An Innovative Framework for Higher Education to Evaluate Learning Gain: A Case Study Based Upon the Discipline of Marketing

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Abstract

The value for money of UK undergraduate degree courses is under increasingly critical scrutiny. Understanding the level of learning achieved by students on any particular course has therefore become of paramount importance as an indicator of teaching quality. The change to the learning that a student undertaking a course has acquired can be expressed as being their 'learning gain' and this paper applies a course level lens to investigate this using an innovative bottom-up approach which considers both the distance travelled by each student (explicit knowledge), and also their journey travelled (tacit understanding). Benchmarking learning gain data was collected from undergraduate marketing students, and gaps in perceived learning were identified. Changes to the teaching were implemented to address issues identified, and data was collected from the next cohort of students for comparison. Students reported significant improvements in learning after the changes in teaching had been implemented.

Keywords: marketisation; marketing education; teaching excellence framework; learning gain; higher education; teaching quality.

Introduction

Based upon the high cost of studying in Higher Education (Callender and Jackson 2008; Temple et al. 2016; Tomlinson and Kelly 2018), and an aversion to student loan funding (de Gayardon, Callender and Green 2019), the value of a degree course is now being challenged (Chapleo and O'Sullivan 2017; Roohr, Liu and Liu 2017) with the result that educators need to be able to objectively evaluate the effectiveness and impact of their own teaching (Cameron, Wharton and Scally 2018; Evans, Kandiko Howson and Forsythe 2018; Liu et al. 2016; Wood and Su 2017). Only by ensuring that individual students receive an optimal educational experience can universities hope to justify the fees that they charge, fees which students are increasingly starting to question (Marginson 2018; Tomlinson 2016). As a direct

result, the assessment of student outcomes and learning within Higher Education is now becoming common (Caspersen, Smeby and Aamodt 2017; Gossman, Powell and Neame 2018), although the justification for undertaking such assessments may vary considerably (Douglass, Thomson and Zhao 2012; Van Damme 2015). Evans, Kandiko Howson and Forsythe summarise the position as follows:

> Internationally, the political appetite for educational measurement capable of capturing a metric of value for money and effectiveness has momentum. While most would agree with the need to assess costs relevant to quality to help support better governmental policy decisions about public spending, poorly understood measurement comes with unintended consequences (2018, 1).

Consequently, student learning outcomes/learning gains are now considered to be key indicators of teaching and learning excellence within the UK Teaching Excellent Framework (Department for Business, Innovation & Skills 2015; Gunn 2018).

Whilst the Higher Education Policy Institute recognises that 'we do not yet have any usable measures of learning gain' (2016, 16), the goal of evaluating the learning of students is about generating a foundation upon which the continuous improvement process of teaching can be positioned. To do this, an understanding of the effectiveness of current methods is required (Cahill, Turner and Barfoot 2010) so that the quality of the student learning experience can be enhanced. As summarised by Polkinghorne, Roushan and Taylor (2017c), Rand Europe reviewed the national and international measures for such an evaluation of student learning (McGrath et al. 2015) and as a result, five key methodological approaches were highlighted, these being:

- Grades;
- Standardised tests;
- Self-reporting surveys;

- Mixed methods;

- Qualitative methods (personal reflection).

The Office for Students has recently concluded an investigation into the appropriateness of these five approaches for use within UK universities (2019) with an extensive project in which seventy universities/colleges piloted, and evaluated, these agreed approaches for measuring the learning gain of students across thirteen projects. From this research it was concluded that:

> The sector needs to consider whose interests are best served by the measurement of learning gain. Evidence gathered here indicates that there is a dichotomous view of learning gain: as a marker of institutional positioning within a market-oriented system; or, as a process of progression throughout the student journey (Office for Students 2019, 9).

Considering the lens of student progression, the research described in this paper seeks to explore an original alternative model that will enable educators to evaluate the effectiveness of their own teaching, and so improve the levels of student learning achieved. The innovative new model developed by Polkinghorne, Roushan and Taylor (2017b) integrates both student explicit knowledge (subject learning that can be codified and verbalised), and tacit understanding (experience and practical application), to create a unique two-dimensional evaluation of student learning. This new model therefore represents a conceptual leap beyond existing pedagogical thinking as defined by McGrath et al. (2015), and is thought to have the potential to lead to transformational change across the sector if widely adopted.

The Polkinghorne, Roushan and Taylor (2017b) model itself has already successfully undergone initial small-scale testing using final year BA Business Studies project students at Bournemouth University. Where the model identified that teaching was not demonstrating significant impact on student learning, appropriate actions were adopted by the teaching staff,

which were subsequently reviewed against the model's results to assess improvements achieved.

It was identified that further research is now required to understand how the conceptual model responds to different learning environments, teaching styles and discipline areas. As part of this on-going process, this research study considers use of the model within a business and management teaching environment using a medium sized cohort (100+ students) of second year undergraduate students studying a unit focussed on the discipline area of *marketing*. This paper therefore investigates how the learning of such students can be evaluated using the innovative new model, thereby enabling academics to optimise the effectiveness of their own teaching, and so ensure demonstrable impact and therefore positive value for money can be achieved.

Considering learning gain

Student learning performance at university can be linked to many factors including motivation (Liu, Bridgeman and Adler 2012), previous qualifications, gender and ethnicity and socio-economic background (Jones et al. 2017). These behavioural, sociocultural, psychological and holistic perspectives (Maskell and Collins 2017; Neves and Stoakes 2018; Parker 2018; Standford et al. 2017;) map directly on to Kahu's framework of student engagement (2013). Normative measurement (individual performance), instead of ipsative testing (relative performance), can be the most effective way to compare the learning of students (Evans, Kandiko Howson and Forsythe 2018) and assessing such student learning is now one of the drivers for measuring student performance in terms of value added and learning gain (Caspersen and Smeby 2018).

Although often considered as being synonymous, value added is based on the comparison between performance predicted at the outset of studies and actual performance

achieved (McGrath et al. 2015, p xi), whereas learning gain is defined as being the 'distance travelled by [a] student across two points in time in terms of skills and competencies, content knowledge and personal development' (Office for Students 2019), i.e. 'value added and distance travelled are contextualised and decontextualised aspects of learning gain' (Cameron, Wharton and Scally 2018, 84). How learning gain is defined is for individual Higher Education institutions to decide for themselves (Andrade 2018), but according to Arico et al., 'learning gain is now prominent when considering the effectiveness of higher education' (2018, 249) and learning gain measures should 'inform pedagogy and… be concerned with maximising learning and teaching effectiveness' (Evans, Kandiko Howson, and Forsythe 2018). Nevertheless, there is also a need to consider 'the individual learner, and [to] ask them what they gained and how they value it' (Baume 2018, 52) and to contemplate how, what and where learning and teaching has been delivered (Gok 2018; Kinoshita, Knight and Gibbes 2017; Macfarlane 2016; Ojennus 2016; Pickering 2017; Scalise, Douskey and Stacy 2018; Standford et al. 2017; Stonebraker 2017; Vercellotti 2018; Wiggins et al. 2017; Ylonen, Gillespie and Green 2018).

Judging a student's theoretical mastery by grades is no longer sufficient (Caspersen and Smeby 2018) as we also require complementary practical experience to ensure competency in a chosen discipline: 'instructional strategies are generally not sufficient for effective learning' (Balta et al. 2017, 66). Evaluation is therefore required to determine the learning gain of students relating to both theoretical and practical knowledge. According to Boud (2018), the current system of university marking relates to assessing student performance against defined learning outcomes and so does not necessarily relate to the learning that they have gained, and may also be very discipline specific (Ylonen, Gillespie and Green 2018). There is also a lack of commitment across the Higher Education sector for testing students twice a year, which would be required for an organisation to assess changes

in learning (Aloisi and Callaghan 2018). In a study by Arico et al. (2018), concerns were raised regarding the potential linkages between quantitative measures of learning and performance management (2018, 261), however the same concerns are not apparent with regard to self-reflection. Furthermore, US evidence demonstrates that 'self-reported [student] data... displays good correlation with student Grade Point Averages (GPAs) and perform better than standardised tests' (Arico et al. 2018, 251). Emotional reactions are known to often influence own student self-evaluations (Anderson 2016, 338), but this reflective approach may offer value in terms of enabling an assessment of student learning gain to be undertaken and could therefore be carried out at the end of a course of study, thereby removing the need for repeated testing (Douglass, Thomson and Zhao 2012). The conclusion of several studies concur that the hypothesis that student self-evaluation can be a supportive component of learning (Caspersen and Smeby 2018; Speight et al. 2018), and may even promote additional individual private study activities (Aynsley, Nathawat and Crawford 2018, 488).

Furthermore, 'positive changes in student behaviours brought about through a goal mastery pedagogy could present opportunity for learning gain measurement because we know that such behaviours are linked with the productive acquisition of skills, knowledge and attitudes' (Forsythe and Jellicoe 2018, 115).

In summary, whilst students may experience a personal learning journey (Sefton-Green 2017), most existing studies into learning gain (Pampaka et al. 2018; Tadesse, Gillies and Campbell 2018; Wiggins et al. 2017; Vermunt, Ilie and Vignoles 2018), have considered this purely using quantitative methods, and it is now apparent that there is a growing appetite across the sector to investigate more self-evaluation based reflective approaches as they are considered to be administratively less of a burden, but still have the potential to provide a helpful indication of a change in a student's own perceptions and behaviours. Such primarily

quantitative data could be captured using a series of Likert scales and work undertaken by Turner et al. (2018) has evidenced the potential effectiveness of this approach.

Research approach and method

This paper reports on a multi-method research study considering both secondary and primary sources of data:

Secondary data collection

The strategy used for reviewing existing academic, and related grey literature, was archival. In addition to public domain and governmental sources, the specific archival databases accessed included Academic Search Complete, British Library Ethos, CINAHL Complete, Complementary Index, Directory of Open Access Journals, Education Source, ERIC, PsycInfo, Science Direct, Supplemental Index and the Teacher Reference Centre. Considering the fast-moving nature of Higher Education, priority was given to relevant peer reviewed papers and reports published since 2017.

Key search string terms utilised for this study included Higher Education, university, learning gain, student learning, marketisation, teaching excellence framework and student experience.

Primary data collection

An interpretivist philosophical position has been adopted to derive meaning from social action, and an inductive approach used to enable the creation of theory and understanding from incomplete data (Saunders, Lewis and Thornhill 2016). Primary data collection was based upon the use of self-reflective surveys collecting ordinal (ranked) data. Question design was derived from an alternative model for evaluating the learning gain of students within Higher Education first proposed by Polkinghorne, Roushan and Taylor (2017c). This model

differs from alternative solutions as it independently considers the dimensions of student learning in terms of *Distance Travelled* (explicit knowledge) and *Journey Travelled* (tacit understanding). In this context, explicit knowledge relates to subject learning that can be codified and verbalised e.g. models, theories and tools, whereas tacit understanding relates to practical experience and know-how. The original research by Polkinghorne, Roushan and Taylor (2017b) proposes that only by considering both of these two-dimensions of learning, can we optimise the education of individual students, and so personalise their educational experience. This model therefore represents a conceptual leap beyond existing pedagogical thinking, and the purpose of this research study is to explore its practical application.

A Likert scale (Likert 1932) operating across the descriptive range '*No Change*' - '*Minor Improvement*' - '*Moderate Improvement*' - '*Significant Improvement*' - '*Exceptional Improvement*' was employed for assessing the thoughts and views of participants in response to questions relating to both of these two dimensions. The use of the descriptive linguistic labels for each point on the Likert scale was employed to increase the validity and reliability of the data obtained.

In each case, the student participants were asked to reflect upon how much their own personal learning had advanced through the study of the course by asking them questions relating to both *Distance Travelled* and also to *Journey Travelled*. Analysis of the pilot test data was undertaken to ensure that the data being collected was meaningful, and that internal reliability was satisfied, i.e. that the questions grouped under *Distance Travelled* related to changes in a student's own understanding of explicit knowledge, and that the questions grouped under *Journey Travelled* related to changes in a student's own abilities to use knowledge.

The four *Intended Learning Outcomes* for the Marketing course being considered in this research study were:

1. Demonstrate a clear understanding of marketing principles and practice;

2. Describe marketing environment and specific marketing problems. This allows students to demonstrate both intellectual/cognitive and transferable skills;

3. Demonstrate an ability to develop appropriate marketing solutions to marketing problems, allowing demonstration of both intellectual/cognitive and transferable skills;

4. Demonstrate an ability to apply appropriate marketing techniques across a range of market sectors.

As detailed below, eight questions were therefore developed that all related to the *Intended Learning Outcomes* of the course being taught. These questions consider each student's own personal reflection on their learning from studying the marketing course, and, by considering the individual responses, the Polkinghorne, Roushan and Taylor (2017b) model proposes that a student level perspective can be created, and by combining results across a cohort of students, a course level perspective can also be provided.

Questions relating to Distance Travelled

- Q1 - How much has your understanding of marketing principles increased?

- Q2 - How much has your understanding of marketing practice increased?

- Q3 - How much has your understanding of the marketing environment increased?

- Q4 - How much has your understanding of specific marketing problems increased?

Questions relating to Journey Travelled

- Q5 - How much has your ability to identify marketing problems improved?

- Q6 - How much has your ability to develop appropriate marketing solutions improved?

- Q7 - How much has your ability to demonstrate transferable skills improved?

- Q8 - How much has your ability to apply appropriate marketing techniques improved?

Discriminant validity (Bell, Bryman and Harley 2018) was applied by ensuring a clear distinction between the words used to express questions relating to both *Distance Travelled* and subsequently to *Journey Travelled* so that there was no possibility of the Likert responses for one construct (question) overlapping with those of another construct. The pilot testing was undertaken using an independent group of participants to ensure questions were understandable without any scope for ambiguity or confusion, i.e. face validity as defined by Saunders, Lewis and Thornhill (2016). Also, from the pilot, an assessment was made regarding the time to complete, the transparency of the instructions and the clarity of the layout.

The time-horizon for the research was longitudinal to enable the divergence of two sets of data collected 12 months apart, with the rationale that analysis of the first set of benchmarking data collected would generate recommendations for changes to the delivery of teaching, and then analysis of the second set of comparison data collected would provide an indication of the impact that these changes have had on the leaning of the students. Data collection was undertaken online using the Bristol Online surveys platform with the benchmarking data itself being collected in both May 2018 and then subsequently the comparison data being collected in May 2019. Sampling was based upon a self-selection purposive strategy from a heterogeneous student population in which the major defining characteristic was that of gender.

This research had ethical approval granted by Bournemouth University and has been undertaken within the strict regulations described in the organisation's ethical code of practice (ethical reference 25624). To comply with ethical requirements, all data was collected anonymously, students participated in the research on a voluntary basis, analysis of

the data was undertaken by an independent academic not associated with teaching on the course, and the analysis of the actual data obtained was delayed until after end of year marks for the course in question had been agreed and published.

Benchmark data collection (2018)

For the 2018 data collection benchmarking exercise, a total of 59 students from the Marketing course delivered as part of the BA Business Studies undergraduate degree volunteered for the programme which represented 37 Male (62.7%) and 22 Female (37.3%) participants. The Likert responses collected were divided into positive and negative answers defined by Table 1.

	Likert Terms Used	Code
Negative	No Change	0
	Minor Improvement	1
Positive	Moderate Improvement	2
	Significant Improvement	3
	Exceptional Improvement	4

Table 1. Coding of Likert Scale Learning Responses

The rationale for this polarisation was founded upon the need to educate students. Whilst students learn in different ways, and with varying degrees of success, it was agreed that a *Significant Improvement* in the level of learning was the normal expectation at undergraduate level. *Moderate* and *Exceptional Improvements* in learning therefore offered lower and higher acceptable alternatives. However, it was considered that a course, from which a student had gained only a *Minor Improvement* in learning (or below), had failed to achieve its important fundamental purpose of positively changing a student's understanding and perceptions:

The education delivered to students is often transformative in nature, and this change in perceptions, values and understanding needs to be captured (Polkinghorne, Roushan and Taylor 2017a, 223).

Results from the 2018 benchmarking exercise were considered at three distinct levels, as described in Table 2, to provide an indication of the change in learning being reported by students:

1. Combined responses for *Moderate Improvement, Significant Improvement* and *Exceptional Improvement* in learning (all positive responses),

2. Combined responses for *Significant Improvement* and *Exceptional Improvement* in learning (expected and above expectation responses),

3. Responses for *Exceptional Improvement* in learning only (above expectation responses).

Responses are detailed in Table 2 and illustrated in Figure 1. A further sorted list of these results is detailed in Table 3 which more easily identifies which questions were reporting the highest percentage of students reporting positive learning, and which were reporting the lowest percentage of students.

	Combined Responses for *Moderate, Significant & Exceptional Improvement*	Combined Responses for *Significant & Exceptional Improvement*	Responses for *Exceptional Improvement* only
Q1	74.6%	30.5%	1.7%
Q2	81.0%	22.0%	0.0%
Q3	76.3%	30.5%	0.0%
Q4	67.8%	22.0%	0.0%
Q5	77.9%	20.3%	1.7%
Q6	73.8%	16.9%	0.0%
Q7	79.7%	32.2%	0.0%
Q8	79.6%	28.8%	0.0%

Table 2. Combined Positive Learning Results from the 2018 Benchmarking Exercise
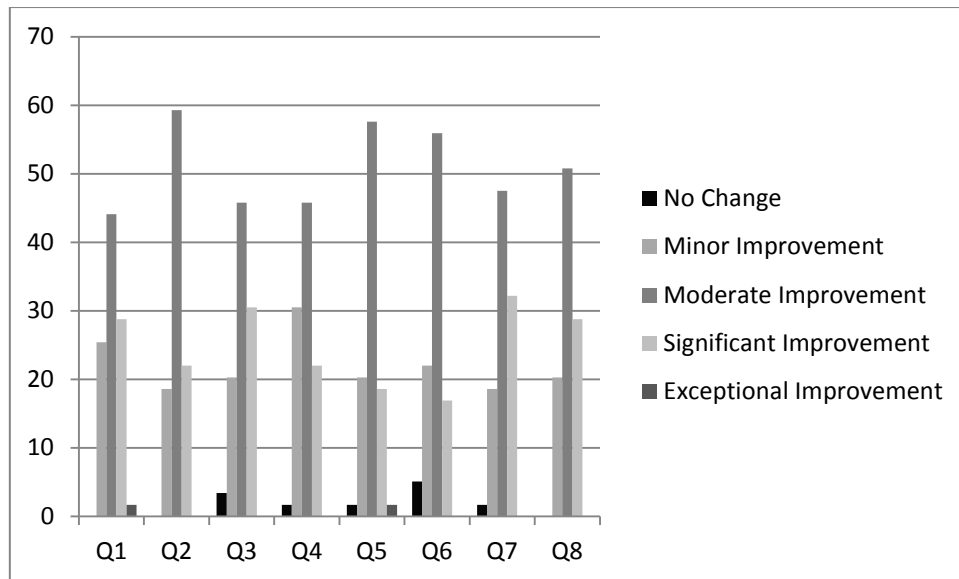
Figure 1. 2018 Complete Benchmarking Data Collection Responses to Questions 1 to 8

Based upon the 2018 benchmarking results, and considering the combined positive responses for *Moderate, Significant* and *Exceptional Improvement* in learning, a high percentage of students reported particularly strong learning for Question 2 *(How much has your understanding of marketing practice increased?)*, Question 7 *(How much has your ability to demonstrate transferable skills improved?)* and Question 8 *(How much has your ability to apply appropriate marketing techniques improved?)*, but a much lower percentage of students reported positive learning responses for Question 1 *(How much has your understanding of marketing principles increased?)*, Question 4 *(How much has your understanding of specific marketing problems increased?)* and Question 6 *(How much has your ability to develop appropriate marketing solutions improved?)*.

Sorted Combined Responses for *Moderate, Significant & Exceptional Improvement*		Sorted Combined Responses for *Significant & Exceptional Improvement*		Sorted Responses for *Exceptional Improvement* **only**	
Q2	81.00%	**Q7**	32.20%	**Q1**	1.70%
Q7	79.70%	**Q1**	30.50%	**Q5**	1.70%
Q8	79.60%	**Q3**	30.50%	**Q2**	0.00%
Q5	77.90%	**Q8**	28.80%	**Q3**	0.00%
Q3	76.30%	**Q2**	22.00%	**Q4**	0.00%
Q1	74.60%	**Q4**	22.00%	**Q6**	0.00%
Q6	73.80%	**Q5**	20.30%	**Q7**	0.00%
Q4	67.80%	**Q6**	16.90%	**Q8**	0.00%

Table 3. Sorted Combined Positive Learning Results from the 2018 Benchmarking

Exercise

Eliminating the *Moderate Improvement* responses from the analysis, the highest percentage of students reporting positive learning was then reported for Question 1 *(How much has your understanding of marketing principles increased?)*, Question 3 *(How much has your understanding of the marketing environment increased?)* and Question 7 *(How much has your ability to demonstrate transferable skills improved?)*, and the lowest percentage of students reporting a positive improvement in learning was for Question 4 *(How much has your understanding of specific marketing problems increased?)*, Question 5 *(How much has your ability to identify marketing problems improved?)* and Question 6 *(How much has your ability to develop appropriate marketing solutions improved?)*.

Considering reported positive responses for just *Exceptional Improvement* in learning, only Question 1 *(How much has your understanding of marketing principles increased?)* and Question 5 *(How much has your ability to identify marketing problems improved?)* attracted a responding percentage of students.

Question 1 had overall had a lower percentage of students reporting positive learning in comparison to the responses collected for the other seven questions when *Moderate*, *Significant* and *Exceptional Improvement* in learning were considered. The analysis reveals that Question 1 did in fact have one of the highest percentages of students reporting positive learning when *Significant* and *Exceptional Improvement*, and also when only *Exceptional Improvement* were subsequently considered. This result would imply that although fewer students reported positive learning in respect of Question 1, the learning that was reported was at a higher level.

There was strong evidence that the overall positive results were biased towards *Moderate Improvement* with no students reporting an *Exceptional Improvement* in their learning against six of the eight questions asked (Figure 1), and conversely only a very low percentage of students ($< 5\%$) reporting *No Change* in their learning.

Too many students were observed to be reporting only a *Minor Improvement* in their learning and the challenge for the academic team was therefore to make changes to the teaching which would enable the migration of this element of the next student cohort into a position in which they would be able to reflect more positively upon the educational experience that they had gained from studying the course.

Applying the code for each Likert term as defined in Table 1, and subsequently calculating the mean code per *Question* from the data collected revealed an average of approximately two which represents a reported *Moderate Improvement* in student learning.

Using this approach, Question 4 *(How much has your understanding of specific marketing problems increased?)*, Question 5 *(How much has your ability to identify marketing problems improved?)* and Question 6 *(How much has your ability to develop appropriate marketing solutions improved?)* reported the lowest mean improvements in

learning as detailed in Table 4, and so these were the subject areas of primary academic attention in an effort to raise learning standards.

Q1	2.07
Q2	2.03
Q3	2.03
Q4	1.88
Q5	1.98
Q6	1.85
Q7	2.10
Q8	2.08

Table 4. Mean Likert Codes from the 2018 Benchmarking Exercise

As a direct consequence of these results, and as part of the University's continuous improvement process, the teaching team reviewed the lecture and seminar material being used, to identify how learning could be improved in the following three areas:

- Q4 - How much has your understanding of specific marketing problems increased?
- Q5 - How much has your ability to identify marketing problems improved?
- Q6 - How much has your ability to develop appropriate marketing solutions improved?

The following changes to the learning and teaching provided on this marketing course were designed for implementation in the subsequent academic year for which data would be collected in 2019:

- Increased emphasis on identifying marketing issues,
- Increased emphasis on understanding marketing issues,
- Increased emphasis on solving marketing issues.

The case studies used, and supporting seminars provided, were focussed around the above central themes. Integrated within each seminar was a more regular opportunity to relate the learning to the assignment, so that students would recognise that this assessment was an on-going process to be undertaken throughout the course, with incremental developmental steps each week.

Comparison data collection (2019)

Further data collection was undertaken in 2019 so that a comparison could be undertaken against the 2018 benchmarking data. For the 2019 data collection, a total of 50 students from the Marketing course delivered as part of the BA Business Studies undergraduate degree volunteered to participate in the programme which represented 18 Male (36.0%) and 32 Female (64.0%) participants.

Once again, results were separated into those which were positive, and those which were negative, using the separation detailed in Table 1, with results then being considered at same three distinct levels (Table 5).

	Combined Responses for *Moderate, Significant & Exceptional Improvement*	Combined Responses for *Significant & Exceptional Improvement*	Responses for *Exceptional Improvement* only
Q1	90.00%	54.00%	10.00%
Q2	89.90%	49.00%	8.20%
Q3	84.00%	56.00%	6.00%
Q4	90.00%	48.00%	8.00%
Q5	85.70%	44.90%	8.20%
Q6	74.00%	42.00%	8.00%
Q7	86.00%	34.00%	4.00%
Q8	89.80%	51.10%	8.20%

Table 5. Combined Positive Learning Results from the 2019 Comparison Exercise

In contrast to the 2018 benchmarking data, the 2019 comparison data indicated that the percentage of students responding positively (*Moderate Improvement, Significant Improvement* and *Exceptional Improvement*) to their learning had increased. For example, in the 2018 study, the percentage of students reporting a positive response ranged from 67.8% (Question 4) to 81.0% (Question 2), whereas in the 2019 study the percentage of students reporting a positive response ranged from 74.0% (Question 6) to 90.0% (Questions 1 and 4) which represents an across the board step change in reported learning.

When considering the positive responses of just *Significant Improvement* and *Exceptional Improvement,* in the 2018 study, the percentage of students reporting a positive response ranged from 16.9% (Question 6) to 32.2% (Question 7), whereas in the 2019 study the percentage of students reporting a positive response ranged from 34.0% (Question 7) to 56.0% (Question 3) which once again represents an across the board step change in reported learning.

In the case of the positive responses for *Exceptional Improvement,* in the 2018 study, the percentage of students reporting a positive response ranged from 0% (Questions 2, 3, 4, 6, 7 and 8) to 1.7% (Questions 1 and 5), whereas in the 2019 study the percentage of students reporting a positive response ranged from 4.0% (Question 7) to 10.0% (Question 1) which once again represents an noteworthy uplift in responses.

In summary, whilst the percentage of students reporting a *Moderate Improvement* in their learning increased between 2018 and 2019, the proportion of students considering their learning to be a *Significant Improvement* had dramatically improved, with a sizeable further proportion of students now willing to report their learning against the questions asked as being of an *Exceptional Improvement.* These results changes are detailed in Table 6, and are further illustrated in Figure 2, in which the upward trend in reported results across the eight questions is evidenced.

Sorted Combined Responses for *Moderate, Significant & Exceptional Improvement*		Sorted Combined Responses for *Significant & Exceptional Improvement*		Sorted Responses for *Exceptional Improvement* only	
Q1	90.00%	Q3	56.00%	Q1	10.00%
Q4	90.00%	Q1	54.00%	Q2	8.20%
Q2	89.90%	Q8	51.10%	Q5	8.20%
Q8	89.80%	Q2	49.00%	Q8	8.20%
Q7	86.00%	Q4	48.00%	Q4	8.00%
Q5	85.70%	Q5	44.90%	Q6	8.00%
Q3	84.00%	Q6	42.00%	Q3	6.00%
Q6	74.00%	Q7	34.00%	Q7	4.00%

Table 6. Sorted Combined Positive Learning Results from the 2019 Comparison
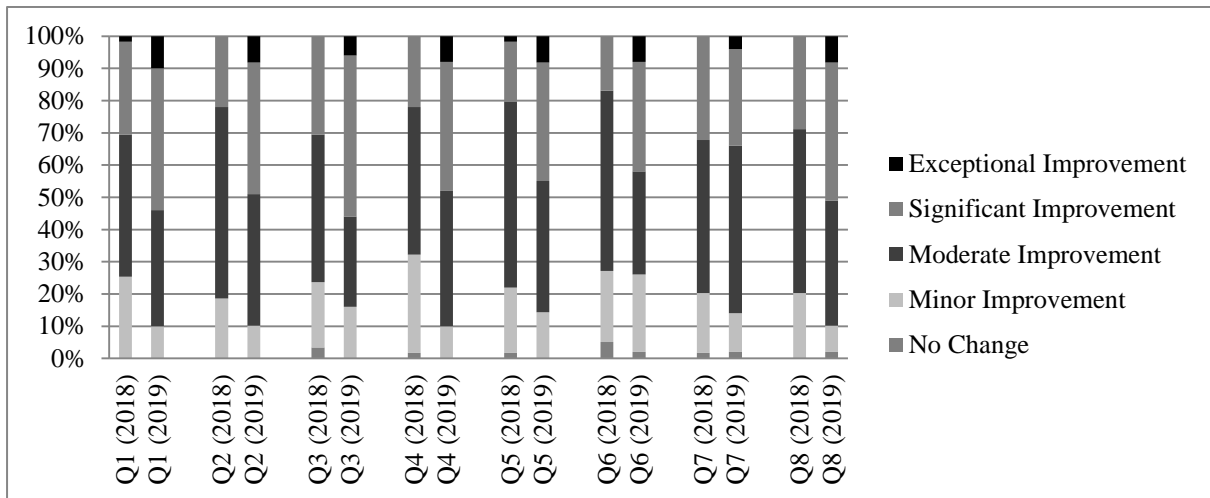
Exercise

Figure 2. Comparison of 2018 and 2019 Responses for Questions Q1 to Q8

Considering the targeted questions identified in the benchmarking data as reporting the lowest learning (Questions 4, 5 and 6), reviewing the learning reported in 2019 compared to the 2018 benchmarking data reveals the following upward trends, details of which are provided in Table 7.

	Combined Responses for *Moderate, Significant & Exceptional Improvement*			Combined Responses for *Significant & Exceptional Improvement*			Responses for *Exceptional Improvement* only		
	2018	2019	Change	2018	2019	Change	2018	2019	Change
Q4	67.8%	90.00%	+22.2%	22.0%	48.0%	+26.0%	0.0%	8.0%	+8.0%
Q5	77.9%	85.70%	+7.8%	20.3%	44.9%	+24.6%	1.7%	8.2%	+6.5%
Q6	73.8%	74.00%	+0.2%	16.9%	42.0%	+25.1%	0.0%	8.0%	+8.0%

Table 7. Reported Improvement in Learning - 2018 Benchmarking Data and 2019

Comparison Data for Questions 4, 5 and 6

Regarding Question 4 *(How much has your understanding of specific marketing problems increased?)*, the 2019 comparison data reveals a 22.2% increase in those students with a positive response (*Moderate Improvement, Significant Improvement* and *Exceptional Improvement)* with this question now registering the joint highest recorded learning alongside Question 1 *(How much has your understanding of marketing principles increased?).* Furthermore, there is a 26% increase in students responding with *Significant Improvement* and *Exceptional Improvement* which represents an overall perceived improvement in the quality of the learning. 8.0% of students reported *Exceptional Improvement* compared to 0.0% previously for this question.

Considering Question 5, there was only a modest 7.8% increase in positive learning responses for the combined *Moderate Improvement, Significant Improvement* and *Exceptional Improvement* results, however this translates to a 24.6% increase in students responding with *Significant Improvement* and *Exceptional Improvement*, 6.5% of students reporting *Exceptional Improvement* compared to 1.7% previously.

With respect to Question 6, whilst there is only a minimal 0.2% increase in overall positive learning responses when combining the results for *Moderate Improvement, Significant Improvement* and *Exceptional Improvement*, there remains a 24.6% increase in

students responding with *Significant Improvement* and *Exceptional Improvement* which indicates an upward trend is learning, of which 8.0% of students reported *Exceptional Improvement* compared to 0.0% previously.

A review was undertaken using the mean Likert code results for the 2018 benchmarking data collection, and the 2019 comparison data, which revealed improvements in the mean codes of between 20% and 30% (Table 8).

	2018	2019	Change
Q1	2.07	2.54	+22.82%
Q2	2.03	2.47	+21.56%
Q3	2.03	2.46	+21.09%
Q4	1.88	2.46	+30.78%
Q5	1.98	2.38	+20.55%
Q6	1.85	2.22	+20.33%
Q7	2.10	2.22	+5.61%
Q8	2.08	2.47	+18.72%

Table 8. A Comparison of 2018 and 2019 Mean Likert Codes

Representing one of the key target areas for improvement in this academic year, Question 4 registered the highest increase in mean Likert code. In contrast, Question 7 reported the lowest increase in mean Likert code, but it should be noted that this Question had previously reported the highest result in 2018 and was therefore already reporting at an advanced level of learning when compared to the remaining Questions.

Of important note, as demonstrated in Table 8, no questions recorded a drop in learning which the research team had considered to be a possible outcome due to the new concentration on improving academic areas connected to Questions 4, 5 and 6. In reality, as evidenced by the data, this potential reduction did not happen, with all questions registering an improvement in learning.

Evaluating learning gain

In order to evaluate the change in learning gain that students reported in the 2018
benchmarking data collection, and subsequently in the 2019 comparison data collection,
results for Questions 1 to 4 were grouped together in accordance with the Polkinghorne,
Roushan and Taylor (2017b) model on the basis that these four Questions represent the
Distance Travelled by the student in terms of explicit knowledge. In addition, the results for
Questions 5 to 8 were grouped together as these represent the *Journey Travelled* by the
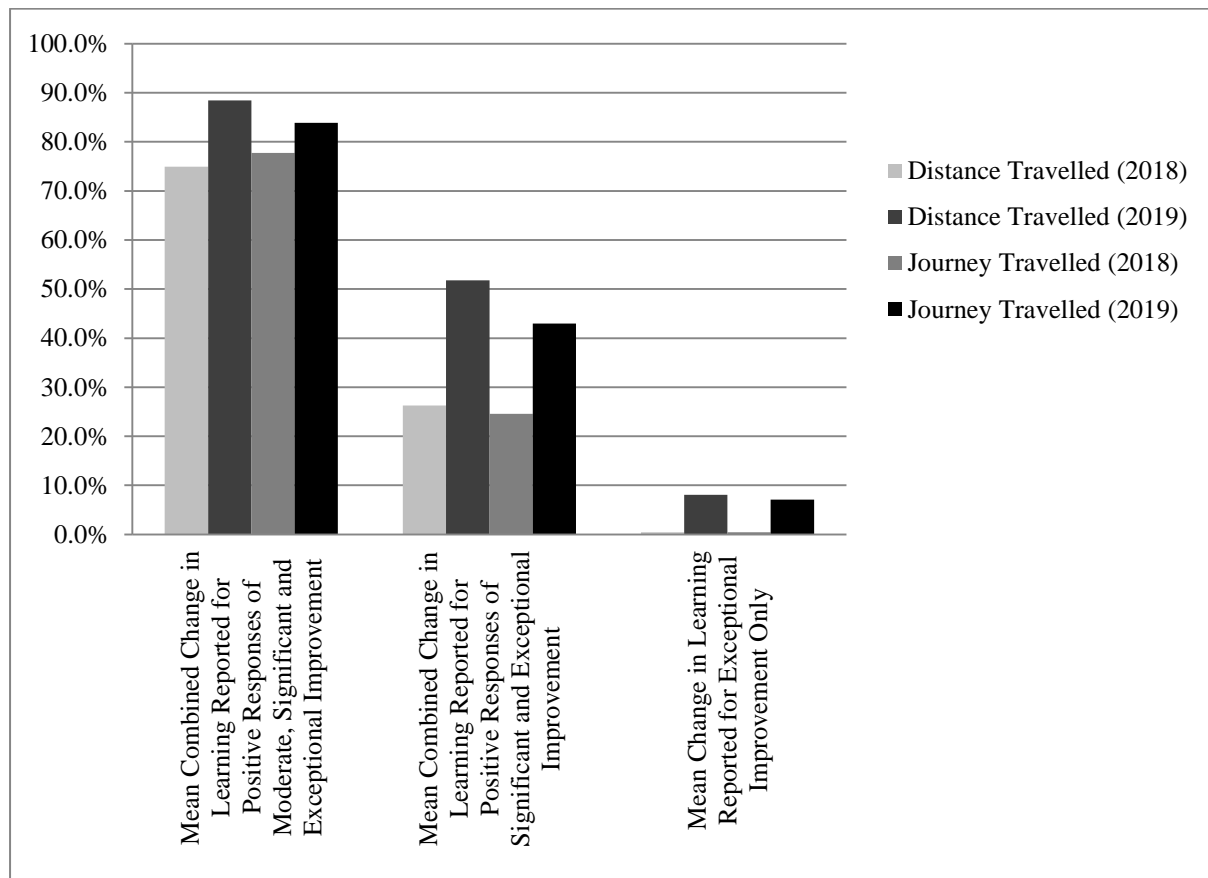student in terms of tacit understanding.

**Figure 3. Comparison of 2018 and 2019 Data for _Distance Travelled_ and _Journey_
Travelled**

As illustrated in Figure 3, considering the combined positive responses of *Moderate*
Improvement, Significant Improvement and *Exceptional Improvement*, the mean Likert code
results for 2019 data for *Distance Travelled* and *Journey Travelled* are 13.5% and 6.1%

higher respectively in comparison to the 2018 data. When then considering the combined positive responses for just *Significant Improvement* and *Exceptional Improvement*, the mean Likert code results for 2019 data for *Distance Travelled* and *Journey Travelled* have increased by 25.5% and 18.5% respectively, and in the case of the combined positive responses for only *Exceptional Improvement*, there are results registered for both *Distance Travelled* (7.6%) and *Journey Travelled* (6.7%) whereas previously in 2018 there were negligible discernible results recorded.

Considering more specifically the cases of four individual example students, identified as being *Students A to D* for discussion purposes and which are detailed in Table 9. *Student A* has self-reflected that they considered that their own personal learning with regard to both *Distance Travelled* and *Journey Travelled* has generated *Exceptional Improvement*. Conversely, Student B has self-reflected a comparatively low level of learning that falls between *Minor Improvement* and *Moderate Improvement* for both *Distance Travelled* and *Journey Travelled*. Student C has recognised a medium level of learning for *Distance Travelled* falling between *Moderate Improvement* and *Significant Improvement*, and a low level of learning for *Journey Travelled* falling between *Minor Improvement* and *Moderate Improvement*, whereas Student D has reported a diametrically contrasting situation in which they have reported a medium level of learning for *Distance Travelled* falling between *Moderate Improvement* and *Significant Improvement*, and a high level of learning for *Journey Travelled* falling between *Significant Improvement* and *Exceptional Improvement*.

	Distance Travelled	Journey Travelled	Comment
Student A	4	4	High Distance Travelled & High Journey Travelled
Student B	1.5	1.5	Low Distance Travelled & Low Journey Travelled
Student C	2.75	1.5	Medium Distance Travelled & Low Journey Travelled
Student D	2.5	3.25	Medium Distance Travelled & High Journey Travelled

Table 9. Example Individual Student Results for *Distance* and *Journey Travelled*

Threats to Validity

The comparison between only two consecutive groups of students considered within this research provides a useful indication of potential impact, but it also means that to more fully establish the effectiveness of the method used, a more long-term data set is required (5 years plus) to ensure that any conclusions drawn have an increased level of validity.

It has been noted that in the benchmarking study, the data collected was 62.7% Male, whereas in the comparative study it was 64.0% Female. A further investigation, and more in-depth study, is therefore required to determine if gender is a significant factor in the learning gain variations being reported by students, and this will be the focus of a subsequent paper.

Conclusion

This research was undertaken in response to the increasing need to justify the value for money of UK degree courses, and the resulting pressure to improve teaching so that students, who now view themselves as being the consumers of Higher Education (Brooks 2018), consider that they are receiving the quality of education for which they are paying.

It was thought that the learning gained by students on a course might be a useful indicator of the effectiveness of the teaching methods and materials used, and an innovative model for evaluating learning gain previously published (Polkinghorne, Roushan and Taylor 2017b) was selected to explore this proposition further. The model involved asking students eight questions at the end of their study period, all of which related to the intended learning outcomes of their course, the first four questions being based upon the *Distance Travelled* by each student, and the remaining four questions being connected to their *Journey Travelled*. In this context, *Distance Travelled* by each student is about the explicit knowledge that they have gained (rules, models, tools and theories) whereas *Journey Travelled* is the tacit understanding obtained (experience and practical application).

Undergraduate second year Business Studies students completing a Marketing course were selected for this study, and benchmarking data was collected in 2018. From this data, and using the eight selected questions, it was clear that the students were reporting more perceived learning in some areas, and less in others. The three areas reporting the lowest levels of learning were targeted, and focussed additional pedagogic activities were undertaken when teaching the next cohort, with comparison data being collected in 2019 to identify any changes in learning that had occurred as a result.

When comparing the 2019 data against the original 2018 data, notable improvements in the learning being reported was evidenced across the board, with a general uplift in results, and particular improvements against the targeted learning areas that had been subjected to specific academic attention. Of special interest was the increase in students prepared to self-report *Exceptional Improvements* in their learning.

Testing this model for evaluating the learning gain of students on a single course, and across just two cohorts of students, does not categorically prove its effectiveness, as there are too many other potential influencing factors, such as the quality of the students accepted by the university on each cohort involved may have been different. However, at a time when universities in the UK are seeking to address, and improve, their National Student Survey (NSS) standing in the league tables, any mechanism that helps enable students to recognise and acknowledge their own learning is undeniably helpful.

We must also apply the caveat that in the case of students, their views about what they want are sometimes flatly contradicted by research evidence about what is good for them (Higher Education Policy Institute 2016, 14). Based upon this, responding to measures of student satisfaction is a dangerous game that may have the unintended result of devaluing the quality of the education that we provide, in order to satisfy students that they have received the education that they desire.

In this study, the questions in the learning gain model used relate to the intended learning outcomes of the course being considered. In view of this, feedback from students regarding where they are struggling to learn, and where teaching delivered is not being as effective as expected, can feed directly back into a university's continuous improvement process. Through this mechanism, a genuinely positive contribution to raising teaching standards, and helping to engage students, can be made. Furthermore, any such actions undertaken will help to enable students to take more responsibility for their own learning, and so become an integral part of the educational process from which they are ultimately benefitting.

Of course, this whole approach does assume the sensible selection of appropriate learning outcomes in the first place; hopefully, these would be learning outcomes that 'reflect the knowledge, skills, and abilities valued by employers and [that are] aimed at preparing graduates for twenty-first century challenges' (Andrade 2018, 47). As educators, this is one responsibility that is within our control to achieve without external influence, although in the experience of the authors, this very fundamental foundation upon which our teaching is based is too often overlooked in practice, resulting in out of date and ineffective learning as a direct consequence.

Whilst further testing is necessary, the preliminary results presented in this paper provide evidence that this new and innovative model for evaluating the learning gain of students has the potential for sector-wide impact across a variety of discipline areas, and so could be integrated within the educational continuous improvement process to develop the effectiveness of teaching delivered.

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