasn't as if he hadn't just measured the region but invented it; as if it had only achieved its reality through him. Where once there had only been nothing but trees, peat bogs, stones and grassy mounds, there was now a net of grades, angles, and numbers. Nothing someone had ever measured was now, or ever could be, the same as before. (Chapter 6: 37' 30")

The world could be calculated after a fashion, but that was a very long way from understanding it. (Chapter 5, 37' 40")

- Daniel Kehlmann, *Measuring the World* (2007)

## Introduction

At the World Education Forum held in Incheon, South Korea in May 2015, the world's education leaders outlined a global set of objectives and approaches for 'inclusive and equitable quality education and lifelong learning for all' (UNESCO, 2015). The Declaration that emerged asserts that achieving the aims of 'quality education and... improv[ed] learning outcomes... require[s]... strengthening inputs, processes and evaluation of [education] outcomes and mechanisms to measure progress' (UNESCO, 2015, paragraph 9). The forum participants identified the measurement of such progress as one of their top priorities. Specifically, they called for 'strong global and regional collaboration, cooperation, coordination and *monitoring* of the implementation of the education agenda based on *data collection, analysis, and reporting* at the country level, within the framework of regional entities, mechanisms and strategies' (UNESCO, 2015, paragraph 13; italics added). The prominence of evaluation and assessment within the Declaration mirrors simultaneously the vital importance of data in the pursuit of the new global Sustainable Development Goals (SDGs) and the decades-long trend of evermore student testing across countries of all continents<sup>1</sup>.

This trend has translated into increased assessment of learning using a variety of methods and instruments. These fall most generally into three categories.

- *Large-scale, sample-based assessments* are conducted internationally, regionally, nationally, and sometimes sub-nationally with the main aim of appraising the efficacy and equity of an education system. These typically measure learning achievement around Literacy, Mathematics, and sometimes Science.
- *Large-scale, census-based<sup>2</sup> assessments* are normally conducted system-wide. These commonly serve to make or influence decisions by the system, a school, and, in the case of examinations, the child and her/his parents about their continued education or training and of their post-education professional and social roles. They may also serve to hold teachers, schools, districts and other responsible actors accountable for their students' learning outcomes.
- *School-level, continuous assessments* are usually performed by teachers in the classroom to identify the level of learning of individual students (and sometimes of a class or some other grouping) on different aspects of the curriculum. These occur either for summative or formative purposes, and often both.

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<sup>1</sup> Benavot and Tanner (2008, pp. 6-7) report an increase in the number of countries having carried out 'at least one national learning assessment' from 28 in 1995 to 57 in 2006. Benavot and Köseleci (2015, p. 6) show that this trend has continued into the century's second decade, reporting an increased percentage of countries having carried out 'at least one national assessment' in every region except Latin America and the Caribbean (all approximations, read from a bar graph): from around 40% for the period 2000 to 2006 to around 60% from 2007 to 2013 in Sub-Saharan Africa; from 50% to 60% in the Arab States; from 50% to 70% in Asia and the Pacific; from 62% to 73% in Central and Eastern Europe and Central Asia; and from 75% to 80% in North America and Western Europe.

<sup>2</sup> 'Census-based' signifies that the assessment is administered to all students fitting the test criteria (e.g., for a certain grade level) within the full population of schools of the administering entity (e.g., a national ministry or a district).

It is the last of these three, *school-level, continuous assessment*, which is the object of the present study. Two aims are of particular concern. One is to elucidate what continuous assessment is and why it is important. The other is to identify a range of issues which are fundamental to the effective implementation *and usefulness* of continuous assessment in the classroom. The analysis focuses on classrooms in low-income countries, where, for a variety of reasons, conditions such as very large class sizes, few resources, poorly trained teachers, and a severe triage of students from the formal system—i.e., testing that pushes students out of school—often pose particularly problematic challenges.

Finally, to repeat from the definition above, the concept and practice of continuous assessment comprise two distinct elements: summative and formative. While closely related and even able to occur using the same instruments, these often suffer from facile conflation, usually to the detriment of formative assessment. The following sections are devoted largely to elucidating these differences and aim especially to assert and protect the critical importance of formative continuous assessment.

Fundamentally, the difference in an assessment's purpose is generally evident in its form. The 'summative' purpose, sometimes also referred to as 'assessment *of* learning', is essentially to determine the level of a student's cumulative attainment of a set of learning objectives. Among the common methods used for such assessments are tests, quizzes, substantive homework assignments, and projects. These methods serve typically to calculate a grade, or score, at the end of a learning block (e.g., a chapter, a module, a trimester or a year), which represent the accumulated learning of a particular topic.

Conversely, 'formative' assessments, also referred to as 'assessment *for* learning<sup>3</sup>,' serve typically to provide signals concerning the level of attainment of specific learning aims, the results of which serve to inform and stimulate actions. These actions may occur at the classroom, school, and system levels and can also involve quizzes and homework along with a variety of discrete tasks and other checks performed during a lesson, and simple keen observation. These are designed mainly to improve the related learning, whether of the students who took the assessment or of other students who will follow them. The reality is, however, that virtually all modes of assessment may serve both purposes.

The following discussion aspires to deepen these distinctions, to demonstrate their complementarities, and to plumb their technical dimensions. The hope is to help education systems, educators, and education partners, wherever they may be, to make decisions and take actions to take the fullest advantage of continuous assessment as a key factor in achieving quality education.

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<sup>3</sup> See, for example, Campbell and Levin, 2009; Froumin, 2007; Hayward, 2015; Mansell et al., 2009; Ministry of Education of Ontario, Canada, 2010, Wyatt-Smith, 2014; and Young, 2005.

## Continuous assessment - what it is and why it is important

The literature on continuous assessment is vast, covering the topic from a variety of angles, which sometimes barely seem compatible. Among the most important differences are the key purposes, methods employed, sources of the tools or items, frequency, and context. The following discussion aims to explain these and other related factors in order to help actors across an education system discuss and make thoughtful decisions about how best to shape and use continuous assessment to improve overall quality and equity in education delivery and outcomes.

Specifically, the present section analyses continuous assessment from three fundamental perspectives:

- Continuous assessment as a continuum of purposes and methods;
- Core principles of continuous assessment; and
- Core strategic issues of continuous assessment.

These combine both to describe the subject more thoroughly and to serve as a basis for the most effective use of the related strategies. In addition to identifying and illuminating the respective issues of each perspective, the section includes discussions about the challenges they embody regarding the effective design, implementation, and use of continuous assessment. It begins, though, with a quick overview of how continuous assessment is different from and a vital complement to its large-scale, standardized counterparts.

### Continuous assessment vs. standardized assessments

Continuous assessment distinguishes itself from both sample-based and census-based large-scale assessments in a few major ways:

1. It is primarily the responsibility of the classroom teacher;
2. It commonly covers learning of the full set of academic subjects;
3. It allows educators to explore more deeply students' abilities to apply academic lessons, including performing tasks based on the students' local context and which can involve 'hands-on' elements and extend over time;
4. It can be very precise, nuanced, and comprehensive in appraising and informing the cultivation of students' personal competencies, including such skills, attitudes, and behaviours as collaboration, creativity, critical thinking, confidence, perseverance, curiosity, planning, and many more<sup>4</sup>; and
5. It focuses on individual students and classrooms in ways, which pertain typically to decisions, and actions, which affect learners directly, whether immediately, or longer term.

In its summative guise, continuous assessment can be central to determinations about a child's school progress. As a formative tool, it informs feedback, remediation, and/or enrichment targeted to a student, a group of students, or a whole class. It may also help to identify the need for specific professional development objectives for a teacher or group of teachers and inspire related steps.

At the same time, it is important to acknowledge that both sample-based and census-based large-scale assessments can and do make claims about the same summative and formative outcomes. Census-based assessments, commonly operating as national (or system-wide) examinations, serve precisely (and sometimes notoriously) to determine the education fate of individual students. These occur usually at the official transition points in a child's academic career. A common criticism of this aspect is that there is little prior information to signal how well students are likely to perform on these examinations, and even less so in life<sup>5</sup>. Therefore, there is little information on what adjustments may

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<sup>4</sup> See, for example, Fadel, Bialik and Trilling, 2015; Golinkoff and Hirsh-Pasek, 2016; Pellegrino and Hilton, 2012; and People for Education, 2013.

<sup>5</sup> See, for example, Adaramaja, n.d; Atsumbe and Raymond, 2012; and Uiseb, 2009.

be needed during the years before the examination to improve prospects for success. Dowrich (2008, p. 4) passes further judgment on such practice by referring to ‘... a general rule in testing which states that ‘no important decision should be made on the basis of one limited sample of behaviour.’ Formal end-of-cycle examinations are also poorly suited to assess the wide and vital range of personal competencies which comprise the so-called ‘21st Century’ skills<sup>6</sup>, which an ever-growing number of national curricula and societies aspire to highlight. Lastly, as Kapambwe (2010, p. 99) notes, ‘ [t]here has been an increasing criticism in the educational field on high stakes examinations’ because of their ‘harmful effect on student learning.’ This results largely from the out-sized emphasis by many teachers, schools, and communities on preparing for a single examination, thereby discounting or ignoring largely, or even entirely, many of the subjects, competencies, and other aspects of learning which standardized assessments do not appraise or only appraise narrowly.

Formatively, the large-scale sample-based assessments presume to generate information, which systems can use across their levels to identify where learning is not happening adequately and to guide and motivate deliberate actions to correct these shortcomings. At least that is the theory and often the explicit intention. In too many instances worldwide, however, the actions such results yield go little beyond short-lived media coverage and political pronouncements<sup>7</sup>. As Wiliam and Black (2005, p. 260) conclude in their global study of learning assessment, ‘[t]he final irony is that it is precisely the demand for accountability which has produced unprecedented pressure to improve education systems that is likely to be the biggest impediment to achieving that improvement.’

## Continuous assessment as a continuum of purposes and methods

The most truthful answer to the question ‘What is continuous assessment?’ is that it is not just one thing. Indeed, the analysis of the literature and national policies conducted for this report reveals a variety of definitions at both a conceptual and a practical level. It seems most appropriate, then, to characterize continuous assessment along a continuum of which the two operational extremes are:

1. **Fully structured, planned mechanisms** conducted at regular intervals over the course of a term for primarily summative purposes, generating grades to combine with the score or scores from a system’s official end-of-year examinations (when these happen); and
2. **Unstructured and even spontaneous methods** to identify students’ comprehension of a concept, content, or technique during instruction in order to make immediate adjustments to instruction and to provide prompt precise feedback to strengthen the learning of students, both individually and in groups.

Whether formal and structured or more spontaneous and less structured<sup>8</sup>, Kellaghan and Greaney (2004, p. 10) affirm in their comprehensive overview of student learning assessment in Africa that continuous assessment, in any of its guises, is anything but casual. Rather, it represents an integral component of the teaching-learning process. The role of continuous assessment, the two assert Kellaghan and Greaney (2004, p. 45) ‘is to determine the student’s level of knowledge, skill, or understanding; to diagnose problems he or she may be encountering; to make decisions about the next instructional steps to take (including whether to review or to move on); and to evaluate the learning that has taken place in a lesson.’ A brief discussion of the different and sometimes contrasting definitions and applications of continuous assessment and of how the different versions relate follows.

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<sup>6</sup> Among the many alternative monikers for the group of behaviours, attitudes, and competencies which comprise these skills are ‘Life Skills,’ ‘Financial Literacy,’ ‘Entrepreneurial Skills,’ ‘Cognitive and Non-Cognitive Skills,’ and ‘Soft Skills,’ which many qualify as, in fact, being harder to teach and learn, as well as to measure. References to the actual behaviours, attitudes, and competencies which fall under this rubric appear later in the text.

<sup>7</sup> See, Muskin (forthcoming).

<sup>8</sup> See, for example, Lynd, 1996.

## Continuous assessment for summative and accountability purposes

As suggested above, in many countries, systems have introduced continuous assessment to bring greater coverage and fairness to the official appraisal of students' learning. In an important regard, increasing and spacing the number of assessments a student takes and diversifying the nature of the assessment tasks has been a reaction to the tyranny of the single, winners-take-all major summative examination. South Africa and Ghana serve as two examples of this apparent trend (at least in Africa).

In South Africa, the National Protocol on Assessment of the Department of Education requires<sup>9</sup> every teacher to present to its school leadership a precise 'annual formal programme of [continuous] assessment' to create an overall school assessment plan (Reyneke et al., 2010, p. 277). The protocol leaves some discretion to the teacher in terms of the nature and precise content of the scheduled assessments they conduct. Yet it also imposes a somewhat onerous number of assessment tasks (15 in total) to complete along with an overall and rigorous marking (scoring) scheme (Reyneke et al., 2010, p. 279). In the end, these continuous assessments comprise just 25% of a student's final grade and officially serve only for accountability, not for formative purposes.

In Ghana, the government officially introduced a similar system of summative continuous assessment in 1987 (Quansah, 2005, p. 2). This mandates the completion of four class tests, three tests/quizzes, and four projects/homework tasks in each of a year's three terms; a total of 33 major assessment activities *per subject*. Added to these are an end-of-term subject examination, counting for 70% of the total grade. The implication is strong that the system may be exaggerating in seeking to counter-balance the oversized impact of the single end-of-year examination.

'Daily assessments are the many things you do as a teacher during instruction to determine whether your children are learning. They may consist of questioning, observation, and the organization of small tasks that show whether your learners are learning or not... We do daily assessments in order to understand *as we are teaching*.'

Directorate of Standards and Curriculum, Zambia, 2014, p. 10.

## Continuous assessment for formative purposes

When focused on formative aims, continuous assessment can contribute amply and vitally to a student's learning and, in turn, bolster results on her/his graded and reported assessments and other summative assignments<sup>10</sup>. At the fully formative end of the purpose spectrum, as Kellaghan and Greaney (2004, p. 45) describe, learning assessment in a classroom is 'subjective, informal, immediate, ongoing, and intuitive, as it interacts with learning as it occurs, monitoring student behaviour, scholastic performance, and responsiveness to instruction'.

The diversity of formative techniques occurs in other ways as well, including a multitude of different strategies, as shown below, and even by engaging learners directly in appraising their learning, whether as self-assessment or peer assessment. Another popular distinction is between formative assessment 'for' or 'as' learning. As explained in its official guide to 'assessment, evaluation, and reporting in Ontario schools,' the Ministry of Education (2010, pp. 28-29) defines these functions as follows<sup>11</sup>:

<sup>9</sup> Confirmed by Zodwa Modimakwane, Executive Manager of Quality Assurance and Monitoring in South Africa (personal communication, September 2015), the policy persists today: 'In terms of Section 22 of the National Protocol for Assessment, all teachers are expected to keep a file containing evidence of their teaching and assessment, viz. an annual teaching plan, assessment plan, formal assessment tasks and memoranda, etc.'

<sup>10</sup> Unfortunately, as Black and Wiliam assert above, a focus on grades and high-stakes assessments often overwhelms broader teaching and, by association, more purely formative assessment; and the distinctions can be dramatic. Their 2005 'Formative Assessment' policy brief comes to the same conclusion, asserting that such 'assessments are a significant barrier to formative practice' (p. 6).

<sup>11</sup> See also Hutchinson, n.d.; Ministry of Education, Ontario, 2010; and Young, 2005.

*As part of assessment for learning, teachers provide students with descriptive feedback and coaching for improvement. Teachers engage in assessment as learning by helping all students develop their capacity to be independent, autonomous learners who are able to set individual goals, monitor their own progress, determine next steps, and reflect on their thinking and learning.*

A final dimension concerns the use of assessment results to inform the decisions and actions of teachers, students, parents, and others as relate to instructional education practice and of systems and other stakeholders as pertain to education planning and policy<sup>12</sup>. These various aspects receive fuller attention later in the report.

### Looking across the various spectra of continuous assessment

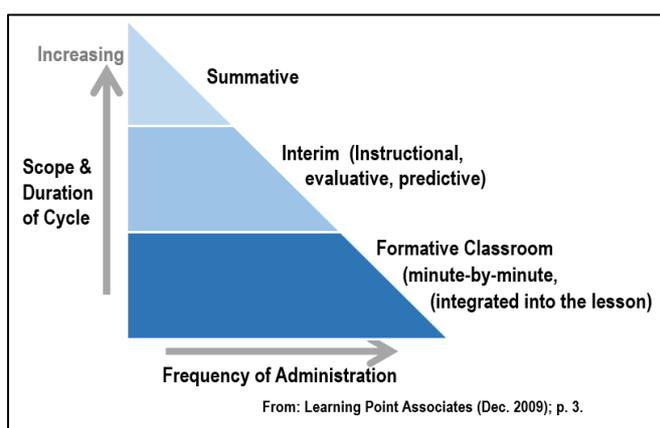
Referencing Heritage et al., Learning Point Associates<sup>13</sup> (2009, p. 5) place formative assessment into three broad strategic categories:

- ‘On-the-fly,’ signifying that a teacher may change course during a lesson to address students’ misunderstanding or gaps before proceeding with the planned lesson;
- ‘Planned-for interaction,’ where the teacher decides before class how he or she will appraise students’ comprehension during the course of instruction; and
- ‘Curriculum-embedded,’ where assessment is embedded in the curriculum to signal what learning has or has not occurred and to guide feedback at key points in the lesson.

These reflect essentially the span from unstructured to structured assessments as explained above.

They may also refer to two other designations that educators situate at the two ends of the continuous assessment spectrum: ‘summative’ and ‘formative’ assessments. While widely used terms, there is frequent oversimplification in the literature around the meaning of these two fundamental types. Many contend that they are distinct due primarily to their scope, their nature, and the timing of the mechanism used. The three dimensions of this simplified characterization are represented as ‘Tiers of Assessment’ in Diagram 1, taken from a document targeted to American educators by Learning Point Associates (2009, p. 3). Basically, according to this analysis, the more formal, standardized, comprehensive, and high-stakes an assessment is and the longer and more time-bound its administration, the more summative are its purposes.

*Diagram 1: Tiers of assessment*



In contrast, Wren (2008, p. 1) explains that the major difference between formative and summative assessment lies in their *purposes and how the results are used*, as discussed above. As such, even an end-of-year examination, the classic summative assessment, may also be highly formative, informing actions and decisions respectively at the system, school, classroom, student, and even household levels. These may pertain alternately to the tested students, informing their onward progress, or to the new cohort who will be filling their seats in the next year.

<sup>12</sup> See, for example, Muskin (forthcoming).

<sup>13</sup> Learning Point Associates was an independent USA-based not-for-profit education research firm until 2010, when it merged with American Institutes for Research (AIR). <http://www.air.org/resource/air-and-learning-point-associates-join-forces> (Accessed 26 October 2015.)

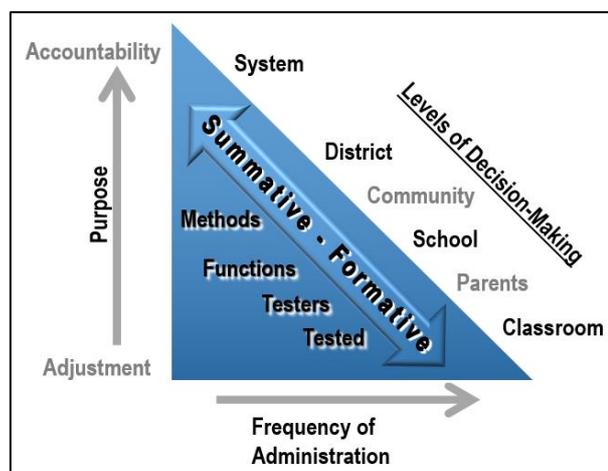
## An updated framework of continuous assessment

Viewed as such, a variation on the Learning Point diagram might be useful. Diagram 2 does this by emphasizing purpose, not scope, duration, administration, or even method, as the core concept distinguishing between summative and formative assessment. It also introduces the related strategic dimensions and key actors into the model. Specifically, the proposed variation encompasses three major revisions.

The first replaces 'Scope and Duration of Cycle' with 'Purpose' as the vertical axis, creating a continuum which ranges from assessment which serves primarily to inform and inspire Adjustment in the many education factors to assessment for Accountability. Adjustment may occur at all levels of decision-making, though it is most prevalent at the local levels; mainly because so many more decisions happen in the classroom. Here, assessment may constructively influence the teacher and teaching, school and classroom resources, students and their studies, and household and community factors, among others.

Moving up the system, formative purposes may inspire and guide changes in aspects such as teacher training, support and supervision, the nature and distribution of pedagogic and other material inputs, and curriculum. It may also affect various policy issues such as relate to gender and other equity, or inclusion, matters, the decentralization of authority, human resource management, and mechanisms for the engagement of communities and other partners. Accountability may also apply across all of a system's levels, from teachers all the way up to ministers. Particularly with the ultimate summative assessment, the end-of-cycle examination, it is the student who is most held to account.

Diagram 2: Purposes of assessment



The second modification merges the formative and summative purposes within the triangle. This aims to show that the two clearly distinct purposes, or Functions, may in reality happen using the same Methods or even the same instruments<sup>14</sup>. For example, as explained above, a national examination may also provide extremely rich guidance for improving student performance on subsequent tests. Similarly, a classroom quiz designed primarily to identify major learning gaps and thereby signal to teachers and students, among others, the need and strategies for remediation may also be graded and contribute to a summative grade. Similarly, an assessment may remain relevant along the purpose spectrum irrespective the Tester—normally an external entity, a centralized system unit, or the classroom teacher—and the Tested—whether sample or census-based. Clearly more centralized, standardized, large-scale, sample-based summative instruments favour accountability, and the opposite favour adjustment. However, the main point is that it is possible and, in fact, there can be good reasons, to combine or even switch the conventional purposes. (This argument is taken up more fully later.)

<sup>14</sup> Black and William (1996) assert that 'A framework of [student learning] progression can be both summative and formative, although the ability of an assessment to serve both formative and summative functions is a fine balancing act, with many criticizing the notion that this is even possible' (quoted in Lucas et al., 2012, p. 11).

The third main revision specifies six Levels, or loci, of Decision-Making, situated along the hypotenuse (which might actually be better situated along a Z-axis). These range from the classroom to the system's centre and identify also parents and the broader community, both local and expanded, as stakeholders with legitimate and strategic interests in any assessment results. Again, the proposed change is to indicate that while it is legitimate to associate classroom and other local level assessments with formative assessment and adjustment, and conversely, centralized actors with summative aims and accountability, there is great space for each to serve the other purpose as well. For example, central authorities may provide classroom teachers with assessment items, instruments, and strategies to use in the classroom for formative purposes. This could be especially valuable for aspects of an official curriculum which are not covered in large-scale standardized tests (for example, 21st Century skills or the Arts). At the same time, teachers in the classroom may provide central authorities with summative assessments of the same aspects which are absent from the large summative tests. These results might serve to inform equally decisions about individual students and those taken to strengthen the various quality dimensions of teaching and learning. In brief, all of the proposed modifications to the model serve to highlight the overall flexibility that can exist across the learning assessment domain.

Finally, and notably, the nature of decision-making pertains equally to the design and development of assessments and to the use of their results to improve teaching and learning. Unfortunately, though, aligning formative and summative assessment approaches as characterized in Diagram #2 has proven extremely challenging for countries around the world (Hutchinson, n.d., p. 4). This is true whether considering the method(s) of assessment used, what aspect(s) of learning one is measuring, who is conducting the assessment, or who is being assessed. Notwithstanding the challenge, as Care et al. (2013, p. 1) warn, 'We should not pursue large-scale assessment to inform policy without also taking a classroom perspective on the usefulness of the information.' In other words, continuous assessment is also important in so far as it gives meaning to large-scale, summative assessment.

## Core principles of continuous assessment

There is a substantial number of continuous assessment strategies which combine to cover the gamut of functions, or purposes, from adjustment to accountability. 'Frith and Macintosh (1984) classify the[se] functions under six headings, [comprising] diagnosis, evaluation, guidance, prediction, selection, and grading' (Dowrich, 2008, pp. 28-29). In turn, spanning both these central functions and the wide range of associated methods is a set of core principles which serve essentially to safeguard the overall quality of continuous assessment. Ultimately, these also help to secure the utility of continuous assessment in guiding the many education stakeholders—educators, education administrators and agents, students, parents, and other members of society—towards decisions and actions at all levels which can contribute to improved learning and broader education outcomes.

The following discussion of key principles was inspired by and merges elements from related lists proposed by the OECD (2005, p. 6), Duvall and Angelo (2014, p. 3), the Teaching and Learning Research Program (Mansell et al., 2009, p. 10), and the Assessment Reform Group (Gardner et al., 2008, p. 16). (Annex A for complete list of assessment principles from the four sources.) As with the definition of continuous assessment, the literature offers variety in the underlying principles it proposes. Some are more strategic while others are more focused on policy. Despite there being considerable overlap, each offers many distinct notions to guide systems, educators, and other stakeholders in the design, implementation, reporting, and use of continuous assessment. The many key principles fall within four major themes:

1. **Fit to purpose.** To begin, as Gardner et al., (2008, p. 16) assert, all continuous assessment must ‘include explicit processes to ensure that information is valid and is as reliable as necessary for its purpose.’ Indeed, there may be many purposes for assessment in the classroom, illustrated by the notions of summative and formative assessment, of assessment as, for, and of learning, of monitoring, of feedback and remediation, and more.
2. **Improve classroom teaching and learning.** Narrowing the focus on ‘purpose, continuous assessment should serve especially to strengthen teaching and learning. While this may imply most directly what happens in the classroom, it also vitally generates information to guide the policies, plans, technical and material inputs, and other systemic factors which influence the nature and efficacy of classroom and school practice.
3. **Engage students fully and purposefully in their learning.** Delving deeper into the learning dimension, continuous assessment should focus on the student, featuring particularly the aspects of feedback and tailored guidance, or remediation.
4. **Influence factors beyond education.** Continuous assessment can, and indeed must, also have positive impacts on factors beyond the classroom, and even beyond the education system, which also effect a strong influence on the quality and equity of learning. These may include aspects of a family-based, community-based, socio-cultural, environmental, economic or other nature.

While three of the four themes relate explicitly to formative or school-based assessment, it should be clear in all cases that the principles they embody might also pertain to all forms of assessment, including large-scale, standardized mechanisms. The inherent distinctions are sometimes only implied in the following analysis.

### Assessment must be ‘fit’ to purpose

The methods and effects of continuous assessment must correspond to its two core purposes—summative and formative—in at least two main ways. First, they must measure the degree to which students are learning what society requires and desires of its graduates. Second, they must serve to inform decisions and actions about the many factors a system (and broader society) provide and manage to secure such learning.

As regards particularly the learning aims of education, the theme unifies principles which echo the notion championed by the Ontario, Canada organization, People for Education (2013), that assessment must ‘measure what matters.’ As ‘what matters’ may vary from one context to the next, despite many universally shared dimensions, it would seem vital that a system and its clients (both parents and students and employers and broader society) first agree on what these societal purposes are. In the current international context, defined largely by the global SDGs<sup>15</sup>, quality, or standards, in education must also include the broader concept of relevance and the vast array of practical knowledge and competencies frequently referred to as 21st Century Skills. In turn, Gardner et al. (2008, p. 16) attribute to assessment the opportunity to ‘promote public understanding of goals and criteria’ at a societal level and thereby help to establish the precise yet diverse purposes of schooling within the larger communal mind-set. This aim might be particularly germane as education systems worldwide endeavour to move society (and especially parents) past the widespread long-standing allegiance to content-based education to an acceptance of contemporary competency-based learning goals and outcomes<sup>16</sup> as well as to the even more comprehensive aims of the SDGs.

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<sup>15</sup> See <https://sustainabledevelopment.un.org/?menu=1300> (Accessed 25 October 2015).

<sup>16</sup> Certainly competency-based learning is not only a contemporary notion, as illuminated in the work of Thomas Dewey, among others. Notwithstanding the rich legacy of this more functional education goal, the reality is that content-based learning apparently continues to prevail across most systems worldwide.

Looking again to the use of assessment results, such a transition in perceptions and attitudes is often imperiled by the narrowing effects of an accountability-led purpose in assessment, whether linked to international, national, local or classroom examinations. Torrance (2011, p. 465) cites Shavelson et al. to warn of this perverse outcome, explaining that when continuous assessment places its formative aims in conflict with its summative function, the formative purpose will usually be 'overpowered.' The purpose of assessment, then, becomes mainly to verify students' ability to demonstrate their acquisition (at least temporary) of precise curricular content and techniques. In this scenario, the goal of teaching focuses on improving test results and routinely drives teachers and systems towards information-heavy rote learning programmes and practices. This pertains even though the requirements that the economy and civil society have of a nation's graduates and its other school-leavers remain mostly practical and multi-dimensional.

Seemingly alert to this risk, OECD (2005, pp. 6-7) adopted as a principle to 'align summative and formative assessment approaches,' a notion that can refer equally to their design, implementation, and use. At the same time, it raised the need 'to ensure stronger validity and reliability of summative assessments,' addressing the more technical aspect of quality while exhorting policy officials to 'consider multiple measures of student progress.' Gardner et al., (2008, p. 16) translate this advice into concrete guidance for classroom teachers. Specifically, they propose as principle that '[a]ssessment should combine information of different kinds,' which purpose the Assessment Review Group (Mansell, 2009, p. 10) captures simply as the need to 'recognize all educational achievement.'

Finally, the Assessment Review Group (Mansell, 2009, p. 10) introduces a sense of humility into the demand for quality in assessment (both technically and conceptually), articulating the principle that the 'Assessment of learning outcomes should be treated as approximations, subject to unavoidable errors.' Besides the fact that any single assessment is only a snapshot of what a student has learned about any given topic, even a raft of assessments can only incompletely satisfy the purpose of measuring and representing a student's full range of knowledge and skills. This may happen because of the intricacy of the knowledge or skill to measure, or it may trace to the inherent shortcomings of the techniques and context of the measurement. Whether confident or humble, one's design, conduct, and use of continuous assessment must begin with a clear understanding of what learning it is intended to measure and what specific purposes the resulting information will serve.

### **Continuous assessment must serve purposefully and strategically to improve teaching and learning**

Linking purpose to action, the Assessment Reform Group (Gardner et al., 2008) establishes further that 'Assessment methods should enable progress in all important learning goals to be facilitated and reported.' This principle reflects the continuum from adjustment to accountability shown in Diagram 2 while at the same time it features further learning assessment's formative purposes. The Group reinforces this guidance by asserting with simple certitude that 'Assessment of any kind should ultimately improve learning.' Reinforcing the classroom process and outcomes is also the aspect on which the OECD (2005, p. 6) concentrates most of its principles, affirming that educators and education systems should 'keep the focus on teaching and learning.' However, the balance of the OECD assessment principles is on the teaching side of the equation, guiding systems and school leaders alike to, successively:

1. 'Invest in training and support for formative assessment,' including the provision of instruments and models which teachers might use to integrate formative continuous assessment into their regular classroom instruction (also championed by Duvall and Angelo, 2014, p. 3);
2. Promote innovation and initiative around continuous assessment by cultivating confidence among teachers, promoting peer support, and engaging them in practical research; and

3. Foster greater strategic linkages between research, policy, and practice related to the design, conduct, and use of continuous assessment.

Putting these principles into practice is neither easy nor obvious. Their execution requires first that schools and their key actors have the capacity to conduct continuous assessment and to use the many results appropriately and effectively to improve teaching, learning, and other quality factors, including non-educational. But they also necessitate that these same actors embrace a culture of continuous assessment while the system establishes a suitable enabling context for this to flourish. These dimensions are studied in the next section.

### Assessment must engage students fully and purposefully in their learning

The effectiveness of continuous assessment traces significantly to its deliberate use in directing students towards the learning that the system and society expect them to attain and that matches their own aptitudes and aspirations. For one, students must understand fully ‘the aims of their learning and how the quality of their achievement will be judged’ (Mansell, 2009, p. 10). They must also perceive precisely the ways in which they are falling short of these targets, to ‘mind the gap.’ Here is where the profound robustness of feedback is felt (discussed more fully below)<sup>17</sup>. Educators must provide students with the results of their classroom-based assessment tasks and help them to comprehend and use these to understand their particular learning shortcomings and strengths.

As part of the same process, teachers must encourage, guide, and support their students to elaborate and undertake precise steps to fill any gaps while building upon their strengths. At the same time, each teacher must undertake adjustments to her/his own instruction to address any generalized learning shortfall. From a student’s perspective, this might entail additional review of a problematic lesson or re-visiting previous, underlying content with the teacher, alone, with one or more classmates, and/or with other persons. It may also involve a student in completing extra exercises or other complementary efforts. A teacher may fill class-wide, or shared, gaps by spending more time on a lesson, by reviewing earlier content which is fundamental to the current lesson, by providing additional exercises, by organizing study groups, and/or by seeking to strengthen her/his own knowledge of the troublesome content and ability to teach it, among other strategies.

Importantly, the aim of this process is not just to pass a test but, especially, to be prepared to engage productively, meaningfully, and happily in all dimensions of one’s current and future life and livelihood. As such, the effectiveness of assessment may also be evident in the degree to which it motivates students to ‘show what they can do’ (Gardner et al., 2008, p. 16) and to devote themselves more completely to learning better so that they can do more.

The literature emphasizes further that direct student engagement in measuring their own learning and competencies (self- and peer-assessment) also serves to clarify and direct the learning process towards better outcomes. In addition, self- and peer-assessment represent core competencies to master in and of themselves. The Teaching and Learning Research Program (Mansell et al., 2009, p. 10) asserts quite simply that assessment is ‘a key professional skill’ and that the education system should ‘help learners know how to improve’ by honing their capabilities in self-assessment. Gardner, et al., (2008, p. 16) combine the two notions, setting as principle that systems and educators must enact policy and take actions so that teachers use assessment also to promote the purposeful and ‘active engagement of students in their learning and its assessment.’

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<sup>17</sup> As Barber and Rizvi (2013, p. 65) report, ‘There is compelling evidence from meta-analyses of hundreds of studies to indicate that formative assessment, when used to provide feedback on a daily basis to both teacher and students, is one of the most powerful interventions ever recorded in educational research literature.’ See, also, Black and William, 2005; Campbell and Levin, 2009; Goodrich, 2012; Hattie and Timperley, 2007; OECD, 2005; and Wiliam, 2011.

## Assessment should also influence factors beyond teaching and learning

The effective design, implementation, and use of continuous assessment to strengthen teaching and learning do not depend only on what happens in the classroom. Rather, they also rely significantly on policy, programmes, and practices, which are defined or managed at the system level, as well as several factors managed beyond the realm of education. Unfortunately, these aspects seem to receive minimal attention in the learning assessment literature<sup>18</sup>. Still, two main dimensions warrant particular interest. One, as implied above, while aiming ultimately to strengthen teaching and learning, there are many other facets of the education endeavour which student assessment outcomes could and should affect. These include, among others, teacher training and management decisions, the content and nature of instructional materials, school leadership decisions, and investments in facilities and other resources.

While such system-level decisions are often reserved for large-scale assessment outcomes, the results of continuous assessments at the school and classroom levels can also be highly germane. Mansell et al., (2009, p. 10) represent this idea in the principle that all education ‘implementation decisions must be based on current research as well as recent district and school data.’ OECD (2005, pp. 6-7) makes this same claim in the principle that assessment should ‘Ensure [that] classroom, school and system level evaluations are linked and are used formatively to shape improvements at every level of the system.’ OECD reinforces this position by asserting that systems should ‘[b]uild stronger bridges between research, policy and practice’ to discover and embrace more ‘effective strategies for implementation and scaling-up...’ of assessment and, with the help of assessment, of teaching and learning in general.

It includes among these bridges a connection to parents, proposing that the school (and system) ‘[a]ctively involve students and parents in the formative [assessment] process’ (OECD, 2005, pp. 6-7). This is necessary not just to rally these critical stakeholders around the vision and strategies of quality education, as mentioned above. It is also, and perhaps especially, important in order to enlist them directly as effective actors in promoting and supporting quality education outcomes at home, in the community, and at school. With regard to all of these processes, Duvall and Angelo (2014, p. 3) remind us that ‘successful implementation and sustained change take time.’

The second dimension is fully overlooked by all four lists, though it does appear in the literature; particularly in the different studies that ask teachers about the impacts and implementation of continuous assessment<sup>19</sup>. The main concern here is how the system-level aims of continuous assessment influence profoundly the nature, implementation, and utility of assessment in the classroom. As a principle, this might complement the notion of fitting assessment to purpose and thereby inspire systems to ensure suitable conditions not just for appropriate continuous assessment but for its effective formative use. Quite simply, the conditions in which many teachers are expected to conduct assessment either undermine the quality and relevance of the process or obstruct it completely. Discussed fully below, a first glimpse at the factors which create this situation reveals most simply too little time for teachers to conduct adequate continuous assessment and to record, communicate, and use the results meaningfully.

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<sup>18</sup> The paucity of references to factors beyond the classroom and school is exemplified by the fact that they are referenced only three times in the total 34 principles from the four lists consulted.

<sup>19</sup> The research for this report uncovered a large number of Master’s theses and other studies from Africa which focused on the impacts and challenges of using continuous assessment in the classroom. See, for example, Adaramaja, n.d.; Alausa, n.d.; Anyanwu, n.d.; Atsumbe, 2012; Bolyard, 2003; Dowrich, 2008, on Trinidad and Tobago, instead; Ebhomien et al., 2012; Esere and Idowu, n.d.; Jessee and Culver, 2010; Kapambwe, 2010; Mewbaza, 2010; Nxumalo, 2007; Onjewu, n.d.; Quansah, 2005; Reyneke et al., 2010; and Uiseb, 2009. In at least a few of these cases, it was evident that these initiatives linked strongly to international technical assistance efforts.

## Other core features and issues of continuous assessment

Looking beyond these core principles, an analysis of the literature extracts three other major operational requirements. These serve to ensure that the process and results of assessment provide reliable, valid, and useful data to meet three functions: (i) fairness, (ii) breadth of coverage, and (iii) feedback. All three trace to several fundamental and highly linked features of continuous assessment, which include, but are certainly not limited to, the following:

- It is *classroom-based*;
- It is *flexible*, allowing for (and even demanding) a wide variety of strategies and parameters (e.g., timing, duration, location, etc.) to measure different aspects of learning;
- It can be as *narrow* and specific or as *broad* and general as useful to indicate whatever learning the teacher and/or the student(s) wish to appraise;
- It can be *teacher-driven* and also *student-driven*, seeking to measure one's own level of comprehension and mastery as well as that of one's peers;
- It can involve students with content in a *wide range of ways* beyond the common pencil and paper demonstration of retained knowledge and techniques, including problem-solving, performance, portfolio preparation, and project implementation, among others;
- It can be *standardized*, appraising all students against a common set of learning standards and employing the same assessment strategies and/or instruments;
- It need *not be standardized*, adapting the content, degree of difficulty, frequency, timing, location, and other parameters to the particular needs or levels of individual students or groups of students, serving both to give them the greatest chance of exhibiting what they have learned and to contribute most fully to their on-going learning process;
- It generates *immediate results*, or at least quick ones, for both the teacher and students to analyse and to use in ways which they find to be most helpful and significant; and
- It can yield highly *useful information on learning* to provide to decision-makers across the education system, and especially information that is richer, timelier, and more diverse than what large-scale, standardized assessments can provide.

Clearly, these characteristics are a formula for variety, translating into many different forms of practice in different settings, whether from one country to the next, across regions, across schools or even from one class or classroom to another. The technical considerations of this diversity are the topic of the following section.

### 1. Fairness

The worry about quality in continuous assessment often appears in both policy and the literature as a matter of fairness. Most basically, this refers to the fear, and indeed the not uncommon reality, that when teachers are responsible not just for grading or scoring an assessment but also for its creation, the criteria for judging learning and the appraisals of satisfactory attainment can diverge greatly. It is likely easy for most to conjure memories from one's own school days of teachers who were 'easy graders' and others whose tests and marking evoked terror or outrage. The following treatment of fairness explores in turn (i) its underlying factors and (ii) strategies for its purposeful promotion.

Onjewu (n.d., pp. 8-10), in a study of continuous assessment in Nigeria, identifies a long list of factors which can undermine fairness, threatening reliability and, therefore, the legitimacy of any resulting marks, or grades. Referring mainly to mandated continuous assessments used for summative purposes, he asserts that 'The entire practice is surrounded by laxity' among both teachers and those responsible to moderate, or oversee and guide, the quality of continuous assessment. This attitude concerns equally the development of the instruments and items, their administration, and their grading. Onjewu worries particularly about his findings that teachers often:

- do not administer the required number of assessments;
- do not adhere to the approved testing calendar;
- consult and agree with their students not only on the number and timing of tests but also on the content;
- diminish or dismiss entirely the formative dimension of continuous assessment;
- provide excessive guidance or assistance to students to raise their performance;
- are uneven in permitting students to take a 'make-up' test; and
- provide no indication of what students got right or wrong, giving just a total grade, if they furnish a mark at all.

Citing Njabili et al., Onjewu (n.d., pp. 7-8) also finds unfairness in how different teachers undertake to minimize (or not) cheating and how they react when they find proof of these as well as in the diverse ways by which teachers calculate final grades based on their students' continuous assessment marks. Viewed as such, the prospects for corruption in grading are obvious and widely reported<sup>20</sup>. In the same vein, Reyneke et al., (2010, p. 287) express the concern that continuous assessment is unreliable and therefore unfair for the simple reason that students cheat. It might seem an understatement to say that results are 'not always a true reflection of (a) learner's actual performance.'

The fundamental fear of all may be that, by conspiring to elevate students' scores so that both teachers and students appear to be succeeding better, less learning is occurring. Thus, summative continuous assessment results can entitle more students to unearned advancement through the system while providing no, or little, transparent basis or impetus for taking concrete formative steps to improve either teaching or learning. This would seem to explain at least partly the decision in Nigeria to value a students' combined classroom-based continuous assessment score at only 25% and the end-of-year examination at 75% of the total grade. In the end, Onjewu (n.d., p. 7) cites Griffith to ask 'In the Nigerian classroom context, can we create an assessment system that is fair to all learners?' Sadly, in virtually the same breath he asserts that the answer '... is a categorical NO; but [he] urges that we can however make it fairer.' Indeed, some address directly the challenge of strengthening the validity, reliability, and even-handedness of teacher-led tests and other graded classroom-based tasks to promote fairness. They aim to fulfil the potential of continuous assessment to serve as an antidote to the inherent unfairness of single large-scale, standardized, high stakes examinations.

Related, many researchers<sup>21</sup> identify the issue of teachers' *assessment literacy* as critical in the quality and fairness of the instruments and strategies which teachers create or choose. Assessment literacy also matters in test administration and in the use of the results to perform the many functions that Firth, et al. (*op. cit.*), among others, attribute to continuous assessment. Certainly, the need to strengthen teachers' capacity to design, implement, and use learning continuous assessment tasks is vital and undeniable. Yet, the ways in which researchers, policy-makers, and practitioners approach this challenge strategically often embodies many contradictions and can ultimately be patently ineffective. (This issue receives more expansive treatment later.)

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20 Jessee and Culver (2010, p. 53), writing about Zambia, illustrate this point by the practice of some teachers who use continuous assessment to increase falsely the number of grade 8 students who qualify to continue in formal education. They find 'few measures in place to prevent teachers from assigning artificial scores to students.'

21 See, for example, Bolyard, 2003; Dowrich, 2008; Kanjee and Moloi, 2014; Kapambwe and Chanda, n. d; Learning Point Associates, 2009; OECD, 2013; Stiggins, 2005; Uiseb, 2009; and Wyatt-Smith et al., 2014.

Lastly, many propose that education systems should provide common assessment instruments and items which teachers may choose and use as an effective, manageable way to cultivate greater fairness (and effectiveness) in continuous assessment. These would offer uniformity in what is tested and marked while also likely linking assessment more closely and consistently to official learning standards. Such resources might be provided by the system, procured from private entities, or obtained by other means<sup>22</sup>. As one alternate source, the ever-growing presence of information and communication technologies (ICT) in the education sphere may make access to a vast array of continuous assessment tools, items, and ideas both easier and more rapid; at least to those with ICT access. At the same time, ICT raises considerably the ability to adapt assessments to the specific needs and abilities of individual students (for example, using Item Response Theory<sup>23</sup>) or the precise purposes set by a teacher while accelerating and increasing the precision of feedback. (See Boxes 1a and 1b for two examples of such ICT ‘solutions,’ one from South Africa and the other from New Zealand.)

*Box 1a – ICT and continuous assessment: two examples*

***isazi, Advanced Algorithms and Optimisation. (Personal communication)***

An intriguing use of technology was introduced in South Africa by a local small technology enterprise. isazi created an application which allows teachers to generate, download, print, grade, and analyse from a smart phone, tablet or other mobile device multiple choice tests (at the time available only for Mathematics and Physics). A teacher uses isazi’s application to identify specific learning objectives of a lesson s/he is teaching, or particular aspects thereof, to receive within moments a test or quiz which derives directly from the official curriculum. The process requires access to a printer, but the teacher can print tests directly from the phone or other device to distribute to her/his students. Upon collecting the completed tests, the teacher can use the same device to take a picture of up to 60 tests laid out one beside the other to send back to the company. Within seconds, s/he receives back on her/his phone a detailed analysis of how many students got which questions right or wrong. In this manner, the teacher and students can have swift feedback on what specific further instruction and learning may be beneficial before proceeding to the next lesson or part of a lesson. (See [www.isaziconsulting.co.za](http://www.isaziconsulting.co.za).)

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<sup>22</sup> See, for example, Alausa, n.d.; and Adaramaja, n.d.

<sup>23</sup> Item Response Theory refers to a method or algorithm for adapting continuously the items of an assessment to the degree of correctness of an individual’s responses. For example, if a person provides a wrong answer to a particular question, or series of questions, the succeeding questions will continue to be of a same or easier level of difficulty until the respondent has provided a fixed number of correct answers in a row. More information on Item Response Theory may be found at <http://echo.edres.org:8080/irt/baker/> (Accessed 25 October 2015.)

***The Assessment Tools for Teaching and Learning (asTTle) computer-assisted standardized testing system. (Quoted from Brown (n.d., pp. 1-3.)***

In 2000, New Zealand ‘...wanted assessments that could contribute to improving the quality of school assessment decisions, ensuring national standards, and improving the quality of reporting to parents.’ The government collaborated with university researchers to create asTTle. This is ‘... an electronic test creation and reporting engine and test item bank covering Curriculum Levels 2 to 6 of reading, writing, and mathematics in both English and te reo Māori with norms for Years 4 to 12 based on the performance of over 92,000 students on over 4000 test items and 100 writing prompts (60 English, 40 Māori) (Hattie, Brown, & Keegan, 2003). The asTTle tools enable teachers and school leaders to analyse achievement of a student(s), to gain insights as to strengths and weaknesses, and to find additional teaching and curriculum resources through an online catalogue known as ‘What Next’’. Teachers and/or school leaders are able to customize standardized 40-minute tests according to their priorities for test difficulty and content. Teachers also have the final say as to whether the test is valid for their purposes or not, through the ability to reject a draft test and change selections multiple times until an appropriate test is created.

‘The system software calculates student achievement, strengths, and weaknesses using an item response theory formula so that regardless of the items on a test, student scores are on a common scale, which ensures interpretation against nationally representative norms, curriculum levels, and curriculum achievement objectives. Specifically, asTTle answers questions related to (a) how well students are doing compared to similar students; (b) how well students are doing on important achievement objectives; (c) how well students are doing compared to curriculum achievement levels; and (d) what teaching resources would assist in improving students’ performance.’ (See <http://e-asttle.tki.org.nz/>)

Undergirding the scramble for fairness in student learning assessment is the commitment ‘to make the results comparable across all the schools’ (Alausa, n.d., p. 3). There is undoubtedly important value in the uniformity of testing content and methods. Yet, it is also important to acknowledge (and to reflect in both policy and practice) that ‘sameness’ in assessment does not in fact always yield fairness. Indeed, in aspiring to standardization, or uniformity, in the design and administration of assessment, systems (or teachers) may actually disadvantage many students functionally; and some will say this outcome is certain<sup>24</sup>.

Such a result may trace to a few phenomena. When considering issues of students’ differing abilities within the same classroom, imposing the exact same conditions on all students may create clearly unequal chances to perform well. As just one simple illustration, think of a blind and a sighted child taking the same test. In the same vein, as Howard Gardner and his intellectual progeny<sup>25</sup> have demonstrated, there are many paths to acquiring learning and, indeed, many types of knowledge. It may be assumed, consequently, that there are also many ways by which best to exhibit one’s knowledge and talents.

Classroom teachers will often perceive variety in the talents their students possess. If required (or they choose) to assess their students’ accumulated knowledge and other assets using a narrow spectrum of standardized methods, they will miss much valuable learning. Such differences would seem even greater when considering the variety which exists across many different classrooms, schools, or other learning contexts.

<sup>24</sup> This risk of marginalizing further students and others based on seemingly ‘democratic’ assessment instruments and procedures is currently a prominent topic of education research in France, according to Sabine Delzescaux (personal communication, October 2015). See, for example, Garcia and Poupeau, 2003.

<sup>25</sup> See, for example, Edutopia, 2015; and Straus, 2013.

It would seem reasonable at least to consider further the idea that all standardized assessments would fail the fundamental test of measuring just the precise aspect of knowledge in a question. Quite simply, as suggested above, the context in which an assessment occurs or the characteristics of each student can have a considerable impact on her/his ability to perform to her/his full capacity. In the case of continuous assessment, as mentioned above, the opportunity for flexibility might help neutralize the risk of standardization to the fairness and legitimacy of continuous (and indeed of all) assessment.

Finally, it is vital not to neglect the formative nature of continuous assessment. Proposing or imposing conformity in continuous assessment across all settings, may, as economists like to say, *ceteris paribus* (with all things being equal), contribute to greater apparent fairness in appraising the learning of all students. However, it would seem that protecting the ability to adapt the content and perhaps the method of assessment is particularly important for formative purposes. This is particularly so given that circumstances are rarely, if ever, truly equal. For one, much of formative assessment does not require grading. Clear standards surely matter, but the ability to react appropriately to the precise aspect of learning at a particular moment to adjust instruction and/or provide clear and meaningful feedback to a student (or students) is difficult to predict and, therefore, to standardize fully. Secondly, adaptation and even innovation in continuous assessment are also important to guide students in the development of their personal cognitive and non-cognitive competencies, the process of which is also often highly context-dependent. In conclusion, the attainment of the important goal of fairness in continuous assessment may be served at least partly by providing standardized tools and approaches. Yet, these risk exacerbating inequity if strategies do not *also allow and support* teachers to design, choose, and use their own measures and methods.

## 2. Breadth of coverage

Standardized assessment instruments for measuring many of the non-academic competencies which are emerging increasingly in the curricula of countries and other jurisdictions (see, for example, Levin, footnote 3), simply either do not exist or offer just dull tools. Referred to above as ‘21<sup>st</sup> Century Skills,’ these competencies routinely defy standardized measurement most essentially because there is basically no single, uniform manner in which they appear in performance. Confidence, for example, can be boisterous and sociable or quiet and solitary. Creativity in Mathematics, Arts, and History does not just take different forms but can demand different sets of skills. Similarly, planning one’s project alone can summon different skills and behaviours than does planning an event with classmates. Core elements undoubtedly exist. However, navigating these many competencies across their multiple forms among all students in a class, and often many classes (especially for secondary teachers), would seem especially well suited to continuous assessment. Such assessment can be fit not just to the purpose of assessing personal competencies but also to the unique characteristics of each child and setting, especially considering its feature of *flexibility*, mentioned at the start of this section.

Notwithstanding the scepticism of some concerning the standardized assessment of such competencies, there have been some ambitious and interesting attempts which warrant mention. (As Hickey (2010) attests, ‘...there are lots of really smart folks who have a lot of resources at their disposal who think you can measure’ these skills.) One such attempt is the *Measuring 21<sup>st</sup> Century Competencies—Guidance for Educators* document produced jointly by the Rand Corporation and the Asia Society (Soland et al., 2013, p. 32). The document identifies a ‘Mission Skills Assessment’ (MSA) which:

*... allows schools to measure several competencies, some of which we emphasize explicitly in this report: collaboration, creativity, ethics, resilience (similar in many respects to grit), intrinsic motivation, and learning to learn (especially time management). With the exception of growth mindset, the MSA assesses virtually the entire set of competencies included in the intrapersonal category...*

The instruments reportedly yielded much valuable information on students' related learning and performance. Yet, the true value of the standardized tool may arguably reside more in the deeper and less measurable insights which the tools provide teachers and students into each student's (or group of students') personal assets.

An analysis of just one question, on 'situational judgment,' from the MSA (see Box 2, Soland, 2013, p. 33) aims to illustrate this point. Presumably, there is a 'correct' answer here, or maybe a hierarchy of correctness. In this case, averaging students' correct answers across a series of questions on situational judgment, a teacher (or a school or system) might presumably determine how well s/he is doing in teaching or, more likely, cultivating, that competency. However, in reality, the idea of a 'correct' and a 'wrong' or a 'better' or 'worse' answer seems beside the point. Nor is it immediately obvious which answer the examiners would mark 'correct.' What happens to the student who gets a poor score or to the student who ranks high? Does the one repeat the skill while the latter proceeds to the next? What remediation is indicated? What teacher training is recommended? Such an assessment seems to have highly questionable usefulness in a standardized format, whether for summative or formative purposes. However, its significance for judging students' competencies *and to guide students, teachers, parents, and others to strengthen these* should be considerable when the assessment and its results are treated instead in a dynamic or a dialogic manner; i.e., as formative assessment.

#### Box 2 : Sample MSA question

### Situational Judgment Test



You have been working very hard with other students on a group project. A member of your team gives you some badly written work to include in the project. There is very little time before the project is due. What would you do in this situation?

- Suggest ways that the student can improve the work
- Don't worry about it; just put the bad work in.
- Tell the teacher about the situation
- Rewrite the work yourself.

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Hickey (2010), in responding to the question 'Can critical thinking, problem-solving, collaboration, communication and 'learning to learn' be reliably and validly measured?' avows plainly that

*... no, we don't believe we can measure these things in ways that are reliable and yield scores that are valid evidence of what individuals are capable of in this regard. These are actually 'practices' that can most accurately be interpreted using methods accounting for the social and technological contexts in which they occur... My larger point here is my concern about what happens with these new proficiencies in schools and in tests when we treat them as individual skills rather than social practices. In particular, I worry what happens to both education and evidence when students, teachers, and schools are judged according to tests of these new skills.*

A classical system-driven approach might involve compiling these results to create a database and analysing the resulting information to standardize the teaching of these competencies system-wide. However, the benefits of this type of assessment would seem most robust when the results are generated, analysed, and used by teachers in non-uniform ways which suit each particular group of students and setting. This view is in fact reinforced by the findings of the MSA study (Soland, 2013, pp. 34-35). Here, the authors claim that 'Perhaps the most common benefit cited by practitioners was that having data on these competencies allowed them to be more intentional about fostering them.'

Also significant was the assertion of many teachers that a more effective focus on personal competencies yielded clear and measurable gains in the more conventional ‘outcomes of interest.’ For example, results from MSA-based research suggests that time management is correlated with... grade point average.’ How does this happen? How does improving students’ personal competencies lead them to better academic performance, as measured by both classroom and standardized assessments. Soland (*ibid.*) offers one hypothesis, concluding that the fact and effort of

*... measuring these 21<sup>st</sup> century competencies actually helped [teachers] make curricula more engaging. As an offshoot of incorporating creativity, communication, and collaboration into projects and their grading schema, the assignments became more multifaceted and therefore more engaging, ...*

One might presume confidently that this was true for both students and teachers.

Systems clearly have a crucial role to play in terms of policy, methods, tools, and other dimensions to promote and support the effective and strategic continuous (and even standardized) assessment of this broader range of competencies among students. In turn, classroom-based continuous assessment findings have much to contribute to system-level decisions and actions related to these competencies as well as to overall learning. This dynamic and the related roles receive exhaustive treatment in the next section, ‘Doing continuous assessment.’

### 3. Feedback

The notion of feedback may reflect most strongly the central thesis of this study. This is that continuous assessment must serve first and foremost to inform decisions and actions at the many respective levels of an education system and among its myriad actors to guide all towards improved outcomes. Stakeholders must have clear visibility of how well students are succeeding *and where they are not*—the gaps—so that they can fashion and enact remedies. Such analyses pertain most strategically to four different, but highly related aspects—notably, student feedback, feedback to other education actors, feedback for student agency, and feedback and home—as discussed below.

#### a. Student Feedback<sup>26</sup>

The full power of the formative dimension of continuous learning assessment, many suggest or even state outright, resides in the process of feedback. Hill (in Barber and Rivzi, 2013, p. 65), for example, declares that ‘There is compelling evidence from meta-analyses of hundreds of studies to indicate that formative assessment, when used to provide feedback *on a daily basis* to both teacher and students, is one of the most powerful interventions ever recorded in educational research literature’ (italics added). Hattie and Timperley (2007, p. 81) similarly proclaim that ‘Feedback is one of the most powerful influences on learning and achievement...’ However, they also concur with Hill that such effects require that feedback be based on sound data and be performed well. Completing the quote, they warn that the impact of feedback ‘can be either positive or negative.’

Looking at the work of Black and Wiliam (1998) and of Allal and Mottier Lopez (n.d., p. 8), a set of four fundamental criteria, or components, emerge as most critical for ensuring that the impact is positive:

1. The data must be ‘on the student’s actual level’ of understanding, or performance;
2. Feedback must communicate to the learner clearly the actual learning expectations, or outcomes, which the assessment was aiming to measure;
3. Feedback must elucidate the specific aspects of the learning expectations which the student met, did not meet, or perhaps even surpassed; and

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<sup>26</sup> For more thorough and research-based treatment of the topic of feedback as relates particularly to students, see Allal, 2011; Black and Wiliam, 1990; Hattie, 2011; Hattie and Timperley, 2007; Nusche et al., 2013; and Reyneke et al., 2010.

4. Feedback must engage the learner directly and fully in understanding the nature of any gaps (especially deficits) as well as in articulating concrete, realistic actions to diminish or, ideally, eliminate the gaps.

More specifically, producing data on a *student's actual level* requires that continuous assessment establish clearly what the student does and does not know and can or cannot do with that knowledge as it relates to a precise set of common (and sometimes of personalized) standards.

This can require that a teacher appraise learning very narrowly, very widely, or anywhere between these extremes. The choice will depend both on the particular learning objective of the moment and on how s/he will use the results. Narrow learning aims might entail, for example, an individual vocabulary word, a mathematical equation, or an historical point. Wide learning aims, in contrast, might concern the ability to employ in combination a wide range of grammatical rules, to solve a complex mathematic problem requiring a variety of equations and procedures, or to link an historical incident to contemporary events.

The real and instructive significance of a student's learning derives largely from contrasting it to the *reference level* established by the education system. Is there a gap between what a student knows and can do and what the curriculum, the institutional embodiment of the reference level, has set as official learning objectives? This is what Hattie and Timperley (2007, p. 86) refer to as the 'discrepancy between current and desired understanding.' Data on the reference level can appear in a variety of formats. In addition to the official curriculum, common formats include, among others:

- Textbooks and other instructional materials, which are often available in diverse versions and, therefore, may indicate different reference levels;
- Course syllabi, which can be externally provided or generated by a teacher or group of teachers;
- Teacher lesson plans, which can evolve over the course of a school year; and
- The expected or announced content of any large-scale examinations and other standardized assessment instruments, especially when perceived to be high stakes.

All of these may in fact change from one year to the next. Furthermore, and not uncommonly, the reference levels which education systems present do not always necessarily align and may in fact conflict.

A critical trigger in closing any gaps in learning is to communicate (or 'feed back') to the student and to other relevant actors the precise learning gaps, *comparing the actual and reference levels of learning*. Following this, feedback might also help the same persons to elaborate and/or recommend concrete steps to close the gaps (or to expand them if the gaps reveal that a student is surpassing the reference levels). The relevance of an actor to the feedback process depends on whether s/he plays (or can play) a decisive role in narrowing any negative gaps (or expanding favourable ones) between a student's actual and reference learning levels. Able, and responsible, to affect most directly a student's learning are the teacher, the student her/himself, and her/his parent(s) or guardian(s). The actions they may take can involve primarily one or some combination of pedagogic, psychosocial, or material means.

For all of these actors to execute their respective functions fully and well, the teacher and, often, the school must provide reliable, strategic information, which meets a few key criteria and pertains to each actor's respective roles. Prominent among the criteria are that feedback be:

- *Timely*, provided close enough to the learning or action being assessed still to be relevant. It must occur at a moment when it is still possible and pertinent to act to improve the measured learning. Teachers and students alike, as Christensen (2012, p. 1) proposes, must be able to 'verify mastery continually to create tight, closed feedback loops...' such that 'misunderstandings do not have to persist for weeks until the exam has been administered.'

- *Clear and precise*, not just indicating that a student got a question right or wrong but identifying *what* specifically was wrong or incomplete about the answer. At the same time, the feedback must indicate what the student knows well.
- *Constructive*, beginning with setting specific, attainable objectives and steps to move the student towards the reference level. Such steps may in fact comprise micro-goals linked to personalized, progressive benchmarks, or references. For each, feedback must guide the learner in elaborating concrete, manageable actions to undertake alone and/or with others, as useful, by which to attain the micro-goals.
- *Motivating*, communicating to the student that s/he is absolutely able to close (or expand?) the gap. This may begin by appreciating what s/he got right on an assessment by validating her/his other assets (intellectual and personal), and by linking these to a precise and doable strategy for closing (or expanding?) the gap. It may also involve linking the challenge to a student's personal sense of purpose and identity, accompanying her/him in setting micro-goals and articulating steps towards these while also providing assistance to implement the steps<sup>27</sup>.
- *Linked to actions by others*, reassuring the student that s/he is not alone in meeting this challenge. Building upon a student's personal motivation, or 'mind-set' (cf. Dweck, 2008), a teacher, parent, or some other education 'ally' may offer important encouragement and aid via moral, material, logistical, and other means. A teacher might provide extra help, additional exercises, or a peer mentor. A parent might arrange a tutor, create better conditions for home study, or procure glasses. The simple fact is that most students' school success resides upon more than her/his effort alone. Feedback can be critical in mobilizing and guiding these allies.

The feedback process, or communicating the 'gap,' can be nearly as diverse as the methods used for conducting continuous assessment. One reason to vary such reporting is to suit the distinct characteristics of the particular actor or group of actors for whom the feedback is intended. For instance, a teacher's quick gesture to indicate 'correct' or 'wrong' in the flow of classroom instruction will tell a parent nothing. The range of approaches can include simple verbal explanations, more elaborate discussion, quick written comments or more exhaustive analytic documentation. No matter how transmitted, the aim is to focus each student on the precise concepts, information, and applications of the academic content around which an assessment has revealed specific gaps<sup>28</sup>. The process signifies further the conduct of subsequent, iterative checks of a nature and frequency which may correspond to a student's past performance and to a variety of other indicators. As such, a teacher may check students who are struggling more often while creating more opportunities for self-assessment by stronger students.

Finally, feedback can quite importantly engage a teacher in guiding students in strengthening their personal competencies. This might relate both to guiding each to be more effective academically and to cultivating aptitudes and attitudes for life. (See Box 3 for a discussion of how the common strategy of teachers in one Central Asian country to do this has fallen short of its full potential.)

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<sup>27</sup> Young (2005, p. 4) channels the research of Carol Dweck (2008) in asserting that 'From the outset, pupils need to believe that improvements in their learning are more likely to occur through their efforts than through their ability.'

<sup>28</sup> For example, Scotland's *Assessment is for Learning* programme 'encourages teachers to make greater use of 'comments only' feedback to students and more use of student self- and peer-assessment..., and less use of summary judgments, such as letter grades' (Froumin, 2007, p. 7).

## b. Feedback to other education actors

Feedback from continuous assessment should also serve to inform decisions by actors across the education system and even beyond it. Beginning with the classroom, continuous assessment can involve a teacher first in the solitary process of reviewing and analysing her/his own students' collective assessment results. Isolating and studying the *common gaps*. With this information, s/he can devise precise instructional (and other) strategies for remediation (and enrichment) of groups or all of her/his students. This process might, at the same time, fruitfully engage the teacher in consulting and collaborating with fellow teachers and other front-line education actors — e.g., school directors and district supervisors — to identify and undertake individual and collective strategies — education-based and not — to improve teaching and learning.

### *Box 3: Continuous assessment of students' personal competencies, an example from Central Asia*

In virtually all classrooms visited in the region, the researcher observed at the end of every period that teachers 'graded' students on their overall performance during the lesson, using a scale of one to five. They devoted the last three to four minutes to comment briefly on the level of engagement, the correctness of answers, the collaboration, the confidence, the level of attention, and other personal dimensions for as many students as possible. Analysing this practice from the perspective of the students, the researcher perceived the approach as very 'carrot and stick-ish,' either shaming or encouraging the students while providing little to no concrete, and therefore useful, feedback on the precise nature of any shortcomings. Teachers describe and defend the practice as stimulating positive competition among students. To an outside observer, it might appear instead to be highly arbitrary and subjective. Even if it does motivate a student to improve, it is often quite unclear what precisely s/he should do differently to perform better.

An alternative strategy might ultimately prove more effective. This could begin with the specification at the start of the year of a clear set of standards for students' participation and performance in class (perhaps developed jointly with the students). The communication of these would go beyond vague generalities—e.g., 'collaborate well'—to specify clear observable behaviours that comprise the standard. The teacher could conduct short private interviews, or dialogues, with one or a few student(s) at the end of each class. During each interaction, the teacher could ask the student for a self-assessment, propose her/his own appraisal, and agree together on how to improve his/her performance and participation in the future. This would engage both the teacher and the student in a detailed analysis of any 'gaps' between observed and expected/desired behaviour and in formulating precise guidance to close these gaps.

As indicated above, reporting to parents or guardians is also crucial as they often control many of the factors which vitally affect a child's learning. This communication might happen through direct individual reports (verbal and/or written) on a child's specific or cumulative performance (including report cards), through more interactive discussions, and through other forms of record-keeping which parents might consult at the school or, increasingly, online<sup>29</sup>, among others.

Lastly, though less frequently mentioned, is the value of reporting outcomes from continuous assessment to higher hierarchical levels of the education system. As evoked earlier, the quality of student performance does not depend solely on the efforts or competence of the teacher or the student. Rather, there are many factors of quality which the central system controls. These include, notably, policies, programmes, pedagogic methods, teacher training, resources, and other inputs. Adjusting these will often also be essential in altering any gaps in learning. Continuous classroom

<sup>29</sup> Bolyard (2003, p. 3) reports that in Malawi, 'Teachers created a rainbow chart for their classes with each level of progress corresponding to a color of the rainbow... the simple recording process allowed teachers to report pupil progress to parents.'

assessment can, and indeed must, therefore inform decisions and actions about these. This is especially true as pertains to the non-examined subject areas (which are in fact the majority of topics from the curriculum in many countries) and the broad range of personal (or '21<sup>st</sup> Century') competencies which large-scale tests also routinely overlook.

Towards this goal, schools, teachers, and other local education agents might fruitfully communicate 'up' the system the common prevailing gaps captured by continuous assessment. They might accompany these data with analyses, or at least hypotheses, of what roles various system-controlled factors seem to play in the outcomes, for example the content or organization of textbooks, the availability of learning materials, the knowledge and/or pedagogic prowess of teachers, or contextual factors. (Ideally, this will happen across the full breadth of learning; i.e., of academic and personal competencies.) Local actors might accompany this information and related analyses with recommendations for common decisions and actions which the central authorities and units may consider undertaking to remediate (or enhance) learning and learning outcomes across the system.

All of these measures aim ultimately to *alter the gap*, reflecting the admonition from Sadler's (cited in Learning Point Associates, 2009, p. 6) 'seminal work' on formative assessment that '*Feedback* not designed and intended to close the instructional gap does not meet the formative assessment definition of feedback.' Feedback is not simply a matter of signaling students' learning deficits and assuming that this awareness will translate automatically into improved performance. Instead, as indicated above, continuous assessment must yield precise information about any shortcomings while articulating clear and purposeful steps which students, teachers *and others* may undertake to eliminate, or at least lessen, any undesirable gap. Beginning with the teacher, the results of continuous assessment must provide evidence and motivation to guide decisions and actions to take in their instruction and other interactions with their class(es). These may be directed at individual students, specific groups of students, or a whole class or set of classes. At the same time, assessment results, and even the process of conducting continuous assessment and of preparing feedback<sup>30</sup>, might also guide a teacher towards constructive steps to improve her/his own content knowledge, pedagogic practice, or other dimensions to strengthen her instruction.

### c. Feedback and student agency

Many refer additionally to the importance of engaging students as integral and active partners in the formative assessment process<sup>31</sup>, including when conducted as self- or peer-assessment. On the one hand, there is supreme value in a student's knowing fully and intimately how far or close s/he is to the official learning reference level (and, hopefully, to other critical learning goals, including inter- and intra-personal competencies). On the other is the fact that self-assessment, or 'self-regulation,' is in and of itself a highly valued personal, social, and economic skill. Allal and Mottier Lopez (n.d., p. 6) speak to the personal benefits of self-regulation, explaining that

*...The integration of different forms of interactive regulation [—i.e., with the teacher, with fellow students, or self-regulated—] within an instructional activity allows continuing adaptations of learning as it takes place. Interactive regulation contributes to the progression of student learning by providing feedback and guidance that stimulate student involvement at each step of instruction.*

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<sup>30</sup> Wren (2008, p. 4) reports from the experience of Virginia Beach, USA, that, 'Interestingly, many teachers found that the process of composing comments caused them to think as well; they began reassessing assignments and modified activities to eliminate tasks that did not involve higher-order thinking.'

<sup>31</sup> See, for example, Allal and Mottier Lopez, n.d.; Barton et al., 2015; Froumin, 2007; Gardner et al., 2008; Learning Point Associates, 2009; Looney, 2009; National Institute for Educational Development, 1999; Nusche et al., 2013; Reyneke et al., 2010; Wren, 2008; and Young, 2005.

Ebhomien et al. (2012, p. 352) similarly highlight the motivating effect of feedback on students. They report from their study of mathematics instruction in Nigeria ‘that the practice of continuous assessment motivates students in... learning.’ They align this finding with the ‘... studies of Gipps and Stobart (2003) who asserted that continuous assessment is democratic in nature in that it is used to encourage and motivate the students and make the assessment a positive experience.’

Delving just a bit into the mechanics of this aspect of continuous assessment and feedback, Learning Point Associates (2009, p. 11) propose further that,

*[Students] may be the key factor in optimizing its successful implementation. For example, students have to make the decision if they want to learn and improve academically... But if students know what success looks like and receive constructive, data-based feedback on how they can adjust their thinking in a positive, supportive manner, their confidence and willingness to commit to the hard work of learning should increase.*

Mewbaza’s (2010, p. 30) research into continuous assessment and students’ performance in ‘A’ level secondary studies in the Masaka District of Uganda provides a rich view of the actual and potential impacts of both the process of and the feedback from continuous assessment on students’ learning efforts and results (see Box 4). Ultimately, the goal is to embrace an approach to assessment which no longer leaves students feeling like victims of education. Rather, it should engage them actively and eagerly in understanding and even appraising independently their learning against a clear set of goals (set both externally and with their involvement) and in elaborating and engaging in steps to meet or surpass precise learning goals.

*Box 4 - Potential impacts of continuous assessment on student learning strategies, attitudes and outcomes*

*The following lists derive from the research of Micheal Mewbaza. They present the views of teachers and students on the impacts of continuous assessment on student learning. The items include the combined percentages (in parentheses) of respondents who strongly agree and agree.*

Teacher Responses (n=39)

- Builds the whole mind of the student (100%)
- Improves teaching-learning processes (100%)
- Helps identify weak students (100%)
- Students develop a revising habit (100%)
- Helps students master the content (100%)
- Students perform better on final examination (95%)
- Arouses students’ desire for attention in class (85%)
- Helps strengthen students’ confidence and readiness for the final examination (100%)
- Closes the gap between the students and teachers (85%)

Student Responses (n=39)

- Helps me to review (100%)
- I become more confident and ready for final examinations (100%)
- Improves my understanding (100%)
- I learn answering techniques and question approaches (100%)
- Helps me to master ([understand]) the notes (100%)
- Arouses my desire to be attentive and concentrate in class (85%)
- Helps me to interact with the teacher (100%)

#### d. Feedback and home

As mentioned, parents and the broader community form the final pillar of the quality education edifice, controlling many factors which influence directly and strongly students' and, even schools', ability to alter the gap. As such, feedback from continuous assessment should also enable and encourage these stakeholders to make decisions and take actions related to non-education factors for the benefit of their own children and, as appropriate, for all students. For the individual child, a parent or guardian may intervene to remedy any physiological obstacles; for example, procure glasses, improve diet, or provide a wheelchair. They might address a child's socio-emotional impediments; for example, by guiding and encouraging the child to manage a personal challenge, consulting with a teacher, or enlisting outside support. A parent may undertake to improve a child's learning conditions at home, such as by inquiring routinely about her/his lessons, lightening the amount of chores required, or establishing a dedicated space and routine for home studies. A parent may also reach out more regularly to the teacher to receive feedback on her/his child's progress, among other steps. In turn, a community may intervene to address the material, socio-emotional, socio-cultural, economic, or other common needs of individual and groups of students as well as of a whole school population. This might involve, for example, providing water and toilet facilities for schools, ensuring safe transportation from the village, advocating widely and intervening directly with families for the schooling of girls and other excluded children, and organizing study sessions and non-academic programmes to engage and motivate students, among others.

In summary, a functional look at the four elements of feedback highlights the fact that continuous assessment comprises a mix of mechanisms which serve to do two fundamental things. The first is to measure and perceive as precisely and completely as possible what aspects of learning students have and have not mastered. The second is to use this information to point towards specific targets and strategies which teachers, students, systems, parents, and others might undertake to improve teaching and learning and thereby close the gaps. Unfortunately, as Hill (in Barber and Rivzi, 2013, p. 65) states, this ideal version of continuous assessment 'is rarely practised,' a fact which many researchers have documented based on direct teacher surveys<sup>32</sup>. His explanation of this disappointing situation encapsulates the general findings of such studies: 'The time and effort involved in making, recording and analysing daily observations of student learning defeats most teachers.' Given that the conditions in which teachers operate, the training and support they receive and the various and abundant expectations and requirements they must meet are all controlled by the overall education system, it might be more appropriate to say that continuous assessment 'defeats most systems.' An articulation and analysis of the many conditions, technical skills, strategies, and expectations which effectively define the continuous assessment endeavour and context are the task of the next section.

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<sup>32</sup> See, for example, Alausa, n.d.; Adaramaja, n.d.; Atsumbe, 2012; Dowrich, 2008; Kapambwe, 2010; Nxumalo, 2007; Mewbaza, 2010; Onjewu, n.d.; Reyneke et al., 2010; and Uiseb, 2009.

## Doing continuous assessment – a matter of capacity

The greatest impediment to the successful design, implementation, and use of continuous assessment is low teacher capacity, a claim that emerges regularly in international meetings of assessment practitioners and managers. Nonetheless, these actors continue to converge around a consensus commitment to continuous assessment as a core and incontrovertible feature of quality education delivery and outcomes. Thus, the critical challenge is that systems across the world, often with the help of international donor and other partners, must equip their teaching corps with the basic notions and skills required to undertake skillfully and appropriately continuous assessment and to use the results effectively and meaningfully. They must then support their educators to use these skills to yield improved teaching and learning along with stronger education outcomes.

The precise nature of these skills can be compiled from the literature into a set of ten major functions to comprise an exhaustive continuous assessment package. Taking them in the approximate order of their deployment, these functions include:

1. The **development** of effective continuous assessment instruments and methods;
2. The **selection** of appropriate continuous assessment instruments and methods;
3. The effective **administration** of continuous assessment instruments and methods;
4. The **appraisal** of students' academic knowledge and skills based on the continuous assessment results;
5. The effective assessment of students' so-called '**soft**' skills;
6. The promotion and support of students in cultivating and deploying effective **self-assessment** skills;
7. The provision of precise and strategic **feedback** to students on assessment results to improve performance and future outcomes across the full balance of learning;
8. The use of assessment results to **adjust instruction**;
9. The **communication** of continuous assessment results and their implications to other stakeholders—both parents and actors across the system—to guide their respective decisions and actions; and
10. The use of **ICT** to strengthen the scope, precision, reactivity, and communication of assessment and its results.

The occurrence of some redundancy across these functions might seem to ease the related tasks required of teachers. Yet, the number, range, and sophistication of the capacities which teachers require in order to develop or select, adapt, prepare, administer, analyse, communicate, and use continuous assessment effectively is still clearly considerable.

Looking beyond these abundant capacities at the factors which underlie their performance, it is apparent that successful implementation demands much more than that a teacher simply possess a complete set of appropriate knowledge and skills. Indeed, even a teacher with top-notch expertise in all aspects of assessment will be challenged and, in many cases, fail to conduct high quality, meaningful continuous assessment *if a set of other, fundamental conditions are not met*. Adhering to the ubiquitous references to teacher 'capacity' (in assessment and in other aspects of instruction), it might be useful to distinguish, then, between assessment's intrinsic and extrinsic dimensions. 'Intrinsic capacity' refers to the skills a teacher or teachers must possess to implement the ten continuous assessment functions identified above. In contrast, or rather as a complement, 'extrinsic capacity' embodies the enabling factors or conditions behind assessment which must be in place for teachers to fulfil the ten functions as expected and needed.

## Intrinsic capacities required for effective continuous assessment

The discussion begins with explanations and analyses of the intrinsic capacities required to implement and use continuous assessment. Specifically, what does the literature say that teachers must know and know how to do in order to perform fulsomely all ten functions identified above?

### The development of effective continuous assessment instruments and methods

The OECD (2013, p. 9) proposes that teachers should '[d]raw on a variety of assessment types to obtain a rounded picture of student learning.' They should also strive to '[e]nsure that student assessment is inclusive and responsive to different learner needs.' Additionally, the results should be comparable across schools. In sum, teachers should be able to create assessments which (i) meet a wide range of purposes, (ii) accommodate the many diverse abilities and styles of their students, (iii) comprise many different approaches and tasks, and (iv) are well-suited to the particular education setting. In addition, at least for lower primary teachers in many countries, they must do this for multiple subject areas and with a growing emphasis on 21<sup>st</sup> Century Skills and competency-based, integrated learning. And increasingly, even single subject teachers are expected to design assessments which link their discipline with other topics and skill sets. *Phew!*

### The selection of appropriate continuous assessment instruments and methods

Teachers increasingly have access to an ever-widening range of 'ready-made' assessment tools. These may be integrated into textbooks and other materials. They may also be furnished by the Ministry of Education or some direct partner. Teachers may find instruments for purchase or for free as open source instruments and tools on the worldwide web or through colleagues, among others.

In selecting instruments and strategies that are truly 'fit to purpose,' teachers must first have a clear and technical idea of what sorts of assessment exist and which serve best to appraise the abundant respective aspects of learning. They must then be aware of the many places where they can find and acquire the different sorts of instruments, which will often differ for different topics. Knowledge of the costs and the various logistical requirements of different products may also be significant. Then, if necessary, they must be able to follow the administrative procedures and, for on-line sources, must have the ICT know-how and access to be able to retrieve these. Lastly, they must anticipate the ability of their students to comprehend and complete each specific tool, the information it will yield, and other aspects related to its communication and use. Again, this collection of things to know comprises far from a trivial set of elements to master and perform.

### The effective administration of continuous assessment instruments and methods

The administration of continuous assessment comprises several dimensions, with different versions' obviously pertaining to the several different methods and tools. These may range from formal, periodic summative tests and extended independent assignments to instantaneous checks during the flow of instruction and other short tasks. Most basically, administration comprises communicating the assessment task clearly to the students, arranging the necessary materials, and creating and/or describing appropriate conditions for students to perform to the best of their ability, with no cheating<sup>33</sup>.

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<sup>33</sup> See, for example, Dowrich, 2008.

## The appraisal of students' assessment performance

Linked closely to administration is the teacher's review and analysis of every student's performance. This involves not just assigning a mark, or grade, but, as explained above, also identifying clearly the precise learning gaps which appear in the assessment and then communicating these (feedback) to students and, as appropriate, to others who might contribute to students' ability to close (or expand) the gap. It also involves supporting students (and the others) to identify clear, concrete steps for remediation or enhancement, as indicated. Lastly, the analysis of assessment outcomes should enable a teacher to inform her/his own onward lesson planning and delivery as well as to articulate and pursue possible professional development goals and actions.

The marking of continuous assessment tasks also requires that teachers have the awareness, the tools, and the skills to adhere to the aim of 'fairness' discussed above. In this regard, they must be able to indicate accurately and objectively the degree to which each student's answers match common expected standards or rubrics. These standards may be specific to a class, or they may pertain to students across a system, especially for tasks which will figure in a student's official end-of-year score (OECD, 2013, p. 8). Particularly when an assessment does not seek single correct answers, teachers must know how to create and/or use meaningful, clear-cut, and legitimate rubrics and criteria against which to judge performance with minimal subjectivity. Similarly, they should be able to comprehend and apply skillfully standards which have been set externally as well as to analyse and utilize the results both as feedback to students and to guide their own instruction. (This capacity extends to learning data from external standardized tests and examinations.) Finally, as Christensen (2012) points out, the effective analysis of a student's performance may require the 'Capacity to uncover interdisciplinary relationships between subject domains and concepts... We might discover that effective remediation in a subject requires attention to another subject or that the root of common misunderstandings within a subject is something altogether unexpected.'

## The effective assessment of students' soft skills

As elaborated above, soft skills, as an indispensable component of 21<sup>st</sup> Century Skills, occupy an increasingly prominent spot among the priorities of countries, other jurisdictions, and development entities alike. Such competencies are often highlighted as being vital for graduates and other school-leavers to assume their various roles in society. At the same time, they can help students succeed better and with greater purpose in their current and future studies.

As with all learning, teachers must be able to assess these many competencies in order to be more effective in cultivating them among their students. Routinely characterized as being 'harder to measure' (Hutchinson, n.d., p. 6)<sup>34</sup>, their appraisal requires of teachers in the first place to have clarity on what these many different core competencies are and to recognize them in the actual behaviours, attitudes, and actions of their students. This is hardly a trifling matter as each competency can assume a different form among different students, across different subject areas, and in different settings.

To measure these, a teacher must be able to perceive many competencies—e.g., teamwork, perseverance, curiosity, and confidence—in the normal course of instruction, and often simultaneously and in different forms across several students. They must create various activities, which permit different students to display specific competencies, and they must establish and apply appropriate rubrics by which to assess their students across these dimensions of learning. Lastly, they must provide students with meaningful feedback and opportunities by which to nurture, and for some students even to establish, these skills and behaviours.

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<sup>34</sup> Hank Levin in People for Education, (2013, p. 10), makes the same point, stating flatly that '... the specific non-cognitive or personality attributes required for successful adulthood are more diffuse and more contested and have not yielded to the straightforward measurement methods used for standardized tests. *There is simply no global agreement on what is of consequence beyond student achievement and how it should be measured.* For these reasons, and perhaps others, discussions of world-class education and educational systems have been limited to student achievement.' (Italics added.)

### The promotion and support of students' self-assessment

Systems seem increasingly to ask teachers also to equip students to engage in self-assessment. This pertains to assessing equally their own work and that of their classmates, complementing the assessment tasks and feedback which teachers do. Importantly, this is also both a fundamental strategy of learner-centred pedagogy (OECD, 2013, p. 9) and a highly valued 21<sup>st</sup> Century Skill. Therefore, teachers must guide and encourage their students in applying such steps as:

1. Articulating both long-term and discrete, intermediate learning standards, or goals, for learning which are precise, appropriate, and suitably ambitious;
2. Selecting or devising self- or peer-assessment strategies and/or tools which are suited to particular learning goals;
3. Establishing independent rubrics and criteria by which to appraise their own performance;
4. Assessing their work based on these criteria or using standards proposed by the teacher or coming from some other source; and
5. Elaborating a set of actions and new objectives for remediation (or enhancement) based on this analysis.

These are capacities which many teachers still struggle to master themselves.

### The provision of precise, strategic, and useful feedback

The feedback function signifies essentially signaling to students the level of their attainment against specific learning objectives—whether they be official, classroom, or personalized benchmarks—and orienting them towards steps to improve their performance while still appreciating their accomplishments.

Many capacities link to this function. For one, a teacher must be able to communicate with clarity and precision to each student (and to parents and, often, to the administration) the various gaps between the student's performance and the expected standards. In turn, a teacher must guide each student towards resources and steps to 'alter the gaps' (*op. cit.*), help and motivate her/him to act on this guidance, and also engage her/him in using the assessment to articulate and pursue a student's own paths to greater learning. Finally, teachers should be able to communicate this collection of information and guidance using both verbal and written means, and via ICT where available.

### The use of assessment results to adjust instruction

At the same time, teachers are expected to use the results of continuous assessment to improve their own instruction. Dowrich (2008, p. 15) describes this capacity as entailing not just 'decisions about individual students' but also overall lesson planning and delivery, decisions about what to review, highlight or eliminate from the formal curriculum, and other dimensions of classroom and school management.

Teachers must be able to take the results of a continuous assessment to inform what content they repeat, revise, replace, or add, what method or methods they use to do so, the order and pacing they use in the delivery of content, what they will assess further as well as when and how they will do it, and the timing and conditions of a task (during class, after class, at home, ...), among other aspects. They will also ideally perceive the different needs of their students in order to adapt their pedagogic efforts to remediate, reinforce, or enhance each one's distinct learning as appropriate. Finally, they may identify gaps in their own knowledge, which require of teachers the capacity, the inclination, and the self-confidence to self-assess and to seek assistance.

## The wider communication of continuous assessment results and their implications

Continuous assessment requires teachers to communicate students' results to the range of other actors (parents, school management committees, local education authorities and agents, and education system leaders) who have direct and decisive roles to play in learning and teaching. Such reporting may involve both individual and aggregated results. It concerns not just grades but also, and perhaps especially, a comprehensive, qualitative appraisal of effort and attainment across the full balance of learning; including academic, practical, and personal.

The related capacities can range from simply writing each student's grades in an official document (e.g., a student report card or a district level form) to a careful analysis of the reasons a student (or) may not be attaining the prescribed learning standards along with precise prescriptions to remedy any problems. Especially when interacting with parents, a teacher's professional content knowledge and pedagogic assets may be wholly inadequate to the task of addressing the gap. Rather, s/he may have a deep understanding of the behavioural, social, physical, emotional, cultural, and other aspects which also routinely affect children's education participation and performance<sup>35</sup>. As such, a teacher may require powers of tact and reason to be able to guide parents towards decisions and actions which they might initially resist.

## The use of ICT to strengthen the scope, precision, and reactivity of assessment

Finally, in a small but ever-growing number of countries, systems are asking teachers to use computers, the Internet, and other information and communication technologies (ICT) to improve the quality of assessment and to stretch its scope<sup>36</sup>. At its simplest, this can involve seeking or even just receiving via ICT guidance, strategies, instruments, and/or items to use in paper or other traditional formats for learning assessment with students in the classroom. Teachers may also simply sit their students in front of a digital device to take a pre-packaged assessment. Yet, as teachers' skills with and interest in ICT-assisted assessment grow, and as access broadens, they are finding increasingly tools which are suited to different types of students and to different tasks, topics, and goals. They are tracking students' performance and using the results to improve teaching and learning. They are using ICT to react directly to individual students' progress, tracking and pacing learning automatically (for example, employing Item Response Theory). Finally, many teachers are using ICT to communicate more completely and more promptly on students' learning to the other key stakeholders, from parents to ministry leaders, with the intention, or at least the prospect, of provoking timely and effective remediation or other reactions.

## Intrinsic capacities – summing up

Looking across the full list of intrinsic capacities, it would appear important to ask, even if just rhetorically, if it is really 'fair' and even effective and desirable to expect a teacher to master all of these diverse capacities and to execute alone all the aspects of continuous assessment. Such caution is especially germane as one remembers that assessment represents only a part of the functions for which teachers are responsible<sup>37</sup>. ICT seems to offer one promising solution to this overwhelming burden, but this is currently a distant reality for most systems.

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<sup>35</sup> See, for example, Ontario Ministry of Education, 2010.

<sup>36</sup> See, for example, Brown, n.d.; Christensen, 2012; and Dietel et al., 1991.

<sup>37</sup> As a probably unnecessary reminder, these include such responsibilities as lesson planning, preparation, and delivery, classroom and school management, participation in professional development, and sometimes the organization of extra-curricular activities, among many more.

## Extrinsic capacities required for effective continuous assessment

All of these continuous assessment functions and their associated capacities appear in the literature as core aspects of education knowledge and practice for which teachers might receive training and support to become more confident, adept, and effective. However, to repeat, as intrinsic capacities, they must still be paired with adequate extrinsic capacities in order for continuous assessment to occur properly and to yield significant impacts. This latter group of capacities refers alternately to:

1. the fundamental enabling conditions which both encourage and permit teachers to employ their respective 'intrinsic' capacities to the most positive effect; and
2. the ability of the system to operate effectively the overall continuous assessment programme and infrastructure and to integrate these with the other, centrally managed elements of the full learning assessment architecture; that is, integrating classroom-based assessment with large-scale, standardized assessments.

Many of these extrinsic factors, listed and discussed below, do receive treatment in the literature, though they are rarely discussed explicitly as necessary enabling pre-conditions for teachers to perform and use continuous assessment well. At the end of the list are a few which seem especially critical but receive slim to no attention in the research reviewed for this report. Specifically, the key extrinsic capacities comprise:

1. The organization and provision of **training and support** to teachers in the many continuous assessment functions;
2. The provision of **moderation** to monitor, support, and enforce quality assessment and fair grading in the classroom;
3. School-level **leadership** to guide and stimulate teachers in their effective conduct of continuous assessment and to improve the quality of their communication and use of the results;
4. The occurrence of **student-to-teacher ratios** which allow for meaningful interaction and feedback around continuous assessment;
5. The availability of adequate **documents and resources** for teachers to use directly for conducting continuous assessment or to guide them in designing suitable tools and strategies to use;
6. The provision of adequate material resources to **record, store, and disseminate** continuous assessment results to the relevant actors;
7. Valuing **soft skills** via their meaningful integration into the formal curriculum and measurement standards as well as by considering them formally in decisions about students' education pathways;
8. The designation of sufficient classroom **time** dedicated purposefully to conduct the full set of continuous assessment functions; and
9. The official **authorization** and encouragement of teachers to take significant decisions about their lesson planning and instruction based on continuous assessment results.

A general review of the extrinsic capacities reveals a range from more purely technical factors, which systems should be able to manage with targeted, discrete actions, to others which demand more of a 'sea change' in terms of policies, strategies, and/or investment. Technically, an education system might reasonably undertake, perhaps with the assistance of a donor partner, to produce, validate, and distribute a practical continuous assessment guide for measuring the mastery of both academic and soft skills. Similarly, it might create a continuous assessment items bank and instrument library where teachers might go to construct their own measurement tools and tasks. On the other hand, decisions about the curriculum, textbooks, teachers' authority over content and instruction in the classroom, class sizes, and other factors imply for a system weightier and likely more costly and longer-term initiatives. A more complete discussion of the different 'extrinsic' capacities follows.

## The organization and provision of training and support in continuous assessment

The complexity and diversity of continuous assessment functions described above cries out for a strategic, intelligent, modulated, and consistent approach to training and support. Such an approach would enable teachers to accumulate, cultivate, and employ better their competence and confidence in assessment (and other professional aspects) progressively over time. The process might ideally also engage teachers with colleagues as a community of professionals, building from each one's respective knowledge and their collective levels of ability and experience.

Training in continuous assessment should occur both in pre-service and in-service settings (Kanjee and Moloj, 2014, p. 109). It should 'reallocate resources to ensure that teachers have concentrated time and support to build their knowledge of formative assessment *within professional learning communities*' (Learning Point Associates, 2009, p. 14; italics added). In addition, it should not just happen as stand-alone modules but also, and perhaps routinely, be integrated into training on specific content topics and other pedagogic dimensions for which new assessment dimensions might be pertinent. Ultimately, such training and support are vital to the creation and maintenance of an overall 'supportive culture and network to reinforce best practices' in continuous assessment (Learning Point Associates, 2009, p. 14). Where such a culture is missing and training and support in continuous assessment are only superficial, if they occur at all, a reliance solely on a teacher's natural intrinsic capacities would seem hopeful at best and grossly unfair and unproductive to quality at worst.

## The provision of moderation to monitor, support, and enforce quality assessment and fair grading

Quansah (2005, p. 4) captures the guidance of many in stating that, 'for continuous assessment to have the effects envisaged, there must be an accompanying [external] moderation system aimed at authenticating the quality of tests set by teachers and the reliability of [the] marks [they] award<sup>38</sup>.' Such a system pertains especially to the summative purposes of continuous assessment. It serves mainly to verify the quality and fairness of continuous assessment, ensuring both that the official learning standards are covered adequately and that the grading adheres to approved and widely applied norms. Relevant to the formative purposes as well, moderation may double as a way to strengthen teachers' knowledge, skills, and performance of the core continuous assessment functions while also building their confidence in and commitment to the practice of these. Finally, it can implant among teachers the combined ability and habit of self-moderation, both alone and as a professional community of colleagues. Finally, the organization and operation of a system of moderation also has implications for both policy and programme implementation. As policy, moderation requires the elaboration of precise, 'explicit guidelines' and guidance for the nature, conduct, grading, and weighting of summative continuous assessments (Kapambwe and Chanda, n.d., p. 11). Programmatically, there must be agents with the skills, responsibility, and resources needed to provide and enforce such moderation at the school level<sup>39</sup>.

## School-level leadership in continuous assessment

The leadership of a school may alternatively bolster or undermine teachers in their use of continuous assessment, irrespective their intrinsic capacities (and inclinations). Which of these positions and behaviours a leader adopts may be a matter of one or more of a range of factors. These include, among others: (i) her/his own understanding, skills, and confidence with continuous assessment, (ii) the guidance or directives s/he receives from hierarchical superiors, (iii) her/his attitude towards and enforcement of such directives, and (iv) her/his overall relationship with and confidence in the school's teachers (and *vice versa*). In addition, the same school leader may take very different attitudes towards

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<sup>38</sup> See also, Onjewu, n.d.; Quansah, 2005; Reyneke et al., 2010; and Young, 2005.

<sup>39</sup> See also, Onjewu, n.d.; and Reyneke et al., 2010.

different aspects of continuous assessment. For example, s/he may actively promote teachers' application of continuous assessment techniques for summative purposes but then vigorously prevent them from delaying a lesson to review or remediate based on an assessment's formative results<sup>40</sup>.

There is widespread anecdotal evidence of school leaders' obstructing teachers from applying what they have learned in training or from adopting approaches which they have determined from experience and reflection would yield greater learning from their students. At the same time, it is widely acknowledged that a strong, innovative leader can help teachers excel even in the absence of meaningful training, external support, and other factors<sup>41</sup>. So, systems which themselves are committed to continuous assessment certainly want all their school leaders and other local education agents fully versed in and committed to its practice.

### The occurrence of suitable student-to-teacher ratios

The number of students in a classroom may have a sizable and significant impact on the amount and nature of continuous assessment a teacher can undertake as well as on the amount and usefulness of any feedback. This impact will be especially negative in classes with exceedingly high numbers of students, which in many parts of the developing world can reach well over a hundred. Still, is it any wonder why classroom-based continuous assessments in classrooms with even just 30 or 40 students so often involve multiple choice, true-false, short-format, and other discrete, fact-based right or wrong questions?

There are different policy and strategic actions that education systems might undertake in attempting to ensure that continuous assessment does not overwhelm the teacher and teaching but can still serve formative purposes well, even with large class sizes. One obvious policy would be to cut the number of required formal continuous assessments. (See the discussion of timing, below.) This might link to the promotion of formative over summative continuous assessment and involve guidance on how to merge the two. In the same vein, a system might emphasize the use of student self- and peer-assessment, providing teachers with training, models, tools, and support to do this. Finally, as a system's schools obtain reliable connectivity through ICT, at least some of the assessment burden may lighten as teachers conduct and score assignments virtually. ICT has also proven adept at providing students as well as teachers, parents, and authorities with almost immediate feedback on each student's performance along with concrete guidance and resources for remediation or enhancement, as relevant (see Brown, *op. cit.*).

### The availability of adequate documents and resources for continuous assessment

Both Uiseb (2009, pp. 21-65) and Alausa (n.d., pp. 2-3) report that many teachers 'lack skills in test construction, administration, and record-keeping of test marks<sup>42</sup>.' This clearly represents a serious impediment to the quality, relevance, consistency, and overall fairness of assessment design and outcomes. It would therefore seem valuable to provide to teachers a range of concrete elements which they might use or adapt for various continuous assessment purposes. These might comprise whole instruments, individual items, sample strategies, common or sample rubrics, and assessment templates, among other elements. In turn, they may be accessible in teacher guides, at resource centres, for purchase, via an ICT device, or by other means.

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<sup>40</sup> Indeed, it is not uncommon for various official education policies and strategies to be contradictory, as Schweisfurth (2011; 2013a; 2013b) explores deeply in her different studies of why learner-centred instructional methods fail so routinely to yield the expected improved outcomes.

<sup>41</sup> See, for example: Dietel et al., 1991; Dowrich, 2008; Duvall and Angelo, 2014; Kapambwe and Chanda, n.d.; Learning Point Associates, 2009; and OECD, 2005.

<sup>42</sup> See also, OECD, 2013.

Such resources will not necessarily eliminate entirely the need or interest of a teacher to construct new measurement tools; nor necessarily should they. In fact, they might offer to teachers a range of individual elements which they can borrow and, as appropriate, adapt to create their own tests, quizzes, and other assessment instruments. The availability of a sort of test or items ‘bank’ or other resource should help lighten that burden. At the same time, it might provide an extrinsic ‘scaffold’ to bolster teachers in raising their intrinsic capacities; and not just in the design of assessment tools and tasks but in all of the core functions of continuous assessment. Again, the growing presence of ICT in education should also serve greatly in this regard.

### The provision of resources to record, store and disseminate continuous assessment results

As Dowrich (2008, p. 54), Atsumbe and Raymond (2012, pp. 73-74), and Adaramaja (n.d., p. 10) all point out, there is also a more basic, though still important, dimension to the need for resources. Teachers require notebooks and other materials such as basic templates with which to record and maintain the relevant information from their assessments. Such templates might serve simultaneously as a guide and a reminder, or nudge, to teachers on the nature of information to seek, gather, analyse, and communicate from continuous assessment. These could also serve as another sort of scaffold to ensure that teachers provide the required information on students’ learning while also helping to bolster their growing capacities to do so (See Box 5).

#### *Box 5: Reporting soft skills in Ontario, Canada*

The Ontario Ministry of Education’s (2010, p. 137) standardized report card for all grade levels prompts (and, indeed, requires) every teacher to report on each of six soft skills areas: responsibility, organization, independent work, collaboration, initiative, and self-regulation. The template also furnishes teachers with clear criteria and rubrics to use in their appraisal of each area. Notably, besides providing a standardized way to appraise and report on these non-traditional aspects of learning, the form may also both prompt and guide teachers to pay greater—that is, more deliberate and strategic—attention to fostering these competencies in their classroom instruction.

More mundanely, some researchers also raise the need for logistical aspects such as furniture for the secure storage of student records and simple stationery supplies for communicating results to the respective stakeholders (Dowrich, 2008, p. 54). This might involve common forms for capturing students’ results to report to system-level authorities or simple report cards to send home to parents. The ability to use ICT for such purposes is gradually increasing and, again, should make things easier.

### Valuing soft skills

As discussed, the identification and measurement of soft skills and other personal assets certainly comprise capacities which teachers can (and should) master<sup>43</sup>. A combination of strategies would seem important, therefore, both to equip and to motivate, or even obligate, teachers to measure these rarely assessed skills. (Given how rarely these skills are covered in school, this would have the added benefit of encouraging their purposeful cultivation.) While assessing these competencies using standardized measures and tools is highly problematic (as discussed concerning the Rand Corporation and the Asia Society report (Soland et al., 2013, p. 32 on page 19), the potential for a truly robust and influential classroom-based continuous assessment of these has proven potential, particularly in the hands of capable teachers<sup>44</sup>.

<sup>43</sup> See, for example, Anyanwu, n.d.; Bolyard, 2005; Dietel et al., 1991; Hutchinson, n.d.; Kellaghan and Greaney, 2004; Looney, 2009; OECD, 2005; Popham, 2003; Quansah, 2005; Soland et al., 2013; and Wren, 2008.

<sup>44</sup> The background paper prepared for OECD by Lucas et al. (2012) provides a rich description of a pilot initiative in England to articulate with a group of educators a strategy for teaching and assessing the competency of creativity.

There would seem to be a critical need to train teachers, both current and new, in the nature, relevance, cultivation, and continuous assessment of these competencies; especially in this era of the Sustainable Development Goals (SDGs). Viewed thusly, the provision to teachers of guidelines, tools, rubrics, strategies, and other concrete methods for their continuous assessment should serve both a functional and a promotional purpose. Related resources might include stand-alone documents or tools and strategies which a system incorporates into textbooks and other official pedagogic materials.

Finally, it is important to note that advocacy for valuing the assessment (and teaching) of soft skills is necessary not just with teachers. Rather, as indicated by many educators and education authorities with whom this researcher has consulted over the years, it is also critical to raise awareness with the broader public of the great importance of fostering and measuring these competencies. Basically this enjoins a government to convince parents, authorities, and others that instruction in and the assessment of such competencies is not a distraction from more academic learning and students' educational prospects. Rather it is a vitally valuable enhancement. Ultimately, without these many extrinsic efforts, even the teacher who is most capable and committed as regards the teaching and assessment of soft skills will likely be stymied in any related efforts.

### The incorporation of sufficient time for continuous assessment

An obvious and considerable obstacle to the rigorous, balanced, and relevant use of continuous assessment as a central aspect of teaching and learning is the limited time available for its implementation. This is true both of its summative and, perhaps especially, of its formative purposes. Yet, time barely receives even a hint of mention in the literature; at least not in the large and random sample of studies consulted for this report. For continuous assessment to be fully effective, there must be adequate time for a teacher not just to probe the understanding and ability of *every student* but also to provide each with meaningful, targeted feedback and remediation. Looking across the range of continuous assessment methods, the time required to probe a student's learning and give feedback can vary considerably. However, when multiplying by a class size of 40, or of even half that number, the impact of even a momentary inquiry of each student on the total amount of instructional time in a class period can quickly become significant. Even more demanding on a teacher's time can be the preparation and the review and grading of scored continuous assessment assignments, as Quansah (2005, pp. 2-3) explains for lower primary teachers in Ghana (see Box 6).

#### *Box 6: Classroom continuous assessment in Ghana*

At the time of Quansah's (2005, pp. 2-3) calculations, policy established that every student should complete 11 graded continuous assessments per term for each of the five examined topics. Therefore, a teacher had to create (or select) at least 55 instruments per term. While this may already seem barely manageable, it translates into 165 graded assignments per student per year; or a total of 6,600 assessments that a teacher must mark, record, and provide at least some degree of feedback on for a class of 40 students. Quansah explains further that this number actually under-represents the full number of marked assignments, which was officially 19 per student per subject at the time, for a total of 11 400 marked assessments. Spending a mere five minutes grading and providing comments on each assignment, this latter total would require nearly 119 eight-hour days per school year, or well over half the total number of school days per year in most countries! Even the total of nearly 69 days per school year for the 6,600 figure defies reason.

It would seem that, largely for this reason, teachers become adept at finding shortcuts to check on what their students have and have not learned. The main aim seems to be to minimize the impact of continuous assessment on instructional time, allowing a teacher to proceed through the curriculum at a pace to complete it by the year's end. These time-saving methods, to repeat from the discussion on the highly related issue of class size, include the use of multiple-choice, true-false, and other short form assessment formats, for both formative and summative purposes; though in many contexts, formative assessment, particularly with feedback, barely occurs, if at all.

The pressure of time would seem also to explain teachers' frequent reliance on questioning just a few 'sentinel' students to get a sense of whether the whole class is grasping a particular concept or information. This may unhelpfully involve interrogating mainly the stronger students, essentially suggesting that the instruction was adequate for at least a few and thereby permitting the teacher to proceed with the lesson. Alternatively, a teacher might target the students who s/he perceives to be mid-level performers, satisfied to proceed if those at the presumed mean or mode can prove they have understood the lesson. In consulting the known weaker students, a teacher may instead aspire either to achieve 100 percent success or simply to be fair in giving them a chance to be involved and receive some quick feedback. Ultimately, the question that such short-cuts begs is to what extent does continuous assessment, under these conditions, lead to meaningful feedback and remediation and thereby truly link to improved teaching and learning?

The pressure of time may in reality be most influenced by the curriculum. Teachers in many developing countries say that they are convinced by the importance of continuous assessment. Yet, they explain, they simply cannot engage in such activities because they must complete the 'jam-packed' curriculum. This raises the question: What does covering the whole curriculum by the end of the year mean for students' learning of it? Might a dogged devotion to delivering the entire curriculum, *particularly at the expense of meaningful assessment and feedback*, contribute directly and perversely to poorer learning of the curriculum? Instead, what might be advantageous as a first step in terms of promoting quality learning would be to *decrease the content of a curriculum dramatically*. While perhaps a shocking and unlikely recommendation, Tanzania has already begun moving in this direction, reducing its primary curriculum to just three topics (Reading, Writing, and Arithmetic) and concentrating on the related skills (Kaboko Matus, personal communication, March 2016)<sup>45</sup>. Morocco, taking a different approach, has officially dedicated space in the curriculum and academic calendar for teachers to conduct effective and meaningful continuous assessment<sup>46</sup>. As assessment is used increasingly as a real pedagogic strategy rather than simply as a monitoring and evaluation tool, more students should learn the curriculum, and all of them should learn it better.

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<sup>45</sup> Pritchett and Beatty's (2012) research on 'The Negative Consequences of Overambitious Curricula in Developing Countries' is one of the rare studies of this phenomenon that the present researcher could locate on Google. In the abstract of their study, they argue that 'learning profiles are in part the result of curricular paces moving much faster than the pace of learning... and the country which goes faster has much lower cumulative learning.'

<sup>46</sup> Referring to the official Ministry of Education instructions on Time Organization for primary education, Abdelkader Ezzaki (personal communication, March 2016) reports that: 'The instructional programme... is implemented in 34 weeks annually, with six units distributed evenly over the two semesters of the year. Each unit lasts five weeks of school time. Four of these weeks are devoted to teaching new material while the fifth is devoted to diagnostic assessment and remediation.' The first week of the school year is to be spent on diagnostic testing and preparing the students for the curriculum of the new year, while teachers are supposed to use the seventeenth and thirty-third weeks for end-of-semester remediation. Ezzaki also reports that implementation of these directions is inconsistent.

In practice, less content to cover should provide teachers with the opportunity and motivation not simply to cover the curriculum as information for students to absorb to succeed on examinations. It should instead enable them also to concentrate more fully on the core objectives highlighted in the curriculum and to assess learning and provide feedback to heighten students learning. In addition, it should permit teachers to integrate other relevant and motivating content and to cultivate actively within their lessons the wide range of critical 21<sup>st</sup> Century skills, including self- and peer-assessment, thus equipping students better for both 'real' life and their future studies. Of course, the ministry units responsible for the national examinations should also be on board with this new approach to content and skills. Students must not be penalized for achieving learning which aims to equip them better for life and to contribute to national and local development but results in their performing poorly on high-stakes assessments.

### **The official authorization and encouragement of teachers to take significant decisions about their teaching**

Lastly, and virtually absent in the literature, continuous assessment loses much of its formative value if the system does not allow teachers to react to their students' learning outcomes with concrete decisions and actions about their lessons and instruction. Despite an assessment's showing that a class is not ready to proceed to the next lesson, teachers may decide not to react for a variety of reasons. One, as raised above, there may be no time as they sprint through the curriculum. Alternatively, they may lack the necessary skills, tools, strategies, and guidelines to provide meaningful feedback and conduct remediation. There may also simply be too many students, or they may not have the authority to adjust the timing or methods of their lessons, whether denied by the school director, inspectors, or the overall system.

Practically, a teacher must consider what the head teacher or school inspector would say if s/he found that teacher still working on last week's lesson in order to ensure that the students' comprehension was sufficient to proceed to the next section. Would the inspector applaud the initiative or would s/he correct and, perhaps, castigate the teacher for the delay, uninterested in any assessment-based justification? This researcher's experience across many countries suggests strongly that the latter consequence is the more likely one.

To capitalize fully on her/his intrinsic capacities in continuous assessment (and in other aspects of her/his profession), a teacher must be encouraged *and authorized* to make (defensible) decisions about all aspects of her/his lesson planning, preparation, delivery, and assessment. This is especially true of how s/he reacts in the event that continuous assessment reveals significant gaps between what a student has learned and the reference levels established as formal learning standards in the official curriculum. Otherwise, assessment remains limited primarily to its summative and accountability purposes and, again, instruction and assessment both occur with incomplete attention to learning.

### **Extrinsic capacities – summing up**

Interestingly, most of the research from which the list of extrinsic capacities derives actually attributes many of the associated shortcomings directly to teachers. That is, it characterizes failures in the quality and use of continuous assessment as intrinsic. Viewed from this perspective, even extrinsic capacities represent aspects for which a system should provide further training and support to teachers rather than undertake more substantive policy and programmatic solutions. This conclusion is even sometimes maintained when relating the viewpoints of teachers themselves<sup>47</sup>. (It should be said that this researcher is somewhat suspicious of such findings and their analysis, expecting that the responses are often influenced strongly by how the questions are formulated.)

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<sup>47</sup> See, for example, Atsumbe and Raymond, 2012; and Mewbaza, 2010.

For example, Kapambwe and Chanda (n.d., p. 11) place the first responsibility on ‘teachers... to improve the quality of [their] instruction,’ though they do admit that teachers ‘should [also] be supported in doing so by all the means at the disposal of the school.’ Similarly, they seem to expect that ‘Teachers’ creating assessments... ask... for expert feedback on the quality of assessments.’ While it is certainly legitimate for teachers to be proactive in seeking resources, assistance, and guidance to improve all aspects of their work, one might still wonder where the responsibility and initiative of local education trainers, advisors, and inspectors fits into the equation. Teachers may have some influence over these extrinsic capacities, but in reality, it is usually quite limited and highly vulnerable to the overall conditions of the school classroom and of the climate of the overall system.

Ultimately, it is the system that controls these extrinsic dimensions. Consequently, the preceding discussion will hopefully encourage leaders atop and across at least some national education systems, along with their many partners, to review and revise their continuous assessment policies, practices, and overall education environment by applying a joint intrinsic and extrinsic capacity lens. Specifically, this would engage them in seeking ways to equip, support, inspire, and authorize teachers more fully to take purposeful and strategic decisions by which to formulate, conduct, and utilize continuous assessment as an essential and effective instrument in their pedagogic arsenal to improve teaching and learning.

## Conclusion

The supreme value of continuous assessment to the achievement of quality education remains unchallenged in the literature. It is essential in alerting students, teachers, parents, systems, and other key actors to gaps in learning with a timeliness, precision, and breadth, which large-scale standardized assessments cannot match. Armed with such information,

**Students** can undertake additional study and practice and seek assistance from a variety of sources, among other actions,

**Teachers** can revise their lesson plans, repeat aspects of a lesson, modify their pedagogy, provide direct remediation to individual or groups of students, deepen their own understanding of the particular topic and ways to teach it, and more,

**Parents** may arrange for study help for a child at home, create more conducive conditions for studying, demonstrate greater interest and offer encouragement, address personal challenges a child may face, advocate and/or cooperate with the teacher and school, and take other measures, and

**Systems** might revise and strengthen various instructional and material inputs, provide further training and support to teachers, and enlist other ministries to improve the overall conditions of children and their families, among myriad other efforts.

The fundamental idea is that it is difficult to know what to fix in education (as in anything) if there are only generic and vague indications, regardless how robust, that something is wrong. The goal of continuous assessment is, then, to generate a highly detailed diagnosis; though this is much more easily said than done. To repeat from above, three major challenges jeopardize doing this. One is the imprecision or, sometimes, confusion concerning what continuous assessment entails in terms of actual strategies and purposes, linked closely to the distinctions between summative and formative assessments. The second and third are the need to secure the intrinsic and extrinsic capacities of teachers and other front-line educators to perform *and to use* continuous assessment effectively.

For those systems where these three challenges prevail, three major risks seem likely. First, the primacy of the high-stakes, large-scale, annual and multi-annual instruments may continue to drive decisions and actions at all levels of education, from classroom instruction to system-wide policy, plans, and budgets. This threatens education, which continues to favour information over knowledge and mechanical skill over practical application across just a few subjects from the full curriculum. Also at risk are the wide range of critical 21<sup>st</sup> Century competencies. The second challenge is that a system does choose to emphasize continuous assessment but does not act to strengthen the essential intrinsic and extrinsic capacities, risking a perversion of assessment practices and uses and a possible worsening of learning results. Third, the same prospect pertains if systems promote continuous assessment for summative purposes but neglect its vital formative intent.

Teachers must be able to use continuous assessment liberally and intelligently both *for* learning and *as* learning. This means most essentially considering continuous assessment in the classroom as *a vital pedagogic tool*; i.e., one which teachers and students alike can employ to check and guide their progress continuously in a constructive way. At the same time, systems can gather and analyse the cumulative results of continuous assessments, *even formative*<sup>48</sup>, to make decisions and intervene with training, supplementary materials, improved pedagogic methods, and other initiatives to promote greater quality in more targeted and timely ways.

The benefits of a full-fledged, quality-focused approach to continuous assessment should seem obvious, and the motivation should be high; but achieving this is neither trivial nor automatically obvious.

So how do education systems and their partners elevate concretely the use and *meaningful qualitative impact* of continuous assessment across schools? Most fundamentally, they must set this as a priority, devoting significant resources and political capital to its attainment. Embracing the challenge from a bird's-eye vantage, system leaders may wish to begin with a few almost existential questions, considered in order:

1. What are the knowledge, skills, behaviours, attitudes, values, and other assets which society needs most critically for the graduates (and even early leavers) of its education and training system to possess to participate effectively and with fulfilment in the economic, social, cultural, family, environmental, and other key spheres of life?
2. What education content and delivery methods are most likely to help students to acquire these many assets and also to permit and motivate them to continue to evolve these as conditions and opportunities change over their lifetimes?
3. What indicators will reveal most accurately students' progress in attaining these assets?
4. And lastly, what are the most effective and efficient ways of measuring, analysing, and communicating these indicators to inform the full range of actors responsible for one or more of the factors which affect their attainment and then to guide these actors in taking timely and significant actions?

While not excluding the possibility that the answers to these questions will also include large-scale, standardized assessments and other summative mechanisms, the contention is that continuous *and formative* assessment must feature prominently. The technical pathways to elevating the use and impacts of continuous assessment are fairly straightforward, though significant effort, resources, and commitment will definitely be necessary to accomplish this goal; and the way forward may take a long time. What is less obvious is the willingness of a system to make the more substantive, existential decisions to adopt and pursue this goal. Unfortunately, there is little prospect for a technical solution to succeed if the existential decision to educate and assess *differently* does not happen. Hopefully the information and analysis in this report might help tilt the balance towards this manner of willful and strategic action in at least a few settings.

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<sup>48</sup> As suggested above, the fact that a formative assessment may not result in a grade or some other quantitative appraisal does not prevent a teacher, or teachers, from communicating to education authorities the occurrence of specific learning gaps and from proposing, requesting, and/or stimulating institutional measures to help reverse the gaps with interventions at the appropriate level.

## Annex A: List of continuous assessment principles

- A. Gardner, J., Harlen, W., Hayward, L. and Stobart, G. 2008. *Changing Assessment Practice Process, Principles and Standards*. Assessment Reform Group, UK.  
<http://www.nuffieldfoundation.org/sites/default/files/JG%20Changing%20Assment%20Practice%20Final%20Final%281%29.pdf>
1. Assessment of any kind should ultimately improve learning.
  2. Assessment methods should enable progress in all important learning goals to be facilitated and reported.
  3. Assessment procedures should include explicit processes to ensure that information is valid and is as reliable as necessary for its purpose.
  4. Assessment should promote public understanding of learning goals relevant to students' current and future lives.
  5. Assessment of learning outcomes should be treated as approximations, subject to unavoidable errors.
  6. Assessment should be part of a process of teaching that enables students to understand the aims of their learning and how the quality of their achievement will be judged.
  7. Assessment methods should promote the active engagement of students in their learning and its assessment.
  8. Assessment should enable and motivate students to show what they can do.
  9. Assessment should combine information of different kinds, including students' self-assessments, to inform decisions about students' learning and achievements.
  10. Assessment methods should meet standards that reflect a broad consensus on quality at all levels from classroom practice to national policy.

Whilst it is possible to use these principles as evaluation criteria, it is more helpful to be specific as to how they apply at different levels in the educational system and for the formative and summative uses of assessment. By doing this we arrive at standards expressed as a quality of practice to which those working in four key communities—classroom, school, local authority and national policy – should aspire. (p. 16)

- B. Duvall, D. and Angelo, J. 2014. Building a culture of formative assessment through professional development. *Educational Designer: Journal of the International Society for Design and Development in Education*. Vol. 2, No. 7, pp. 1-17.  
[http://www.educationaldesigner.org/ed/volume2/issue7/article26/pdf/ed\\_2\\_7\\_duvall\\_angelo\\_14.pdf](http://www.educationaldesigner.org/ed/volume2/issue7/article26/pdf/ed_2_7_duvall_angelo_14.pdf)

There are **seven design principles** for successful implementation of this process.

1. **Shared vision:** stakeholders share an understanding of and commitment to the implementation of formative assessment across the district.
2. **Leadership:** leaders at all levels provide the leadership that moves the organization towards its goal.
3. **Research and evidence:** implementation decisions *must* be based on current research as well as recent district and school data.
4. **Resources:** successful implementation depends upon having sufficient human resources, materials, and funding.
5. **Teacher professional growth:** ongoing PD is provided to enhance teachers' understanding of formative assessment processes.

6. **Time:** successful implementation and sustained change take time.
7. **Community engagement:** parents, school councils, students, and other community members *must* be included in developing the vision and plans for its implementation.

C. OECD. November 2005. *Formative Assessment: Improving Learning in Secondary Classrooms, Policy Brief*. <http://www.oecd.org/edu/cei/35661078.pdf>

The OECD has developed **policy principles** to promote wider, deeper and more sustained practice of formative assessment and teaching that is responsive to student needs. They are:

- **Keep the focus on teaching and learning.**
- **Align summative and formative assessment approaches...** high visibility summative assessments are a significant barrier to formative practice. In addressing tensions, and to ensure stronger validity and reliability of summative assessments, policy officials should consider multiple measures of student progress.
- **Ensure classroom, school and system level evaluations are linked and are used formatively to shape improvements at every level of the system.**
- **Invest in training and support for formative assessment...** Teachers also need ways to translate abstract ideas into concrete practice. Policy can provide examples and tools to help teachers incorporate formative assessment in their regular practice.
- **Encourage innovation...** Policy makers and school leaders can encourage innovation by fostering confident teachers, peer support and involvement in research.
- **Build stronger bridges between research, policy and practice...** there is a pressing need for research on effective strategies for implementation and scaling-up.
- **Actively involve students and parents in the formative process.**

D. Mansell, W., James, M. and the Assessment Reform Group. 2009. *Assessment in Schools' Fit for Purpose? A Commentary by the Teaching and Learning Research Programme*. <http://www.tlrp.org/pub/documents/assessment.pdf>

ARG also identified ten principles for formative assessment practice, arguing that it should:

1. Be part of effective planning;
2. Focus on how pupils learn;
3. Be central to classroom practice;
4. Be a key professional skill;
5. Be sensitive and constructive;
6. Foster motivation;
7. Promote understanding of goals and criteria;
8. Help learners know how to improve;
9. Develop the capacity for self-assessment; and
10. Recognize all educational achievement.

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