

Paper

Defining 'sustainability indicators' for higher education teaching and learning innovations

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Abstract

Enhancement and innovation have been key aspects of Higher Education development in recent years. Government, professional bodies and individual institutions have committed significant funds to the development of teaching and learning innovation and benefits have been realised across the sector. However, in a changing funding landscape, the cost of teaching and learning innovation will fall on individual institutions to initiate and deliver. Whilst historically, many benefits have been realised from such initiatives, their longer-term sustainability should be examined. This paper firstly seeks to define what sustainability means in the context of teaching and learning innovation. We then examine the landscape for Higher Education teaching innovation and propose a number of qualitative indicators that might be used for a teaching and learning enhancement or innovation project to determine how likely its activities are to be sustainable, in some form, beyond their initial implementation stage.

Context: Teaching and learning enhancement and innovation in England

Teaching and Learning enhancement and innovation have become common features of English Higher Education. Until recent times, substantial funding for innovation and enhancement activity was made available by the Higher Education Funding Council for England (HEFCE) to universities (Trowler, 2013). With the changes to higher education funding that were initiated following the Independent Review of Higher Education Funding and Student Finance (Browne, 2010), the availability of such funding has been substantially reduced, and now universities are increasingly supporting these activities for themselves. This is exemplified, for example, by the rise in institutions establishing their own dedicated, and academically led, teaching and learning enhancement units (for example the Teaching Academy at the University of Birmingham and the Leeds Institute for Teaching Excellence and Innovation), and the complete removal of funding by HEFCE at the end of July 2016 from the Higher Education Academy, the UK's national body for championing teaching quality within Higher Education.

The Quality Assurance Agency (QAA) for UK Higher Education defines quality enhancement to be 'taking deliberate steps at Institutional level to improve the quality of learning opportunities' (QAA, 2015:32), and although HEFCE has indicated it will continue its investment in learning and teaching enhancement its approach will be guided by an enhancement strategy whereby 'priorities are addressed consistently, with clear leadership, over extended periods of time and with consistent attention paid to long-term sustainability' and that effects 'a culture change across the system' (Trowler et al., 2014). However, this must be considered in the context of a changing higher education landscape within England where the recent Government white paper (BIS, 2016) commits to replacing HEFCE and the Office For Fair Access (OFFA) with a single sector regulator and student champion called the Office for Students, and implementing a Teaching Excellence Framework (TEF).

With the TEF soon (at the time of writing) due to report on its Year 2 outcomes, in its most recent phase providers who elected to submit to it have been assessed against three main aspects: Teaching Quality; Learning Environment; and Student Outcomes and Learning Gain. As described by Skelton, it is therefore timely that:

'We need to forge a productive relationship between teaching excellence and ongoing scholarship. We need a teaching excellence that has sustainability: one that is dynamic, enquiring and reflexive.' Skelton (2005)

Teaching and learning innovation and enhancement needs to be more strategic in its approach: meeting clearly identified needs; success criteria defined at the outset; rigorous evaluation to capture learning and determine impact; a clear role for students in the process; not just dissemination but wider 'uptake', that is mechanisms to enable the activities, approaches and resources to be directly utilised across and outside of the institutions in which they are developed; and, clear recognition and reward for those involved in excellent practice in teaching and learning.

Just-in-Time Teaching

As we continue into Year 3 of this new TEF-era, there will need to be greater selectivity in the enhancement activities that are supported. There will be an increasing emphasis on identifying and evidencing those that have a demonstrable impact upon students and their learning, particularly if institutions are able to submit a contextual statement as part of their TEF submission, and if we eventually move, as currently proposed, to a subject-based system of review. Whilst this must not discourage innovation and the trialing of new approaches, it will mean that understanding the impact of one's teaching and learning innovation practices long before results may manifest themselves in nationally available datasets will be vital.

It will also not be enough to trial new approaches activities, real thought must be given to how they might be sustained, or scaled, particularly if they have, or begin to show, the desired impacts. As such, while there is perhaps a clear understanding of what we mean when we discuss 'innovation' and 'enhancement', it is also important to be clear in how we define the constructs of sustainable and sustainability in the context of Higher Education teaching and learning development.

In its crudest sense, sustainability is often interpreted as an activity not requiring any additional financial investment for it to continue, and given the changed financial climate within UK higher education (Browne, 2010), ensuring activities are sustainable, is a priority for all universities. However in practice, this is unrealistic since any activity will require some form of ongoing resource investment in order to be maintained be it financial or more likely human. A definition of sustainability has been proposed (Wiley, 2007) in the context of Open Educational Resources, which considers sustainability as a project's '*ongoing ability to meet its goals*.' This can be achieved in retrospect, but it is also useful to establish if there are indicators at the start, throughout, and at the end of an educational initiative that can provide some indication of whether an initiative might be truly sustainable.

Activities established through national initiatives will typically have undergone some form of external evaluation at some stage during their lifecycle, most likely as a condition of funding. We can interrogate the reports of such projects to explore whether sustainability is considered, at what stage in the project lifecycle, and how the meaning is defined or interpreted. In beginning our analysis, however, there is a need to formulate a common understanding of what we mean by the construct 'sustainability' in relation to educational enhancement and innovation. We can propose that the sustainability of an educational enhancement activity or project is deemed to be realised when one, or more, of the following outcomes is achieved:

1. It continues, in current or modified form, within at least the Higher Education institution(s) initially involved in its development and implementation, after the period of project (financial) support ends.
2. It influences or informs the wider practices of a department, faculty or institution such that it brings about demonstrable changes to existing practices and approaches in line with the ethos of the original activity.
3. It influences and informs the attitudes, beliefs and values of those individuals involved in (or exposed to) the activity such that it changes their own individual practices and approaches.

Such a definition is broad, but the common element is that the activity continues in some form, either directly or indirectly, either through practices that become mainstreamed or institutionalised, or by equipping staff with a new outlook or skills that they continue to deploy throughout their careers. An activity needs to continue for a period of time in order to be judged sustainable (in its original or a modified form). We make no judgement here over what the time period is, as it will vary and indeed the enhancement process for teaching and learning must be a continuous one. We are not at this stage concerned with when we can make a judgement on sustainability, but how we might. Further, if we cannot make a conclusive assessment, are there indicators that might be used to determine whether the activity has 'sustainability potential'; by this we mean are there are supporting conditions in place at the outset that mean it is likely to be sustainable?

Indicators of 'sustainability' in teaching and learning: A case study approach

Here we consider one example of HEFCE's targeted approach to learning and teaching innovation and enhancement. In 2004 the Secretary of State for Education and Skills sought advice from HEFCE on strategically important, but vulnerable, higher education subjects or courses (HEFCE, 2005). A review was undertaken to identify subjects in need of support to address an imbalance between supply and demand, and a range of disciplines were identified where participation had been falling steadily over a number of years. In response, HEFCE initiated a programme of work to support subjects deemed strategically important and vulnerable. This included four pilot projects in chemistry, engineering, mathematics and physics designed to pilot and evaluate new approaches to increasing and widening participation in these discipline areas. In 2012 the £21 million National HE STEM Programme initiated a range of interventions designed to enhance the way universities recruit students and deliver programmes of study within the same four STEM disciplines (Grove, 2013); a key feature of the National HE STEM Programme's work was

transferring and embedding the learning from these pilot projects more widely so that they became part of the core practice of higher education institutions (HEIs) (Grove, 2013).

The National HE STEM Programme was one of the few initiatives where sustainability was explicitly embedded for consideration during the tendering phase. As a consequence, sustainability was taken seriously throughout the entire Programme:

'...our judgement is that both in terms of design, and in terms of implementation, sustainability is being taken very seriously across the programme.' WME (2011)

Given the prominence of sustainability for the National HE STEM programme, during its design, implementation and delivery, it seems appropriate to use it, and its activities, as a model for exploring whether there exist any indicators of sustainability potential within educational enhancement and innovation projects.

It is evident from the evaluation reports of many initiatives, for example the *'Summative Evaluation of the CETL Programme'* (SQW, 2011) that many such evaluations are undertaken as an activity concludes or shortly after it has concluded. This is perhaps understandable: for large-scale activities the infrastructure is in place to support the data collection that is necessary, and often, a judgement is needed as to whether it should continue to be supported post-funding period. However, there are inherent dangers in trying to determine whether sustainability will be realised so close to their conclusion:

'Robustly measuring sustainability is though inherently difficult when a programme was only just drawing to a close. It is only when the external support has been fully removed for six to 12 months (or potentially even longer) that sustainability can be conclusively demonstrated.' CFE (2013)

Whilst an activity may appear to be continuing, it could equally be the case that its development is still continuing, albeit without the support afforded through the project, or that insufficient evidence is currently available to make a judgement as to its overall effectiveness and validity in the longer term.

For an activity to be sustainable, it needs to offer some benefit for stakeholders. Such benefits might be identified in the longer-term through evaluation or research, but in the earlier stages could be indicated by the perceptions of staff, students and other stakeholders (albeit sometimes anecdotal) that the activity is offering incremental benefit to a department or institution. Equally, activities might continue to be modified and adapted so that they exist longer-term in an almost unrecognisable form, or even exert a wider influence beyond what was originally intended; here the activities will have a legacy, which may be much harder to determine.

Given such challenges, an appropriate analysis is to explore longer-term potential for sustainability by considering a series of 'sustainability indicators'. These give an indication of whether the environment is conducive to the activity having a high likelihood of continuation beyond the end of its funded period. If so, can these then be used as a proxy measure to infer the overall likelihood of sustainability of an activity?

Through the many activities (greater than 500) of the National HE STEM Programme, we have analysed individual project reports and considered data collected by both external (CFE, 2013) and semi-external (for example Tolley, Greatbatch & Mackenzie, 2013) evaluations of the activities undertaken as the Programme drew to a close. It is natural to treat statements made at project closure, by those who have run successful projects, with caution because there is often a feeling of elation. However, such individuals are often best positioned to identify the potential for sustainability, and are ideally situated to put appropriate plans in place.

Considering the reports and case studies produced through the National HE STEM Programme has enabled us to identify ten factors, or sustainability indicators, that appear to provide an indication of whether an educational activity is likely to be sustainable. These sustainability indicators are likely to contribute to an activity being sustainable in the longer term, and may therefore potentially be used to make a reasonable judgement relating to the sustainability of an activity during its earlier stages. The evidence in support of these indicators, extracted from the individual projects, is contained within the final National HE STEM Programme Final Report (Grove, 2013). The purpose here is not to represent this evidence, but to provide an overview of the indicators and offer suggestions, based upon our experience, of how they might be interrogated and analysed by those who have strategic responsibility for establishing and supporting learning and teaching interventions. This is summarised within Table 1.

Further work

At this stage we have merely identified potential indicators of sustainability and provided suggestions, based upon our experience, of how they might be investigated for individual projects and activities. It is to be noted that there is a degree of overlap with how they might be evidenced or demonstrated, however, it seems apparent that all indicators can be successfully interrogated by funders through regular dialogue (either through structured written reports or project meetings) with their projects. As such, our initial analysis offers recommendations for the structure and format of interim and final reports and case studies, but most significantly, makes the case that the idea and importance of sustainability should be highly visible to project leads.

At this stage we have not tested whether certain indicators are critical to sustainability or whether a minimum number need to be present, and indeed there is a need to refine our analysis further. This is the next stage of our work which will now be undertaken following the recent (2015) collection of data from these same National HE STEM Projects some three years (minimum) after their external funding concluded.

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Table 1: Sustainability indicators for learning and teaching enhancement.

Sustainability Indicator	Description	How might this be interrogated/evidenced?
1. Embedding the Importance of Sustainability at the Outset	Ensuring that sustainability is seriously considered by project leads during the development stage of an idea and is subject to rigorous (peer) scrutiny. Then, ensuring sustainability is considered and questioned throughout the lifetime of an activity.	<ul style="list-style-type: none"> ■ Include, within initial proposals and guidance, a section that explicitly asks proposers to highlight how they will sustain/continue their activities. ■ Ensure interim reports explicitly ask that project leads address the question 'Describe your current progress towards sustainability?' ■ Ensure the final project case study/report template contains an explicit section on sustainability – make this available to project leads immediately upon project commencement, and make them aware that case studies will be made widely available.
2. Proven Starting Point	The development work and learning has already been applied elsewhere, and the opportunity exists to build upon what works and commence the activity from an advanced starting point based upon the knowledge and expertise. Resources may exist, and the value and impact of the activity will often be evident.	<ul style="list-style-type: none"> ■ Asking project leads to articulate, at the proposal stage, how their work aligns with the existing body of practice, and, if appropriate, how the project will build upon this. ■ Similarly, asking staff to articulate the anticipated impact of the activity or intervention at the outset, and then commenting upon progress towards this within subsequent reports. ■ Where there is an existing starting point, are the activities undertaken in conjunction with (or with the support of) those with existing expertise or utilising existing resources/materials?
3. Up-Front Investment	Many developmental activities require an initial 'up front' outlay. This may be to develop resources, purchase equipment, or to buy-out staff time. After this initial work, ongoing delivery costs will be lower if there are no consumables costs. The significant resource cost then is staff-time which, if there is perceived to be benefit to an institution, can be allocated to the ongoing continuation of an activity.	<ul style="list-style-type: none"> ■ To what extent does the proposal request non-consumable resources? ■ Are there clear examples and plans for how these resources or equipment will be used? Are their subsequent examples (case studies) of their use? ■ How will the resources or equipment continue to be made available and used?
4. Alignment of Activity with Wider Priorities	The activity aligns with a wider set of priorities, for example institutional or national and, as such, provides opportunities for leveraging additional support or commitment.	<ul style="list-style-type: none"> ■ Encourage project leads to explore the wider context of their work, for example within the context of departmental, faculty, institutional or disciplinary priorities or national/international events. For example, does the activity align with an institutional Office for Fair Access (OFFA) Agreement? ■ Seek evidence from senior staff, within the department(s) where the activity is based, of its contribution to the work of the department, including its impact on staff/students. ■ Is the activity becoming embedded as part of the curriculum, or departmental/institutional practice?

Sustainability Indicator	Description	How might this be interrogated/evidenced?
5. Institutional Commitment	Direct buy-in or support is provided by the institution. This may be additional financial resource for development, to ensure on-going delivery, or in-kind support, such as the allocation of additional staff time or incorporation of the activity within workload timetabling.	<ul style="list-style-type: none"> ■ This extends beyond a senior level letter or statement of support at the outset of the work. ■ Solicit, during the proposal stage, evidence of the 'in kind' commitment to the project, both financial and human. Ensure this is validated during interim and final project reports. ■ Seek evidence of the (unexpected) 'in kind' contributions made throughout the project by others – how have they contributed to its work? ■ How have senior management been engaged in the activities of the project? Senior management engagement has been found to be a key factor in successful implementation/delivery (Tolley, Greatbatch & Mackenzie, 2013).
6. Wider Value	This might also be termed 'transferability': the potential of an activity to extend beyond its initial sphere of influence to be used by others within the institution or across the sector. There will be clear value and benefit to others.	<ul style="list-style-type: none"> ■ Many projects begin with an initial impact in mind. Mechanisms should be embedded to encourage project lead(s) to reflect upon the ongoing impacts of their project at key points in its lifecycle. For example, the impact upon stakeholders (students, departmental colleagues, institutional staff) and policy and practice (departmental, faculty, institutionally). ■ Has the scale, and/or scope of the project been extended from original plans? ■ How is the project contributing to the national policy debate? ■ Have there been stakeholders, beyond those originally envisaged, engaged in the project? Are there 'user stories' or evidence from learners?
7. Evaluation	Evaluation is an important part of the educational development process. A robust commitment to (internally) evaluate should be in place prior to the commencement of any project.	<ul style="list-style-type: none"> ■ While all proposals should demonstrate a commitment and plan for evaluation at their outset, evidence is needed that this is embedded throughout a project and not only at its beginning and end. An evaluation plan should be maintained and updated. ■ Systematic evidence of not only the capture of data throughout, but also changes to the project or activity in response to emerging findings should be sought throughout the project lifecycle. Evaluation should include the views of key stakeholders at all stages. ■ Is there (new) engagement of project lead(s) with institutional and national activities relating to evaluation and educational research or specific learning and teaching events and activities?

Table 1: Sustainability indicators for learning and teaching enhancement. (continued)

Sustainability Indicator	Description	How might this be interrogated/evidenced?
8. Dissemination	Dissemination indicates there is a substantive story and an individual belief in the ideas being shared. It demonstrates a clear personal commitment to the activities and ideas.	<ul style="list-style-type: none"> ■ Evidence of (ongoing) awareness raising and sharing information about the project and its activities within the host department and institution (including online). ■ National dissemination of findings and learning through, for example, conference talks and published works, or work with professional organisations. ■ Collaboration with others to encourage uptake of developed practices, for example through 'practice-transfer' schemes (see for example, Pugh & Grove, 2014).
9. Developing a Community Identity	Bringing together like-minded individuals or those who wish to learn from each other, share ideas and practices, or oversee the ongoing nature of activities within a community, through a co-ordinating and networking function.	<ul style="list-style-type: none"> ■ Encouraging projects to include an initial literature review to explore the context of their proposed work relative to existing international practice. ■ Networking, through conferences and events, but also through activities and meetings established by the project lead(s) both within their institution and outside of it (including online). ■ The visibility of the individual within their community and institution. For example, invited talks, or contributions to learning and teaching consultations.
10. Professional Development and Recognition	Professional development includes individual learning, learning amongst other engagers, or a concerted effort to transfer the knowledge and expertise to others through mentoring or training events. Recognition involves an independent acknowledgement of the contribution an individual has made through their work and activity.	<ul style="list-style-type: none"> ■ Collaborative activities with others to develop ideas and inform practices. For example through mentoring. ■ Participation in workshops, events and special interest groups related to the theme of the project. ■ In project reports, seeking evidence of how the skills and outlook of the project lead(s) have developed, through new experiences, and possibly evidenced through a reflective component in the project reports. ■ What is the expertise of the individual in relation to learning and teaching enhancement? Is there either a track-record or a clear personal rationale for the activity? ■ Reward and recognition received by the individual as related to their work. For example: professional fellowships, institutional and national teaching awards, and promotion.