STUDENTS AS PARTNERS IN A QUALITY IMPROVEMENT APPROACH TO LEARNING ENHANCEMENT: A CASE STUDY FROM A PHARMACY UNDERGRADUATE COURSE.

Sarah Buchan
School of Pharmacy and Life Sciences, Robert Gordon University

Kirsty Regan
School of Pharmacy and Life Sciences, Robert Gordon University

Christine Filion-Murphy
School of Pharmacy and Life Sciences, Robert Gordon University

Kirsten Little
School of Pharmacy and Life Sciences, Robert Gordon University

Alison Strath
School of Pharmacy and Life Sciences, Robert Gordon University

Iain Rowe
School of Pharmacy and Life Sciences, Robert Gordon University

Helen Vosper*
School of Pharmacy and Life Sciences, Robert Gordon University
h.vosper@rgu.ac.uk
*Corresponding author

Abstract

Higher education is experiencing a period of significant change and the quality of student learning experience has never been more important (or come under more scrutiny). This is one of the major drivers behind the move towards viewing students as partners in their learning experience. This is further supported by an awareness that engaging students in 'purposive activities' beyond the classroom has been shown to have a positive impact on student achievement and satisfaction. Another significant influence on healthcare curricula is the patient safety agenda: it is increasingly expected that, as part of their undergraduate training, students will be exposed to Quality Improvement (QI) methodology. This paper discusses the application of QI models to educational enhancement: supporting students in recognising areas of their curricula that would benefit from such activity and giving them the opportunity to change them effectively unites and addresses both the patient safety and student engagement agendas.

Introduction

Background

The higher education sector is currently facing an era of unprecedented change. There are a number of drivers for this, not least the reduction government funding and the increased competition resulting from the appearance of private providers and the opening up of access to international institutions. The decrease in government funding has (interestingly) been accompanied by an increase in government scrutiny: within the UK, this is achieved through the Quality Assurance Agency for Higher Education which lays out its expectations and indicators of good practice in the Quality Code (Quality Assurance Agency 2013). Other pressures include the need to provide courses which are relevant to society and thus provide students with enhanced opportunities for employment. A study by the National Union of Students and the CBI

indicated that almost 80% of students report their main reason for undertaking a course of study to be an enhancement of their employment prospects (National Union of Students 2011). Courses which are successful in supporting acquisition of graduate level employment have opportunities for students to develop (and evidence achievement of) the skills and practices necessary for the world of work. It is also true to say that there has been a shift towards a conceptual model of higher education which sees students as consumers (Singleton-Jackson et al. 2013), and advances in technology mean that students have never before had access to so much data that help them in making informed choices about their education. Recent years have also seen an increase in the outlets for student to express their satisfaction (or lack of it!) in an open forum (Buckley 2012). Seeking and responding to student feedback on their course design and delivery has thus become a standard part of academic practice. In this way, students can have some influence in shaping their academic provision, even if it is only subsequent students who benefit from their input.

While students appear to welcome the opportunity to contribute in this way, there are more effective ways of promoting student engagement. There is a considerable body of evidence in the literature (reviewed in Trowler 2010) to indicate that involving students in 'educationally purposive activities' has a positive impact on a number of indicators of student success, both in the classroom and beyond, including academic achievement and overall student satisfaction. Skills developed through enhancement activities incorporate a wide range of the transferable skills that are sought after by employers. Working in partnership with staff, students bring an additional dimension to course teams: in contrast with staff, they experience the course in its entirety, and are well placed to reflect on its 'fitness for purpose.' Such partnerships also allow staff to develop meaningful learning relationships with a smaller number of students who are, in turn, able to work with the larger student body, capturing wider learning needs and desires.

The evidence of such benefit is behind Chapter B5 of the new UK Quality Code (Quality Assurance Agency 2013) –

'Higher education providers should take deliberate steps to engage all students… as partners in the… enhancement of their educational experience.'

Students as partners in the curriculum.
It was a separate drive to provide undergraduate pharmacy students with alternative work-based learning experiences which led to a team from the Robert Gordon University becoming involved with a Higher Education Academy change project (Vosper et al. 2013). This project looked at the embedding of simulation in an educationally robust manner within the undergraduate Master of Pharmacy curriculum in an attempt to partially solve some of the issues around lack of access to clinical placement that affect this course. Lack of access to placement has been cited as a factor underpinning a number of issues in the workplace, and simulation has

been proposed as a possible partial solution to this (reviewed in Regan et al 2014).

In order to embed simulation in a pedagogically robust manner, the team is working with relevant stakeholders to develop a 'Compendium of Effective Simulation Practice' to support healthcare educators. Students are key stakeholders, but it became apparent that they were 'unequal partners' because they lacked training in educational theory and practice. Summer studentships (funded by NHS Education Scotland) were offered to support students, who were given a basic introduction to teaching and learning theory, based on our in-house PgCert in Higher Education Learning and Teaching, and focussed around specific enhancement initiatives (including the simulation project). This proved so promising in terms of outputs/outcomes that it was decided to form a student-led learning enhancement team, which was piloted in the session 2013-14.

Table 1: Impacts of the Student Learning Enhancement Team
• Development of student-developed activities which were used to support the learning of approximately 150 second year students
• These activities have been developed further and will be delivered again with second year students, with third and fourth year students involved in the delivery
• 2 publications in peer-reviewed journals, 2 more submitted, 3 conference presentations, including a 1 hour discussion session at the HEA national conference in July 2014
• Establishment of Student Patient Safety Chapter of the Institute for Health Improvement
• Participation in webinar with Don Berwick who tasked the students to design learning activities around disclosure and apology

Challenges of working in partnership with students.
In addition to the benefits described above, for pharmacy students, there is an additional dimension – many of them work in pharmacy related roles outside their course. This potentially provides a diverse source of information about 'working in the real world' which is very useful in informing curriculum design. Furthermore, design of educational and training programmes could be considered a 'real world task' and, while this is not part of MPharm curriculum, if students have some means of capturing and displaying their achievements in this area, it is likely to enhance their employability. However, such engagement is not without its challenges. As part of their involvement with the Learning Enhancement Team, students had been encouraged to be open and frank in extending their perceptions of the 'fitness for purpose' of their course. Within the higher education environment, such student challenge was welcomed as the 'opening salvo in genuine staff-student dialogue'. This was not always the case in professional forums beyond the university, and some of the students involved found this difficult to deal with. There was also some anecdotal evidence to suggest that student relationships were affected, with peers feeling as though members of the Learning Enhancement Team enjoyed special privilege. It was these concerns that gave rise to the notion of formalising the programme. A proposal was successfully

submitted to the Higher Education Academy 'Students as Partners in the Curriculum' (SaPiC) Change Programme and the aims of this were to:

- establish a framework for supporting student engagement with the School Learning Enhancement Team, including built-in monitoring/evaluation and recruitment strategies.

- develop a training programme to support this.

- explore avenues for student recognition, possibly involving articulation with the Higher Education Achievement Report (HEAR)

Outcomes of the first stage of the SaPiC Change Process.
The first stage involved a 2-day residential, supported by Higher Education Academy staff. Staff and students worked together to refine their vision of the project and to establish a hierarchy of objectives. This included a detailed analysis of the barriers and potential sources of support available. During this session, the team considered where the Learning Enhancement Team (and the developing framework) may fit in relation to existing committees whose remit includes a significant 'student engagement' element. These can be seen in **Figure 1**, which also includes a list of other stakeholder groups.
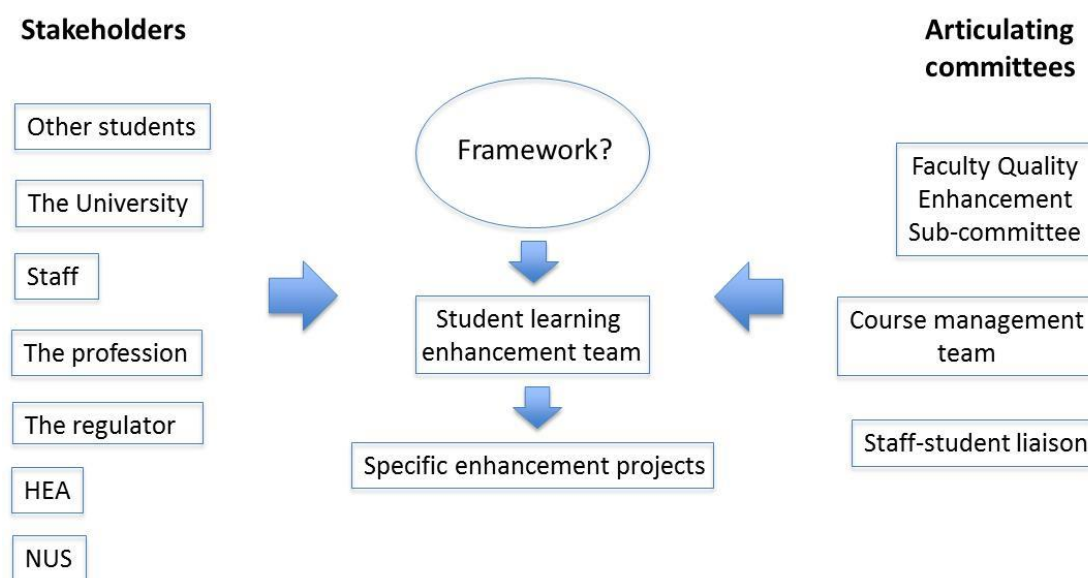

Figure 1. *Student Learning Enhancement Team: sources of support.*

Initial concerns were raised as to possible areas of overlap, particularly with the Staff-Student Liaison committee. However, it was recognised that while there might be some areas of common interest, no other committee was specifically engaged with this level of partnership in terms of shaping curriculum design. Bearing potential overlap in mind, it was decided that the remit of any Student Learning Enhancement Team needed to be clearly articulated, and this began with a definition of the meaning of

'partnership' within this context. To support this discussion, the team made use of Bovill's Ladder of Student Participation in Curriculum Design (Bovill 2011), a simplified version of which is shown in **Figure 2**. The ladder defines a number of levels of student partnership, ranging from no involvement at all, right up to a situation in which students have complete control over the curriculum content and delivery. Interestingly, staff predicted that students would prefer to have complete control over their curriculum: this turned out not to be the case! The students involved in the team recognised that power brings with it responsibility, and their experiences to date had shown them that juggling enhancement activities with course work could be very challenging, and they welcomed the chance to be able to step down if the pressures became too great. They recognised that this would not be possible if they were to take full responsibility for the curriculum. The decision taken by the team was that we should be aiming for a situation where students are able to take control of smaller elements of the curriculum.

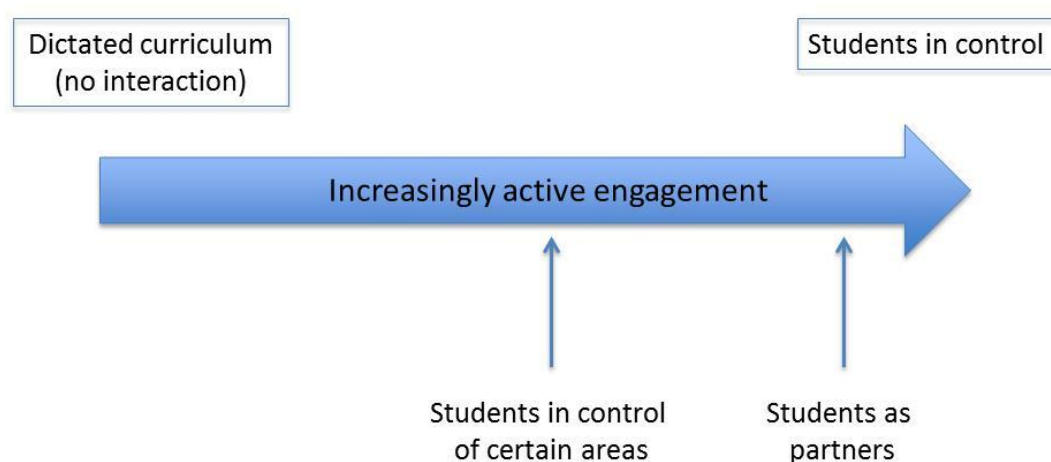Adapted from Bovill and Bulley, 2011

Figure 2. *Ladder of student engagement*

The next step was to consider how the existing activity of the Student Learning Enhancement Team could be rolled out across the School. It was decided that this would require buy-in from senior management within the School and the University, and there was concern that the evidence of benefit was not especially robust at this stage. It was decided that the approach should be to continue with individual projects for one more year and to use this time to build a 'record of impact'. The projects in this second phase ranged from patient safety (including medicines reconciliation, disclosure and apology and human factors) to projects developing physiology and chemistry based teaching and learning activities. Some of these projects involve quality improvement methodology, an approach which is becoming increasingly high profile in clinical practice as an important part of the safety mechanism that protects patients from harm. Consequently, there is an increasing drive to expose healthcare students to the methodology as part of their

undergraduate training. As far as the Learning Enhancement Team was concerned, the next logical step seemed to be to take a Quality Improvement approach to enhancing the curriculum.

Quality improvement methodology

"The best doctors and nurses are those that continue to learn and to improve the way they care for their patients every single day. A culture of learning should develop across the entire NHS, where all staff can update their skills continually and improve the care they give…"

(Don Berwick, 2013)

The NHS Institute for Innovation and Improvement argues that applying validated quality improvement tools to a healthcare setting can 'improve the quality, efficiency and productivity of patient care.' From the literature, it appears that teaching quality improvement to students is a common feature of many postgraduate programmes, but studies concerning undergraduate healthcare education are scant. One study by Teigland and colleagues (2013) which investigated medical students' perceptions of quality improvement teaching, suggests that students value it as a means of improving patient safety, but that the teaching is most effective when it is integrated throughout the whole of the training and is based on real-life examples of application of the methodology. Furthermore, this study also suggested that allowing students to engage with the methodology themselves not only improved their learning experience, but the student projects also yielded positive outcomes.

There are a number of recognised methodologies, but one commonly used within NHS settings is PDSA (plan, do, study, act; see **Figure 3**; NHS, 2008). These elements form part of a cycle that supports users in identifying an area of practice that needs to be improved, further investigating it (through literature review and consultation with others involved in this area) and setting objectives for the change process ('Plan'). The planning stage will also involve devising some sort of intervention, as well as establishing outcome measures that will allow the team to see if the intervention has delivered the anticipated improvements. The 'Do' phase involves implementation, and collecting the data to underpin outcome measures. This data is analysed in the 'Study' phase, and the outcomes of this are used to determine the actions for the 'Act' phase. If the outcomes are positive, 'Act' may involve a wider implementation, or, if not, it may be that elements of the process need to be revised, and another cycle of PDSA would be entered. From a student perspective, engagement with this process is valuable, not only because it inculcates a quality improvement attitude which will support them in the workplace, but also because it contains significant elements of research processes, which will underpin other areas of the curriculum, such as their final year project. Combining quality improvement methodology to support student engagement with curriculum design takes advantage of the natural compatibilities between them and effectively supports the development of graduate attributes.
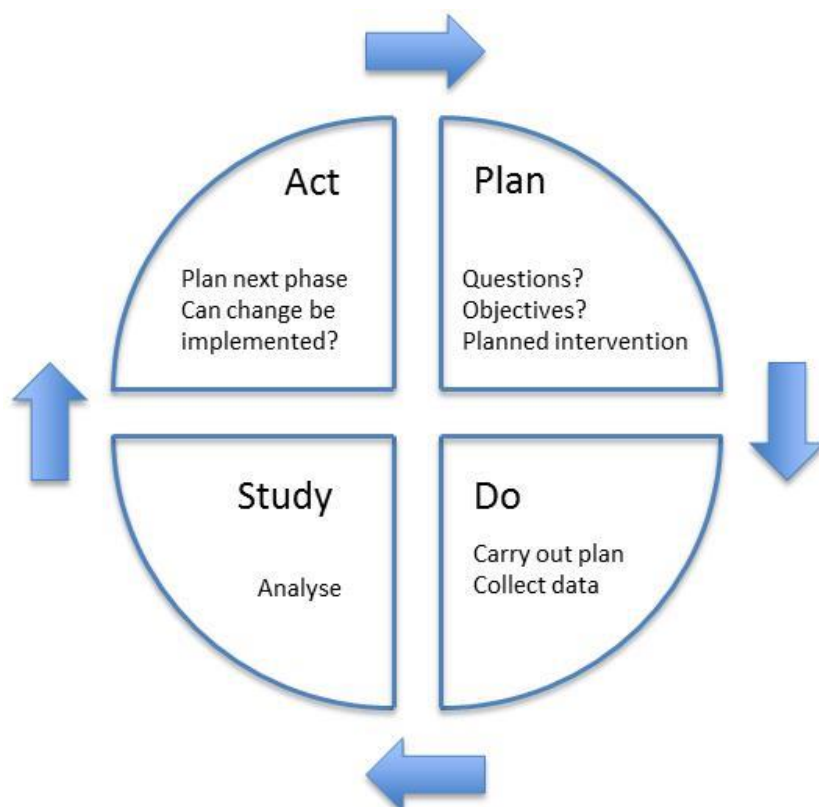
Figure 3. *PDSA cycle*

Case study: Quality improvement methodology applied to a Second Year Clinical Pharmacology and Therapeutics module.

Cardiovascular disease is one of the main elements of this module. Included in the teaching and learning material is the concept of cardiovascular risk management. This is particularly relevant to pharmacy students, as risk management in partnership with the GP or secondary care is one of the tasks that falls well within Scottish Government's 'Prescription for Excellence' (Scottish Government 2013), which places pharmacists at the centre of patient care. The actual risk assessment itself involves taking a detailed patient history and using this along with the results of some simple near patient testing to calculate a 10 year risk estimation of the likelihood of their experiencing a significant cardiovascular event. Such activities routinely take place in a community pharmacy setting. A simulated risk assessment was already used as a teaching and learning activity in this module, but it was just one activity (delivered over 3 coursework sessions) in Semester 2. There was a brief introduction, followed by an opportunity to practice the main technical skills and then students worked in groups to deliver a risk assessment for members of RGU staff with no medical background. Student feedback was always very positive for this activity, with students believing that it prepared them well for the examination. However, they often expressed concerns that they found it stressful because they felt they lacked the full range of skills to deliver an effective risk assessment. Staff felt there were opportunities to deliver an enhanced version which also offered opportunities for integration of practice and science. The real trigger for

change came when one of the members of the Student Learning Enhancement Team said that while our scenarios were clinically realistic, they were not *situationally* realistic – we did not take into account issues such as the commercial pressures on pharmacists, or the fact that very few pharmacists would have access to the perfect environment for delivering a successful risk assessment. This was the starting point for students on the Learning Enhancement Team to undertake the following PDSA cycle:

Plan	Do
Questions: Did other students agree with this? If so, what are the missing elements? Would it be possible to include these? How could we find this out? *Intervention:* Focus groups with staff and students based around the above questions Explore existing data such as that found within Student Evaluation Questionnaires.	Carry out focus groups Record and transcribe Collect Student Evaluation Questionnaire data
Act Make the risk assessment a central activity throughout semester 2, using this as a framework for delivering all the teaching Use coursework sessions to introduce concepts of human factors and non-technical skills Build in opportunities for students to explore these elements through storyboarding and filming their own risk assessments Develop videos of 'good' and 'bad' risk assessments and use critique of these as a basis for part of the assessment *Outcome measures* Student performance in assessment Capture student opinions through questionnaire	**Study** Thematically analyse data *Main themes* Learning and teaching activities based around risk assessment should include a multi-disciplinary perspective and consider how information may best be shared with other healthcare professionals Education around human factors should form part of clinical training Teaching and learning activities should explore the mismatch between 'ideal' and 'real' environments Strategies for assessing patient understanding should be built in to the simulated cardiovascular risk assessment

The results of this initial cycle were very promising – student performance on the module was very similar to previous years, with 94% passing first time. However, the results of the questionnaires indicated that the students had really enjoyed the experience and that they felt the longitudinal element of using the risk assessment as a scaffold for supporting learning provided lots of opportunity for feedback, which they felt supported their performance in the final assessment. Furthermore, students expressed a keen interest in seeing more of this type of activity. This final outcome will form the start point of a new PDSA cycle, which will be undertaken by a student in the next academic session: the aim will be to develop additional simulated activities to support student learning in this module.

Conclusion

According to the NHS change model, evidence-based improvement methodology is the 'game plan' that will deliver effective, sustainable change. The Health Foundation defines quality as the degree of excellence in healthcare (Health Foundation 2014).

On their website, the Health Foundation elaborate on this simple statement by going on to refer to six dimensions of quality have been widely accepted within the healthcare sector: Healthcare must be safe, effective, patient-centred, timely, efficient and equitable (Health Foundation 2014).

We can re-write the definition in an education context: "[quality is] the degree to which curricula designed for individuals and cohorts increase desired outcomes of student success and are consistent with professional knowledge." The dimensions are just as applicable to education as to healthcare: in short, a better student experience. This pilot study shows that applying quality improvement processes to educational problems may be effective way of addressing both the patient safety and student engagement agendas: we can similarly re-frame Don Berwick's quote concerning a culture of learning:

"The best **teachers** are those that continue to learn every day and to improve the way they **teach their students** every single day. A culture of learning should develop across the entire **higher education sector**, where all staff can update their skills continually and improve the quality of the **learning experience** they deliver…"

References

BERWICK, D., 2013. *A promise to learn – a commitment to act: improving the safety of patients in England*. London: Department of Health. Available from: https://www.gov.uk/government/publications/berwick-review-into-patient-safety [Accessed 20 September 2014].

BOVILL, C. and BULLEY, C.J., 2011. A model of active student participation in curriculum design: exploring desirability and possibility. *In* C. Rust, *ed. Improving student learning (18) Global theories and local practices: Institutional, disciplinary and cultural variations.* Oxford: Oxford Centre for Staff and Educational Development. pp 176-178.

BUCKLEY, A., 2012. *Making it count: Reflecting on the NSS in the process of enhancement.* [online]. York: Higher Education Academy. Available from: https://www.heacademy.ac.uk/sites/default/files/resources/Making_it_count.pdf [Accessed 30 October 2014].

HEALTH FOUNDATION, 2014. *What is quality?* [online]. London: Health Foundation. Available from: http://www.health.org.uk/about-us/what-is-quality/ [Accessed 11 November 2014].

NATIONAL UNION OF STUDENTS, 2011. *Working towards your future: Making the most of your time in higher education.* [online]. London: CBI.

Available from:
http://www.cbi.org.uk/media/466204/60519E9E213D34268025788F0038 08EF__CBI_NUS_Employability%20report_May%202011.pdf [Accessed 27 October 2014].

NATIONAL HEALTH SERVICE INSTITUTE FOR INNOVATION AND IMPROVEMENT, 2008. *Quality improvement tools: PDSA*. [online]. Leeds: NHS Institute for Innovation and Improvement. Available from: http://www.institute.nhs.uk/quality_and_service_improvement_tools/qual ity_and_service_improvement_tools/plan_do_study_act.html [Accessed 30 October 2014].

QUALITY ASSURANCE AGENCY, 2013. *The UK Quality Code for Higher Education.* [online]. Gloucester: QAA. Available from: http://www.qaa.ac.uk/assuring-standards-and-quality/the-quality-code [accessed 30/10/14]

REGAN, K., et al., 2014. Pharmacy simulation: a Scottish, student-led perspective with implications for the UK and beyond. *Pharmacy* 2(1), pp. 50-64.

SCOTTISH GOVERNMENT, 2013. *Prescription for excellence: A vision and action plan for the right pharmaceutical care through integrated partnerships and innovation.* Edinburgh: Scottish Government. Available at: http://www.scotland.gov.uk/Resource/0043/00434053.pdf [accessed 05/12/13]

SINGLETON-JACKSON, J.A., JACKSON, J.L., and REINHARDT, J., 2010. Students as consumers of knowledge: are they buying what we're selling? *Innovation in Higher Education* 35(5), pp. 343-358.

TEIGLAND, C.L., et al., 2013. Patient safety and quality improvement education: A cross-sectional student of medical students' preferences and attitudes. *BMC Medical Education.* [online]. 13(16). Available from: http://www.biomedcentral.com/1472-6920/13/16 [Accessed 11 November 2014].

TROWLER, V., 2010. *Student engagement literature review.* [online]. York: The Higher Education Academy. Available from: https://www.heacademy.ac.uk/sites/default/files/StudentEngagementLiter atureReview_1.pdf [Accessed 26/10/14].

VOSPER, H., et al., 2013. *Simulation as a tool for supporting teaching, learning and assessment in an undergraduate pharmacy programme. Compendium of Effective Practice in Higher Education: Volume 2.* York: The Higher Education Academy.