Measuring learning gain (0333)

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Abstract

Learning Gain – the attempt to measure the different ways in which students benefit from their learning experience – is now a core part of the Government's plans for higher education (BIS 2016a). A focus on student outcomes is signalled in the new Higher Education White Paper and learning gain is a key strand of inquiry in the Teaching Excellence Framework consultation (BIS 2016b). New approaches to quantifying learning gain and new metrics are being developed through 13 HEFCE-funded pilot projects across England. Challenges to measuring learning gain, particularly disciplinary difference, are explored. The theoretical underpinnings of the metrics analysed include behavioural, cognitive and affective approaches, as well as progress and outcome measures. Policy implications are discussed, including the use of metrics to drive enhancement, rank excellence and ensure quality and standards.

Measuring learning gain

Teaching excellence, learning gain and student engagement are becoming key cornerstones of English higher education. However, each term covers many different areas, including student engagement as a proxy for learning gain, which in turn is an outcome of teaching excellence. Despite the lack of definition, the development and use of metrics across the sector is increasing—including new questions proposed for the National Student Survey (NSS); the full launch of the HEA's UK Engagement Survey (UKES); and learning gain pilot studies as part of the developing Teaching Excellence Framework.

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Challenges to measuring learning gain

There are considerable challenges and many of the metrics can take a long time to measure. Research has shown that that there is disciplinary bias in standardised tests and surveys (Buckley 2013; Surridge, 2006; Marsh & Cheng, 2008). There are multiple entry and exit measures some of which some are not easily or directly comparable. Motivating students to take part in tests outside their degree course and tracking them over time can also be a struggle (Liu, Bridgeman & Adler 2012). And questions arise about the reliability of student self-reporting (Pike 1995).

To measure learning gain you need to know where any given student started. You need to account for the huge variety of entry qualifications, from home, EU and international students. This includes everything from BTECs, A-levels to portfolios and performances. There also needs to be an exit measure. The primary measure of learning gain is in terms of grades and degree classification. But even this is not as simple as it might seem given that over 70 per cent of students finish with at least a 2:1 (HESA 2016).

Approaches to measuring learning gain

Analysing data from the first year of 13 HEFCE-funded pilot projects provides insight into approaches to measuring learning gain. They are trialling a variety of affective measures including: surveys of students' self-efficacy, well-being, disposition and confidence. Behavioural measures also include student engagement, involvement in placement and work-based learning, skills self-assessments, learning patterns and learner analytics. Using multiple approaches, tools, and techniques to measure learning gain, the pilot projects are mapping out the student learning journey.

Tools and techniques to measuring learning gain include student surveys, skills self-assessments, standardised tests and questionnaires, learner analytics as well as qualitative approaches. Most of the projects make comparisons with learning gain metrics and grades as an outcomes measure. However exit grades provide little granular detail to make comparisons. Cognitive skills development is used as an outcomes measure, including disciplinary and generic skills development. Additional outcomes measures include employability, including measures of career readiness, adaptability and sustainability.

Four key attributes have been identified to measure learning gain: longitudinal or cross-sectional design; validity; representativeness; and comparability across disciplines, institutions and countries (McGrath et al 2015). All of the projects involve longitudinal or cross-section design, and several incorporate both approaches running simultaneously. The validity of the metrics is important in several ways. Is the method used measuring what it is intended to measure? But relatedly, are the right aspects being measured?

All of the projects combine multiple metrics to be able to explore the validity of the instruments and approaches. Representativeness is important in terms of institutional type, subject mix and student characteristics. The projects utilise different approaches to sampling and targeting, and several projects include the entire student population which ensures coverage across student characteristics. Comparability is a significant challenge, particularly when working across multiple disciplines.

Implications of measuring learning gain

Exploration of learning gain in a policy context will be considered, alongside implications for students, academics and policymakers. The use of learning gain metrics in other countries provides a basis for analysis, such as the wide-scale use of engagement metrics in North America, the use of national standardised out-going exams in Brazil and the development of standardised written exit exams like the Collegiate Learning Assessment, the basis for the work of Arum & Roska's *Academically Adrift* work (2011).

A key policy question is what metrics are currently used to drive enhancement, rank excellence and ensure quality and standards, and how do the proposed learning metrics compare. Are gaps being addressed or created? Does measuring learning gain change who is in the conversation about quality in higher education?

Why, despite existing in a Key Performance Indicator-driven environment, do proposed Teaching Excellence Framework metrics draw such ire and angst? Can metrics be designed to support enhancement and a positive teaching and learning environment, possibly subverting the neoliberal agenda?

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