Serial number	0200
Title	Assessing the potential of graduate attributes as a measure of learning gain
Session	Merits and challenges of measuring learning gains for learning, teaching and assessment: Lived experiences of 78,531 students at 16 universities. (Rogaten)
Submitter	Prof. Rhona Sharpe, Dr. Stephen Broughton

Assessing the potential of graduate attributes as a measure of learning gain

Introduction

Learning gain researchers have started to move beyond cognitive measures to investigate the development of skills such as team working skills (Varsavsky et al. 2014; Cabrera, Colbeck and Terenzini, 2001) and time management (Stolk & Martello, 2015). These studies use questionnaires and this reliance on self-report data is a significant challenge to the learning gain field as it explores behavioural gain. Critics of these instruments have questioned the extent to which respondents can reliably recall behaviour, understanding of the words and concepts used in surveys (Porter, 2013).

At Oxford Brookes University, graduate attributes are understood as the skills and capabilities that allow students to apply their disciplinary knowledge to new contexts. Five graduate attributes were defined in 2010: academic literacy, digital and information literacy, research literacy, critical self-awareness and personal literacy and active citizenship. Every programme team has contextualised these generic definitions for their discipline, mapped their development over the course of the programme, and revised their learning outcomes to reflect these changes. In order to assess the impact of embedding graduate attributes into the curriculum, a graduate attributes scale was developed as part of its student engagement survey, which is distributed biannually to non-final year students. Student engagement surveys seek to measure the extent to which students have participated in university and course activities.

The primary purpose of the current study was to scrutinise the extent to which engagement surveys can accurately capture the learning gains that students make in terms of their behavioural development, with a specific focus on: using technology to work with others and reflect on and record learning, working with others, setting and evaluating personal goals and engaging with the community.

Method

The graduate attributes scale was developed from the definitions of the graduate attributes and piloted through cognitive interviewing. In order to gather feedback on how students were interpreting the graduate attributes scale of the engagement survey, a daily log was developed which asked students to indicate how long they spent in activities for each item on the scale

and to describe what they were doing during these activities and how they felt about it. The study was advertised to first and second year students via posters and in class. Seven students (2 first year, 5 second year) were recruited to the logs study from a range of disciplines and of these four attended follow up interviews which elicited more information on their students' learning activities and reflections on their development while at university.

Results

There were data 54 daily log entries, collected from seven students over two weeks. Table 1 shows the variation in individual hours spent on each activity per day.

Table 1: Mean (mode) time per day spent on each activity

Student (Number of entries)	Using technology to collaborate with others or engage with online communities e.g. wikis, online forums, discussion boards, social media	Using technology to reflect on and record your learning e.g. blogs, e-portfolios, mindmaps, learning diaries	Working with other students on course projects or assignments	Setting personal goals and evaluating your own performance against them	Working with students from other cultures or countries e.g. in groupwork, team projects	Participating in, as part of your course, in activities or projects which engage with the community
A (10)	**3.10** (4–5)	**0.55** (0–1)	**0.15** (Nil)	**0.30** (Nil)	**0.00** (Nil)	**0.40** (Nil)
B (5)	**0.20** (Nil)	**0.00** (Nil)	**0.20** (Nil)	**0.00** (Nil)	**0.20** (Nil)	**0.00** (Nil)
C (10)	**0.05** (Nil)	**0.00** (Nil)	**0.20** (Nil)	**0.00** (Nil)	**0.00** (Nil)	**0.00** (Nil)
D (10)	**0.30** (Nil)	**1.75** (2–3)	**0.40** (Nil)	**0.45** (0–1)	**0.20** (Nil)	**0.30** (Nil)
E (5)	**0.70** (Nil)	**0.10** (Nil)	**0.06** (0–1)	**0.00** (Nil)	**0.40** (0–1)	**0.00** (Nil)
F (10)	**1.50** (2–3)	**2.55** (4–5)	**0.50** (Nil)	**0.45** (0–1)	**0.41** (Nil)	**0.23** (Nil)
G (3)	**1.50** (1–2)	**0.83** (0–1)	**0.67**	**1.17** (1–2)	**0.17** (Nil)	**0.00** (Nil)

The open responses provided rich descriptions of these activities. Initial analysis of the logs shows that students are undertaking a very wide range of activities which contribute to the development of their graduate attributes. For example, in order to develop the digital literacy attribute, students reported that they were: discussing essays with friends on Facebook, browsing forums, editing a group work essay with Google doc, participating in group work remotely, designing a questionnaire on google forms while discussing it on whatsapp, writing reflective assignment in Word, audio recording a lecture, group work in google slides making a presentation, using Word as a planning tool to draft an essay, using Pinterest to see how to present work. It is noticeable that these activities are largely self-directed and self-organised.

Responses also show that students don't always value activities designed to develop their attributes, especially around working with others e.g. "No group work [today], only self study. I felt I could concentrate more while working alone and work and progress on my own ideas rather than having to adjust and compromise too much." (first year Architecture student).

Discussion

The main finding is that although the attribute scale of the engagement survey was designed to measure the impact of embedding graduate attributes into the curriculum, students are not necessarily thinking about curricula based activities when they are answering the questions. There are implications for current discussions in the sector of the contribution institutions, and their curricular, make to learning gain.

Student engagement surveys are established in North America as a measure of cognitive learning gains such as critical thinking (Kuh, 2009). In the UK, 29 higher education institutions are using the UK variant of the engagement organised by the Higher Education Academy. Engagement surveys are an important evaluative tool because they purport to show what students actually do, and there is a link between reported engagement activities and skills development (Neves, 2016). This study provides greater insight into how students are interpreting and answering these questions. The limitations and implications of this research will be explained during the presentation.

References

Barrie, S. C. (2007). A conceptual framework for the teaching and learning of generic graduate attributes. *Studies in Higher Education, 32*, 439–458.

Cabrera, A.F., Colbeck, C.L., & Terenzini, P. T. (2001) Developing performance indicators for assessing classroom teaching practices and student learning: the case of engineering. *Research in Higher Education*, **42**(3), 327-352.

Haigh, M., and Clifford, V.A., (2011). Integral vision: a multi-perspective approach to the recognition of graduate attributes. *Higher Education Research and Development*, **30**(5), 573–584.

Kuh, G., (2009). The National Survey of Student Engagement: Conceptual and empirical foundations. *New Directions for Institutional Research*, **2009**(141), 5–20.

Neves, J., (2016). *Student Engagement and Skills Development: the UK Engagement Survey.* York, UK: Higher Education Academy.

Porter, S. R. (2013) Self-reported learning gains: a theory and test of college student survey responses. Research in Higher Education, 54, 201-226.

Stolk, J.D. and Martello, R. (2015) Can disciplinary integration promote students' lifelong learning attitudes and skills in project-based engineering courses? *International Journal of Engineering Education*, **31**(3), 434-449.

Varsavsky, C., Matthews, K.E. & Hodgson, Y. (2014) Perceptions of science graduating students on their learning gains. *International Journal of Science Education,* **36**(6), 929-951.