

New Assessment Scenarios

Exploring new approaches to assessment and the role of technology: early findings

Objectives

- _ To explore the potential of innovative and valuable assessment practices.
- _ To build on current developments in technology supported assessment.
- _ To explore and describe possible ways-forward in the innovative use of technologies for assessment.

Rationale

Assessment is one of the main drivers of education with huge influence on what is taught and how it is taught. Innovative approaches to assessment will both enable and create novel teaching approaches. This project focuses on producing scenarios of innovative and valuable assessment methods that could be effectively supported by digital technologies in real and relevant contexts across a wide range of educational environments (primary and secondary for students and teachers). The outputs of this project will, on the one hand, inform policy makers and school leaders about the possible, probable and preferable future developments in the field of assessment. On the other hand, they will inspire practitioners to adopt novel assessment methods already in use in other contexts.

Updates and outputs will be posted on this web-page in due course: www.futurelab.org.uk/projects/assessment.

Methodology

The scenarios are being developed using a mixed methodology combining:

- _ participatory design involving experts from policy, industry and practice
- _ futures workshop based on the iterative exploration, over several sessions, of key themes and topics
- _ expert interviews
- _ literature and landscape review.

At this stage, each draft scenario is a simply a short narrative describing a hypothetical future for assessment. **The timeframe considered is 5 to 10 years.** They describe a **hypothetical future** where innovation is not only present in 'pockets', or the prerogative of few and far between teachers and schools, but more widespread and sustained.

In keeping with futures research, the scenarios represent a compromise between empirical observation/analysis of certain events and trends, and "aspirational" thinking. The exercise is based on balancing three sets of elements: what is possible, what is probable and what is preferable.

Please note that this project is ongoing and the three scenarios are now in the process of being validated and refined. The final versions might be significantly different.



Scenario 1: Interpretive Assessment

Teachers routinely perform holistic judgements of 21st century skills, like innovation and creativity. They are afforded the opportunities and the technological resources to make complex evaluations of learners' performances and traits. New types of assessments complement and in some cases replace traditional testing, and technology provides ways to support and standardise the process of holistic assessment, ensuring validity and reliability¹.

Amongst the key developments, there is the **new-found importance of 21st century skills, highlighted by new research that has succeeded in increasing international consensus** on how to identify and support such skills².

Thanks to this research, it has become apparent that complex dimensions like creativity and critical thinking need to be assessed in context and within authentic tasks.

This puts a different type of expectation on teachers and learners alike: teachers are required to draw on more sophisticated repertoires for their judgements; learners are expected to actively generate and present evidence about themselves, contextualising it in meaningful, real-life situations. **E-portfolios are widespread and they are filled with rich and complex data.**

Holistic Assessment is largely an interpretive activity, based on the ability to read and understand whole bodies of evidence rather than de-contextualised bits of information³. Teachers and learners equally contribute to the definition of criteria and to the development of flexible, adaptive frameworks. This helps them draw inferences and negotiate IDAs (Interpretations, Decisions, Actions) about the next formative steps.

1 See, for instance, **the seminal E-scape project**, in which dynamically generated e-portfolios were judged holistically in pairs, through an automated process that guaranteed rigour and reliability across judges. <http://bit.ly/MnIn>

2 Cisco Systems Inc., Intel Corporation and Microsoft Corp unveiled plans in January 2008 to sponsor a major research project to develop new approaches, methods and technologies for measuring the success of 21st-century skills. Five "founder countries" agreed to take part in the research and deployed pilot projects over the next years. The five were Australia, Finland, Portugal, Singapore and the United Kingdom. The project operated through five working groups, each of which reviewed the current state of development and proposed research and development activities to address deficiencies. Together, the working groups comprised individuals from more than 60 research institutions. **OECD and IEA, the leading global assessment agencies, both used the research findings in their major rounds of assessments: OECD in Program for International Student Assessment (PISA) 2012 and IEA in 2013.** <http://atc21s.org/home>

3 The new emphasis on holistic interpretation is supported by a rediscovery of "**hermeneutics**", **the theory of interpretation**, and its more practical implications. "At the most general level, hermeneutics characterises an integrative approach to combining sources of evidence in developing an interpretation. In this approach, readers seek to understand the "whole" body of evidence in light of its parts and the parts in light of the whole [...] this iterative process is known as the hermeneutic cycle. **Source: Moss et al, 2006 Review of Research in Education; 30; 109.**



Scenario 2: Community / Ecological Assessment

Attainment data is still prevalent but accountability processes have become more distributed and “local” and more open to different types of evidence. This allows schools to account for the ecological factors that influence performance at different levels, from the student level to the community level.

In England, **CVA (Contextual Value Added)** data becomes more relevant not just for struggling schools in deprived areas¹.

Accountability is increasingly organised around different types of evidence and the ability to gather such evidence. Amongst the main drivers, there are key policy developments in the UK and abroad that have increased school independence from LA influence², and have eased their access to funds to initiate and manage their own improvement plans³.

Schools are required to systematise and present different types of evidence according to shared and transparent standards, but they are also given freedom as to how to collect data and who to involve in the process.

Local inquiry processes are initiated in which schools take ownership of their ongoing improvement. Methodological expertise becomes more relevant and need to be fostered within the community⁴.

Crowdsourcing and social networking are used as tools to engage stakeholders and contribute to data gathering⁵. Technology is used to organise and visualise data in ways that support collective **Data-Driven Decision Making (DDDM)**.

The evidence is used as the basis for remedial action, or for further improvement, at a local level, engaging communities and other stakeholders. The process involves all aspects down to the pedagogies and instructional methods used in classrooms. New models like the **Support Model** are implemented to increase responsiveness and to support formative assessment⁶.

1 “Because this measure of progress takes account of not only the pupils’ prior attainment, but also other factors such as the level of deprivation they experience, their special educational needs, and ethnicity and gender, it provides an important measure of the ‘school effect’ – the difference made by the school itself. If a school is doing relatively well with the pupils it has, whatever its context, its CVA indicator will be positive. As Dylan Wiliam, Professor of Educational Assessment at the Institute of Education, University of London, wrote: ‘CVA is – by a long, long way – the best measure of the quality of education provided by a school’.” **Source: Ofsted, Using Data Improving Standard, 2008** <http://bit.ly/cQE2V>

2 Shortly after taking office (in 2010) the UK education secretary, Michael Gove, wrote to all schools in England inviting them to apply to become academies. The move means opting out of local authority control and being given funding directly, including the extra money usually given to the local council to provide educational services. **Source: The Guardian, Friday 25 June 2010,** <http://bit.ly/bY4jBi>.

3 In 2010, the US Institute of Education Sciences awarded grants to 20 state education departments for the design and implementation of state-wide longitudinal data systems. These grants, funded through the American Recovery and Reinvestment Act (ARRA) of 2009, are intended to **support states with the development and implementation of systems that promote the linking of data across time and databases, from early childhood into career, including matching teachers to students, while protecting student privacy and confidentiality** consistent with applicable privacy protection laws. The total value of the three-year grants will range from \$5.1 million to \$19.7 million. **Source: US Department of Education** <http://bit.ly/cKqiQM>

4 See, for example, **Data Wise: A Step-by-Step Guide to Using Assessment Results to Improve Teaching and Learning**, edited by Kathryn Parker Boudett, Elizabeth A. City, and Richard J. Murnane, published by Harvard Education Press in 2005. The model consists of 3 steps which are further subdivided in 8 steps. The main assumption behind the model is that school improvement efforts are likely to be more effective if responsibility for data interpretation is shared amongst school community members. The model suggests that members should develop “assessment literacy”, an understanding of how to read and interpret different types of data (quantitative and qualitative) about learners and the school. Although this can be initially supported by outsiders, such knowledge needs to become part of the larger community’s repertoire (see also Moss et al, 2006).

5 See, for example, <http://hive.arkansas.gov>. “The goals of this project were to address each of the problems identified in the pilot project and incorporate participant suggestions on how to modify the system. It was decided that a new visualization tool should be created that would allow educators to more easily manipulate data. The tool must also allow educators to upload their own local data and use the same visualization tools for analysis of local data. To help alleviate problems associated with educators having little time to come together for data analysis, it was decided that social networking tools be included in order to facilitate asynchronous collaboration. To prevent contextual biases from corrupting the analysis, a stepwise framework and protocol for data analysis, specific to the type of data being examined, would need to be developed.” **Source: <http://bit.ly/bYHKbU>**

6 “In any context when we need to assess understanding it is possible, at least in principle, to replace the difficulty model with the support model, to measure how much help students need to succeed instead of how often they fail. Instead of measuring how high a high jump bar they can clear without help, we propose to measure how high a level of support they need to clear any bar, however high it seems at first” (source: Ahmed, Ayesha and Pollitt, Alastair(2010) ‘The Support Model for interactive assessment’, *Assessment in Education: Principles, Policy & Practice*, 17: 2, 133 – 167).



Scenario 3: Enhanced instructional planning

The challenges of implementing formative assessment, despite widespread consensus about its effectiveness, have highlighted the need for **increased professional development for teachers**. This has led to significant changes in the nature of pre-service and in-service teacher training, which are now beginning to provide practitioners with the skills and the support they need to successfully implement formative practices such as:

- _ **classroom dialogue;**
- _ **feedback through marking;**
- _ **peer and self assessment;**
- _ **formative use of summative tests¹.**

The teacher is now more central than ever: an **expert orchestrator** managing complex learning situations, where students, resources (e.g. technology) and the curriculum interact dynamically².

Formative assessment is indistinguishable from “good” pedagogy, which cannot be improvised but demands informed yet flexible instructional planning.

The change in role from presenter of content to orchestrator of active, self-directed learning means **more demanding professional tasks for teachers**, and the need to develop and implement **clear pedagogic strategies³**. Teachers draw on the latest methods to encourage argumentation and rich formative interactions between them and the learners, and amongst learners: feedback is distributed and free-flowing.

As for the role of technology, on the one hand it provides **tools to support collaborative instructional planning** and to share ideas and resources amongst practitioners, on the other it provides **tools to capture and evaluate classroom interactions in real time**, prompting fast and responsive adaptation.

1 Black, P., & Wiliam, D. (2006) Assessment for Learning in the Classroom, In Assessment and Learning, edited by John Gardner.

2 “Orchestration refers to designing and conducting ‘integrated’ learning scenarios, i.e. scenarios that combine individual activities (reading, summarizing,...), team activities (arguing, explaining, problem solving,...) and class-wide activities (lecturing, debriefing,...). **The teacher has such a key role to play when conducting these complex scenarios that I dare to describe our technologies as being ‘teacher centric’**”. Source: Dillenbourg, P. (2010). Technologies for Orchestration. Presented at World Conference on Educational Multimedia, Hypermedia and Telecommunications 2010. See also Laurillard et al. (2009). Implementing Technology-Enhanced Learning.

3 **For example, micro and macro-scripts**, which have been developed in the field of CSCL [Computer Supported Collaborative Learning]. Scripts are “a kind of pedagogical method to be used in open settings (schools, universities; Dillenbourg and Jermann 2007). CSCL scripts can vary from rather psychology-oriented scripts (micro-scripts) to rather pedagogy oriented larger-grained scripts (macro-scripts; Kobbe et al. 2007). **A micro-script models a process to be internalized by students, and is designed to scaffold the interaction process per se**. As examples, micro-scripts will make a student state a hypothesis and will prompt a peer to produce counter-evidence, or will constrain interactions by prompting turn taking or imposing an argumentation grammar (Kollar et al. 2006). **A macro-script is rather a pedagogical method that aims at producing desired interactions**. Macro-scripts are based on indirect constraints generated by the definition of the sequence of activities, the characteristics of the groups or the technological-setting proposed functionalities and/or interface. Macro-scripts aim at triggering high-order thinking activities involving complex cognitive processes such as elaborating on content, explaining ideas and concepts, asking thought-provoking questions, constructing arguments, resolving conceptual discrepancies or cognitive modeling [Kobbe et al. 2007]”. Source: Tchounikine, P. (2008) Operationalizing macro-scripts in CSCL, Journal of Computer-Supported Collaborative Learning (2008) 3:193-233.