A Tailored Co-creation Approach to Contextualising the Student Voice in Higher Education

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INTRODUCTION

The marketisation of higher education in the UK refers to the shift towards a more market-oriented and competitive system (Chapleo & O'Sullivan, 2017) in which students are viewed as being consumers (Roohr et al., 2017). This transformation involves the application of market principles to the management, funding, and delivery of higher education services, and has been driven in the UK by the introduction of tuition fees for university education. This topic is further discussed by Mahgoub et al. in Chap. 10.

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Alongside this change in the funding model, there has been an increase in the competition amongst universities, with institutions seeking to improve their rankings in national and global league tables to enable them to attract more students (Williamson et al., 2020). Rightly or wrongly, such league tables have been influential in shaping our perceptions of educational standards.

Furthermore, universities are now more accountable to students for the quality of the teaching provided to them, and for their subsequent employability within the job market, and so consequentially they need to demonstrate that they offer value for money (Polkinghorne et al., 2017a). This marketisation of higher education supports managerialism (Alajoutsijärvi et al., 2021) and is aligned to the dominant conceptualisation of higher education proposed by Skelton (2005) in which universities exist as a mechanism to train the future workforce required by a country, opposed to the alternative conceptualisation in which students attend university to develop into critical thinkers capable of contributing to the social, economic, and political debates of the time.

Supporters of the marketisation agenda claim that it fosters competition, improves efficiency, and enhances the quality of education (del Cerro Santamaría, 2020), whereas critics express concerns about the potential impact upon inclusion and access, and that market-driven metrics place an emphasis on the commodification of higher education (Silverio et al., 2021) at the expense of educational goals related to learning. To maintain the balance, it is important for universities to continue an ongoing dialog with their students to ensure that the education that they are providing is considered to be valuable by the students receiving it. Listening to the student voice has become pivotal in this regard.

The student voice refers to the collective opinions, perspectives, and feedback of the student body. It encompasses the students' views on various aspects of university life, including academic programs, facilities, support services, and extracurricular activities. The student voice in this sense encompasses everything from 'staff–student partnerships to campaigning and protest' (Canning, 2017, p. 520). Whilst our understanding of the student voice, and how to respond to it, is still developing (Seale, 2010), it is increasingly becoming an issue of primary importance across higher education sector (Healy et al., 2014), and it is therefore necessary to recognise that 'student voices are not always heard or [even] articulated' (p. 520), and that not all students who are heard, represent the combined student body. This means that as educators we have a responsibility to reach out to those students whose voice is underrepresented, and whose

views may easily be overlooked. However, listening to the student voice in itself does not represent co-creation as to be effective, and as described by Jamil and Howard-Matthews (Chap. 1), one of the dimensions of co-creation is about then developing solutions together that meet both institutional and student needs.

It should be said that this desire to listen to the student voice is also not about assuming that students necessarily even always know what is best for them:

> [J]ust as with students' persistent obsession with class contact hours … their views about what they want are sometimes flatly contradicted by research evidence about what is good for them. (HEPI, 2016, p. 14)

Instead, it is about ensuring that we listen, understand, and value how the learning experience is working for them (Seale, 2010; Young & Jerome, 2020), and that we appreciate the pedagogical developments that they perceive to be beneficial. Alongside this, we need to recognise the power imbalance that exists between students and educators, which may mean that important issues remain unvoiced in the interests of maintaining good relationships (Canning, 2017).

However, it is clear that listening to the student voice is a key element of co-creation both in terms of co-creating the provision of a high-quality learning experience, and also with regard to co-creating the learning environment itself. Torn (Chap. 6) draws a similar conclusion. If we can involve students as partners in the development of their education, and as co-creators of their own learning experience, then the value of their education, and their engagement with that education, will be significantly improved through an enhanced sense of belonging (Healy et al., 2014; Cook-Sather & Felten, 2017). This sense of shared ownership is a concept also considered by McIntosh and May in Chap. 2.

Students in the UK have a diverse range of opportunities to express their opinions through internal surveys, focus groups, the Students' Union, and also at a range of committee meetings. They can also express their views through national surveys including the National Student Survey (NSS) organised by the Office for Students and which only applies to undergraduate students (Office for Students, 2023), or the Postgraduate Taught Experience Survey (PTES) and Postgraduate Research Experience Survey (PRES) that are both organised by Advance HE (Advance HE, 2023a, b). Whichever channels the data relating to the student voice is collected through, it can play a crucial role in influencing decisions and policies

within our universities (Brooman et al., 2014; Peseta et al., 2015). Feedback is a key element of co-creation (Jamil & Howard-Matthews, Chap. 1), and so when we make changes based upon such student feedback, we need to ensure that they know this has occurred, and that we have taken their views seriously. This chapter specifically considers co-creation development (Bron et al., 2018; Yassine et al., 2020) with respect to the learning gain of students. It includes examples of our practice, and reports on some of the key lessons that we have learnt from these experiences.

EVALUATING STUDENT LEARNING GAIN

Learning gain (also known as educational gain by organisations such as the UK's Office for Students) is a term that refers to the progress that a student makes in terms of their academic knowledge and skills over a period of time, and as such it can be used to assess the effectiveness of educational interventions.

There are five different approaches that are commonly used to evaluate learning gain, these being grades, standardised tests, self-reporting surveys, mixed methods and qualitative reflection (McGrath et al., 2015; Polkinghorne & Roushan, 2017). Whilst there is broad agreement across the higher education sector that an appropriate measure of student learning gain would be an advantageous addition to existing metrics (Gunn & Fisk, 2013; Gunn, 2018; Polkinghorne et al., 2021b, c), due to its complexities, what such a measure would look like in practical terms is still under debate, as even recent studies conducted for the UK Office for Students concluded that existing methods for determining student learning gain require enhancement, so that they can accommodate important differences in local contextual factors (Jones-Devitt et al., 2019; Howson, 2019).

Arico et al. (2018) have proposed that student learning gain (educational gain) is now of increasing importance, and it has become a key dimension of the student learning journey, which needs to be factored in when policy makers, such as the UK Office for Students, are considering how effective our university-based educational delivery actually is. However, since at the current time there is little clear direction for the sector in this regard, Andrade (2018) helpfully suggests that each university should determine its own definition of learning gain, and that we should do this within the context of our own institutions to ensure that it is an appropriate mechanism for enabling us to enhance our teaching delivery

(Evans et al., 2018). As a result, universities are testing a range of approaches to evaluate the learning gain of their students, and for those who would like to explore this topic further, a helpful summary of these various approaches is provided by Tight (2021).

Bournemouth University is a public university in the UK founded in 1992, with origins as a place of higher education dating back to the early 1900s. At the time of writing, the student population of the University exceeded 18,000 at undergraduate, masters, and doctorate levels. Recognising the strategic importance of learning gain, the university undertook preliminary research on the topic (Polkinghorne et al., 2017a), and from this research, an alternative model for evaluating student learning gain was developed and presented at a Higher Education Academy conference (Polkinghorne et al., 2017b). Unlike conventional thinking of the time, which only considered learning gain in terms of distance travelled (McGrath et al., 2015), this new model proposed that student learning could be considered to be composed of both distance travelled, and journey travelled. Further work undertaken by Polkinghorne et al. (2021a) was able to explain that distance travelled relates to explicit knowledge gained by a student which is often in the form of theories and models, whereas journey travelled refers to the tacit knowledge gained by a student which can be alternatively described as being experience and/or know-how.

The new model was successfully utilised to assess student learning on a range of different teaching modules, with the conclusion that it provided an indication of how students perceive their own learning, and where the teaching had been more (or less) effective (Polkinghorne et al., 2021c, 2022). These student perceptions are increasingly important within the higher education sector (Kandiko Howson & Mawer, 2013), and such informed understanding can prove to be a great help to the individual academic, as it empowers them to make changes to their teaching. These changes can be affected as part of the continuous improvement process, ready for the next delivery cycle, safe in the knowledge of which aspects of an academic's own teaching need to be evolved to enhance student understanding, and which need to be retained in their current form.

One of the limitations of the previous studies using this model was that they were relatively small in nature, and primarily based around business and management degrees. However, from a co-creation perspective, in terms previously discussed by Dollinger et al. (2018) and Cook-Sather (2022), they did enable teaching teams and students to work together to identify ways to enhance the learning experience for future cohorts,

thereby enabling students to have more control regarding curriculum design which is a concept discussed previously by Arm in Chap. 3. This chapter reports on the learning from these early pilots, and describes how the original concept was expanded to form the basis for a much larger pilot delivered across all four faculties at the university, and from which a new university-wide survey was ultimately developed that was opened-up to all of the university's undergraduate and postgraduate taught students as a new channel to listen to their views and opinions.

RESEARCH PROCEDURE

The research described in this chapter draws upon a series of self-reflective surveys. Devis-Rozental (Chap. 11), and Torn (Chap. 6), both describe alternative co-creation approaches to collecting student data using surveys which they found to also be successful.

The data in this study was collected was based upon the personal thoughts, views and perceptions of the participating students, and in each case the research was seeking to understand the aspects of the teaching delivery that had been effective, and those that needed further development. This understanding was achieved by asking the students to reflect upon how much they considered that their own understanding of the topics in question had changed. By using this approach, it took into account certain key considerations. For example, at the start of a new teaching module, students simply don't know what they don't know, and only by expanding their horizons regarding the topic in question can they start to appreciate the full scope of the subject area. Evaluating their learning at the end of the teaching module, and asking them about how they consider their own learning to have developed, helps students to recognise the journey that they have been on. It also takes into account that all students within a given cohort will have started a teaching module with a unique combination of understanding, skills and experience, that may, or may not, have provided them with a good foundation upon which to build new knowledge.

The following pilot studies were undertaken to explore different dimensions of the student population:

(1) A cross-sectional pilot study based upon final year degree students undertaking self-managed autonomous research projects (Polkinghorne et al., 2020, 2021b, 2022).

(2) A cross-sectional pilot study based upon final year degree students undertaking group-work based taught modules (Polkinghorne et al., 2023).

(3) A cross-sectional pilot study based upon final year degree students undertaking individual assessment based taught modules (Polkinghorne et al., 2021c).

(4) A longitudinal pilot study based upon first year undergraduate degree students undertaking individual assessment based taught modules (Polkinghorne et al., 2021a; O'Sullivan et al., 2022).

(5) A longitudinal pilot study based upon final year degree students studying online during the global Covid-19 pandemic (Leidner et al., 2022).

(6) A cross-sectional pilot study based upon a full university-wide roll out of a new institutional student survey.

Students participated in these co-creation studies on a volunteer basis and their data was collected anonymously. Because of the size of the samples, these are considered to be non-probability studies from which we can gain understanding, but from which generalisation must be limited. The wording of the questions presented to students were informed by Blooms (revised) Taxonomy of Higher Order Thinking Skills (Anderson & Krathwohl, 2001). The studies themselves were each performed in line with the principles of the Declaration of Helsinki with approval being granted by the Ethics Committee of Bournemouth University (References 30119 [2020]; 25624 [2018]; 16246 [2017]; 13829 [2017]; 9236 [2015]).

Findings and Discussion

In Chap. 2, McIntosh and May emphasise the importance of the student voice. Building upon this concept, in order to test the learning gain model, and to contextualise the student voice through co-creation, we conducted a series of six pilot studies which are detailed below, and each of which builds upon the findings of the previous study.

Pilot Study 1

Initially uncertain about the practical value of the learning gain model, we decided to test it with a small group of Level 6 Business and Management

students engaged in a range of project types (dissertation, reflective, consultancy). Twelve participants (6 males, 6 females) were included in the study, and all the students were supervised by the same academic to ensure a consistency of experience and support. Questions focused on learning changes during the project module that related to the teaching objectives, and addressed distance travelled (e.g., understanding research proposal creation) and journey travelled (e.g., skills for structuring project reports). Reporting options included 'no change', 'minor improvement', 'moderate improvement', 'significant improvement', and 'exceptional improvement'.

Whilst exceptional improvement wasn't anticipated, some students reported it, particularly with regard to project planning, signalling successful teaching, and the potential for best practice to be shared. Conversely, minor improvements reported by some students, especially in terms of innovation and creativity, prompted reflection by the academic on the support offered, and a consideration of alternative delivery methods that could be used in the future.

Analysis revealed female students reporting stronger learning gain in practical skills and know-how (journey travelled), whilst male students reported stronger learning gain relating to theoretical concepts and models (distance travelled). Combining results, females reported significantly stronger overall improvement.

From Study 1, it became evident that the learning gain model stimulated productive dialogue between academics and students, offering valuable insights for evolving teaching practices.

Pilot Study 2

After demonstrating the efficacy of the learning gain model when applied to autonomous project modules, we shifted our focus to a group-based taught module in a Level 6 Business and Management degree. Seventy students participated in the study (30 males, 40 females). Questions were aligned with module objectives, and explored changes in learning, addressing aspects such as the understanding of professional conduct (distance travelled), and the ability to assess performance and talent (journey travelled). The reporting options ranged from 'no change' to 'exceptional improvement', mirroring the previous study.

Similar to Study 1, the learning gain model facilitated discussions in a supportive co-creation environment. Some students reported low

learning, highlighting areas such as the inter-relatedness of business func-tions, for which teaching adjustments could be undertaken. Actions were integrated into the continuous improvement process and discussed with the external examiner, with plans for ongoing monitoring put into place. Conversely, some students reported high learning levels with regard to running graduate assessment centres, where mock-ups allowed them to experience both applicant and assessor roles.

As in Study 1, the analysis of Study 2 data confirmed higher learning gain reported by female students. However, both genders reported lower learning than anticipated by the academic team. Despite acceptable grades, students expressed less confidence in their learning progress than antici-pated, revealing a misalignment of perceptions.

Study 2 results reassured us about the learning gain model's applicabil-ity to group-based taught modules. Co-creation had fostered dialogue, and provided valuable insights into teaching effectiveness that we could employ for future improvements.

Pilot Study 3

Study 3 aimed to apply the learning gain model to individual assignments in taught modules. Previously successful in autonomous and group-based units, the co-creation approach had been seen to encourage students to share views on their own learning. We explored its effectiveness in mod-ules with individual assessments, focusing on a Level 6 Business and Management research methods module with 60 participants (30 male, 30 female) in the study.

As before, questions were aligned with module objectives that addressed, for example, changes in a student's understanding of business research processes (distance travelled) and their ability to conduct a litera-ture review (journey travelled). Response options were maintained as being from 'no change' to 'exceptional improvement'.

Data analysis revealed diverse student perspectives, with some report-ing strong learning and others the opposite. Variations included strong learning with regard to distance travelled, but low learning for journey travelled, and vice versa. Specific questions, especially those related to lit-erature review skills, uncovered that the students had faced challenges. This information, not evident in formal assessments, guided targeted improvements for teaching.

Furthermore, in Study 3, male students reported higher learning gains overall in both distance and journey travelled categories. This finding contrasted with that of Studies 1 and 2. The co-creation approach once again provided valuable insights into student thinking and perceived learning that were previously unknown.

Pilot Study 4

Having confirmed that the learning gain model sparked a positive co-creation dialogue with final-year students, we subsequently applied it to first-year students enrolled on a Level 4 taught module as part of a Marketing degree. Our aim was to gather benchmark data for the year 2018, with 59 students (37 males, 22 females) participating. Following this, we sought to identify and implement changes to teaching based upon the analysis of this data. Subsequently, we collected data again in the following year (2019) to assess the impact of these changes, with 50 students (18 males, 32 females) participating. Both data collections occurred before the pandemic, and so were based upon face-to-face teaching.

We ensured that the questions asked aligned with module objectives, addressing changes in distance travelled, such as understanding marketing principles, and journey travelled, for example the ability to identify marketing problems. Response options still ranged from 'no change' to 'exceptional improvement'.

In the benchmark data, students reported robust learning in certain areas, such as marketing practice, but perceived learning levels were considerably lower in other areas, particularly concerning marketing solutions. Only a few students reported exceptional improvements, whilst a significant number reported only minor improvements in their learning for some, or all, of the questions asked. In response to these findings, the teaching team increased the emphasis on the identification, understanding, and resolution of marketing issues. New seminar materials were introduced the following year, accompanied by supporting case studies.

Upon analysing the data for the subsequent cohort, there was a noticeable improvement across the board, with fewer students reporting minor improvements, and a significant number now reporting exceptional improvement. This improvement was particularly evident in the question areas that had shown weaknesses in the benchmark data, and that had received concentrated focus. The reported perceived student learning in these areas was now aligned with the learning across the rest of the module.

The use of the learning model, and establishing a dialogue with the students, enabled the teaching team to pinpoint specific areas of learning that were proving to be ineffective. Remedial action was taken, and the next cohort of students reported improved learning levels as a result.

Pilot Study 5

Due to the Covid-19 pandemic and ensuing national lockdowns, UK universities, and others globally, transitioned from in-person to online teaching. Given the marketisation of higher education, it was crucial to understand the impact of this delivery shift on student learning.

To assess this, we again employed a co-creation approach using the learning gain model for a Level 6 Business and Management module focused upon organisational leadership. Data had previously been collected in 2019 (pre-pandemic), and therefore we repeated the study in 2021 (during the pandemic). Analysis compared how students perceived their learning in both delivery modes, specifically exploring differences between those receiving online and face-to-face teaching.

Questions continued to be aligned with module objectives, and considered changes in distance travelled, such as understanding of the nature of leadership, and journey travelled, including the ability to critically analyse organisational challenges. Response options continued to be in the range 'no change' to 'exceptional improvement'.

Contrary to expectations, not all students undergoing online teaching reported decreased learning. Notably, female students seemed to highly value the online educational experience. For instance, a question about the understanding of future leadership practices showed a significant increase in response rates from females in the online cohort compared to the previous classroom-based one. In contrast, males in the online cohort reported a significant decrease in perceived learning. Overall, females, whether for distance or journey travelled, generally reported increased response rates, whilst males taught online showed responses similar to their face-to-face counterparts. This suggests that organised and self-responsible students may find online engagement convenient, benefiting from the additional support materials provided, and from the recorded sessions which facilitated review and recap.

The learning gain model facilitated a comprehensive comparison of teaching methods. The constancy of the academic team, curriculum, and

course for both cohorts, increases the likelihood that reported variations stem from the shift from face-to-face to online delivery.

Pilot Study 6

Building on the success of Studies 1–5, we then considered implementing the learning gain model on a university-wide scale. This encompassed more than 2000 teaching modules across 15 academic departments in four faculties, spanning Level 0 (Foundation Year students) to 7 (Master's students). Unlike the previous process-oriented student survey which had been in place for a number of years, this new survey focused more on learning outcomes. Given the diverse nature of the academic programmes within Study 6, the questions had to be more generic, whilst still trying to remain informative about each student's perceptions of their own learning.

The survey maintained the concept of questions related to both distance travelled (understanding of knowledge) and journey travelled (ability to apply knowledge). Additional questions covered the United Nations Sustainable Development Goals (UN SDGs) and the global climate and ecological crisis. Response options were modified to range from 'strongly disagree' to 'strongly agree', with satisfaction being defined by student responses in the strongly agree and agree categories. Following the principles of Bloom's taxonomy (Anderson & Krathwohl, 2001), the first four questions of the survey were varied depending upon the level of the module. The survey was undertaken at the end of semester one teaching with more than 5000 students participating, and then again at the end of semester two teaching when more than 6000 students participated.

Analysing the results, one department achieved an average satisfaction above 90% across all questions and levels at both the semester one and semester two data collection points. Three more departments achieved an average satisfaction of 80% or more on both occasions. In contrast, four departments achieved an average satisfaction of less than 70% both times which meant that teaching on their modules was subjected to additional scrutiny.

Level 0 students were generally satisfied with the learning on their modules, but reported low levels of understanding regarding the climate and ecological crisis. Levels 4 and 5 students indicated substantial perceived learning in both distance and journey travelled. However, they reported a lack of understanding regarding the relevance of certain modules to their future careers. Islam et al. also explore the need for personal

and professional growth of this kind in Chap. 5. Additionally, they expressed dissatisfaction with perceived support for sustainability issues.

For Level 6 students, the results were quite similar in terms of reported high distance and journey travelled learning on the modules. Again, more support for addressing sustainability and ecological issues was requested. In contrast to Levels 4 and 5 students, those students at Level 6 appreciated the help, support, and guidance of the associated staff much more. Level 7 students reported the highest learning and were the most satisfied in terms of distance and journey travelled, that is, understanding the knowledge taught and also knowing how to apply it. Staff were reported as being helpful. However, similar to other student responses, they did not feel there had been enough emphasis on sustainability and ecological issues.

From this study, the model and its co-creation approach to listening to the student voice based upon students' own perceptions of their learning, has demonstrated its value by playing an important role in stimulating conversations, that can be used to inform the continuous enhancement of our educational delivery.

Summary of Findings

Taking an overview of the six pilot studies undertaken, the learning gain model, coupled with a co-creation approach, proved valuable in stimulating dialogue, identifying areas for improvement, and enhancing the overall educational delivery and student experience across different modules and levels within the university. Specifically, Study 1 considered final year project students, and the model stimulated a productive dialogue between academics and students, revealing areas of exceptional improvement, and prompting reflection on teaching methods. Study 2 shifted the focus to group-based taught modules, confirming the model's applicability. Students reported both high and low learning levels, leading to adjustments in teaching methods. Study 3 applied the model to modules based upon individual assignments, revealing diverse student perspectives, and prompting targeted improvements in teaching. Study 4 extended the model to first-year students, leading to identified areas of ineffective learning. Remedial action was taken, resulting in improved learning levels for subsequent cohorts. Study 5 investigated the impact of the shift to online teaching during the Covid-19 pandemic. Female students valued the online experience, whilst males reported a decrease in perceived learning.

Finally, Study 6 implemented the learning gain model on a university-wide scale across a diverse range of academic programs. The survey, focusing on learning outcomes, revealed varying levels of satisfaction across departments, and highlighted areas for improvement, particularly in addressing sustainability issues.

CONCLUSION

The learning gain model was applied to a range of educational contexts. Analysis of the data gathered from students successfully uncovered variations in reported learning levels across different topic areas. These variations were influenced by several factors, including the nature of the teaching, the delivery mechanism, the gender of the learners, and the assessment method employed. To gain a comprehensive understanding, students were questioned about both their distance and journey travelled. This approach, beyond summative assessment, aimed to delve into their personal struggles, and reveal areas where they perceived growth in their knowledge and abilities. Without adopting this model, which we delivered with a co-creation approach, and our listening to the students' voices to comprehend their learning journeys, the valuable insights uncovered would not have been attainable.

Consequently, targeted interventions were designed and implemented in areas with lower learning outcomes. Comparing the original data collected by the model, with new data from the subsequent cohort, indicated the impact of these interventions on student learning. In general, there was a noticeable improvement in responses from students in subsequent cohorts for the specific areas where interventions were applied. This improvement was supported by an increase in students self-reporting what they perceived as exceptional improvements in their learning.

Acknowledging potential influencing factors, such as differences in the quality of accepted students across cohorts, is essential. Nevertheless, the study underscores the potential effectiveness of the learning gain model in identifying areas of education that can be enhanced. With the contemporary emphasis being on universities improving their national survey standings, like NSS, PTES, and PRES, any mechanism facilitating recognition of each student's learning experiences is beneficial. Using the learning gain model clearly contributes positively to our understanding in this regard. Simultaneously, the ability to take constructive and demonstrable action based on student feedback ensures that the student body recognises

that their voice has been heard and listened to. Importantly, the self-reflective survey approach adopted by the model integrates the voices of previously unheard students alongside responses from their peers, empowering students to take responsibility for their own learning, aligning them more closely with the educational process, and strengthening the learning relationship between academics and students. In Chap. 8, Teh and Chong also discuss how co-creation can improve inclusivity because it can motivate students to participate more fully.

Limitations of the Research

This research study has considered responses from students at a single UK university. Expanding the study to consider other UK universities, and universities from other countries, would establish the wider implications of this research for supporting educational development, and would enable the inclusion of a wider range of discipline areas.

Potential Long-Term Impacts

The long-term impacts of this work are numerous. Firstly, using this approach to co-creation with students, has helped us to identify variations in learning between the different levels of study that we were previously unaware of. With this new knowledge, we can now explore further to understand the scope and range of these issues, and we can put in place coping mechanisms to mitigate the effects.

The use of this co-creation approach, and involving students in the process, allowed for a deeper understanding of their own personal learning journeys. Gathering information on the students' distance travelled, and journey travelled, and their personal struggles along the way, has provided insights that took us far beyond the limitations of traditional summative assessments.

This new understanding gained from the analysis has enabled the informed design and delivery of targeted interventions in areas of our teaching that exhibited lower learning outcomes in the perception of the students. In the later studies, the impact of interventions was assessed by comparing original data to subsequent cohorts, revealing improvements in many of the specific areas targeted. This has enabled us to respond in practical terms to the student feedback, making pedagogical changes that have reinforced student learning. As a result, an uplift in student responses

was reported, especially in those areas where interventions were implemented.

Alongside this understanding, new developments in learning analytics now offer increasingly sophisticated capabilities, and compelling opportunities, for students to enhance their learning through personalised experiences, early identification of at-risk students, and enhanced teaching strategies. Wong and Li (2020) argue that this enables educators to tailor learning to each student's needs, thereby improving engagement and outcomes. Foster and Siddle (2020) highlight the role of analytics in identifying students who are struggling, allowing for timely intervention. Ifenthaler and Yau (2020) emphasise the ability of the technology to provide insights into teaching effectiveness, leading to improved pedagogical approaches. Integrating our learning gain model into such analytics will provide the opportunity for enhancing such support for personalisation even further. Joseph-Richard and Ringrose also consider the need for taking a personalised and individual approach within Chap. 7.

In the medium term, taking a student-centric and co-creative approach to education that recognises how students perceive their own learning experience, and then by taking action based on such feedback, will together contribute to an improvement in our metric standings. In a similar way to Shakir and Siddiquee's reflections upon the need to dismantle the power dynamic between staff and students in Chap. 9, from our study, this can be achieved based upon a genuine desire to empower students, and integrate their views within our own educational processes, ensuring the relevance and currency of learning outcomes achieved, and providing students with an engaging educational experience that they value and appreciate.

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