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Improving Student Learning

Improving Student Learning Through Research and Scholarship: 20 years of ISL

Edited by Chris Rust

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For the last five years universities in Australia and New Zealand have experimented with the use of the Engineers Without Borders (EWB) Challenge in their first-year engineering courses. In evaluating the initiative we asked "What works for whom under what circumstances?" Here we report specifically on the third phase of the project which examined three attempts to embed the findings of the evaluation in the next year's teaching: one concerned adjustments to assessment to improve alignment; another concerned the use of the EWB Challenge projects in a multidisciplinary subject outside of engineering; and the third set of changes revolved around attempts to make sure a large teaching team was implementing the projects in a consistent way. In all of these cases it emerged that maintaining communication and collaboration amongst stakeholders was critically important and practically difficult. We conclude that embedding the results of research may require as much time and attention as actually doing the research and reflect on how practical strategies may be developed.

Intro – the EWB Challenge in Australia

The higher education sector is under ever-increasing pressure to respond to societal and political demands for renewed curricula, whether that means a response to changes such as the Bologna Declaration, a sudden social sensitivity to pressing issues such as climate change and sustainability, or governmental demands for increased participation from low socio-economic groups (Commonwealth of Australia, 2009). While there are demands for Australian universities to recruit more diverse student groups, there is also a perception that the traditional pool of students coming straight from high school differ in important cultural and attitudinal ways from previous generations [(Krause et al, 2005; Markwell, 2007). In response to these pressures, many Australian universities have implemented in some form the Engineers Without Borders (EWB) Challenge for first year engineering students.

Established in 2007, the EWB Challenge aims to enhance the first-year students' learning experience and initiate and foster a range of graduate attributes through authentic team-

based design for real sustainable development projects. Every year, EWB nominates one of their partner organisations in a developing community and a range of projects and themes addressing needs and work in that community as the basis for the year's EWB Design Challenge. EWB develops and provides a suite of resources including online information about the community and the partner organisation's work, offering facilitated discussion with stakeholders through an online forum. The EWB Challenge is designed to offer students and universities the opportunity to actively engage in real, collaborative, project work that has the potential to contribute positively to these communities.

The Challenge is unique in that it has a strong and distinctive focus on the development of graduate attributes related to social, cross-cultural, and ethical responsibilities in a global context. Core curriculum which is purported to be covered by the Challenge includes:

- Introduction to the engineering design process;
- Developing communication skills;
- Introduction to teams, teamwork and team dynamics;
- Hands-on design project, including reverse engineering; and
- Ethical, professional and sustainability considerations.

The Challenge has the potential to address all of the graduate attributes listed by accreditation authorities since it requires effective communication and teamwork, has a focus on the triple bottom line of social, environmental and economic sustainability and ethical practice and demonstrates the ongoing learning that is necessary for engineering practice in the real world and how that learning is achieved through collaboration and consultation. In addition, EWB does considerable work in establishing partnerships in communities and preparing background information.

In 2010, the Australian Learning and Teaching Council (ALTC) funded us to evaluate this innovation across 13 universities in Australia and New Zealand. All institutions have implemented the Challenge differently and comparison of these different implementations affords us the opportunity to assemble "a body of carefully gathered data that provides evidence of which approaches work for which students in which learning environments" (National Academy of Engineering, 2005).

Methodology – program logic and realist evaluation

Initial data was collected from all participating universities using a program logic model (Jolly et al, 2011). The program logic model of evaluation (sometimes called the Wisconsin model) "is an ongoing systematic process [which allows professionals] … to plan, implement and evaluate their educational programs" (University of Wisconsin, 2010). The model serves as a conceptual framework for any investigation or evaluation.

'Program', as used by the model, can describe any activity or organisational process from a simple teamwork activity through to evaluating the educational outcomes of a course (subject) or complete curriculum. The logic model describes a sequence of actions that describe the program's goals and outcomes whilst also considering how external factors interact and influence the program. This framework was used to map how course leaders believe the use of the EWB project should be working and what their desired outcomes were. These desired outcomes and operational matters (assessment, learning objectives etc.) varied across courses and institutions. Expectations were compared against evidenced outcomes for each institution.

The data was analysed using a Realist approach (Pawson and Tilley, 1997) to isolate the aspects of Context and the Mechanisms that are triggered by these programs in order to produce the observed outcomes. Scrutiny of a variety of different implementations of the innovation in a range of contexts across the participating institutions allowed us to ask "What works for whom in what circumstances and in what respects, and how?" (Pawson and Tilley, 1997). Realist evaluation stresses the linked concepts of Mechanism, Context and Outcome for understanding and explaining programs. Mechanisms describe what it is about programs that bring about Outcomes; they are the decisions to change that are triggered by the program. The process of how participants act and react to resources and processes in a program is known as the Mechanism. Whilst identifying critical mechanisms is a step in the evaluation it must be recognised that these mechanisms work differently in different contexts. Context should not be confused with location (such as 'online') but rather refers to circumstances. Context describes the sociocultural conditions (including pedagogical decisions) that set limits to the efficacy of the program. Outcomes covers the consequences of programs both intended and unintended which result from the interaction of Contexts and Mechanisms (Pawson and Tilley, 1997). This approach does not make hard and fast distinctions about the success or otherwise of a program but a good evaluation can explain a complex set of interactions and outcomes and test these conjectures empirically (Mark et al, 2002). In our case this was important because 13 universities were involved, all implementing the Challenge in a different way. The C/M/O analysis allowed participants to identify similarities and differences, while still allowing for some generalisations.

Data was collected through observation of classes, interviews and focus groups with staff and students, analysis of documents such as course outlines and student work, and an exit survey offered to all participating students (N = approx. 4500 students, 800 respondents).

Brief summary of findings

Contexts that were found to have the most influence on the successful use of the EWB projects include the alignment of project context and design constraints, the alignment of assessment criteria with project goals and activities, and behaviour of teachers as shown in Table 1. At a broad level these seem obvious. All learning should be enabled by a constructive alignment of course objectives, activities, and assessment. It should be supported and championed by the academic and tutors who work as a team with shared goals, beliefs and practices. However in large diverse classes with large numbers of

tutors, small misalignments which might have accumulated slowly over time, can have amplified effects. This can lead to a very different pattern of Contexts, Mechanisms, and Outputs than was intended. For example, where the approach to the project emphasises the technological aspect of the problem, this Context can trigger a Mechanism of tutors and students focusing on 'technology' and 'a cool design' rather than something that specifically addresses the solution to a problem and its real world application.

Table 1: Prominent Context clusters

Cluster	Description
Focus on conditions of use of the design	This cluster is concerned with how well the project as presented in EWB briefs is reflected in actual learning activities.
Alignment of assessment criteria with project goals and activities	Students (and tutors) respond very strongly to assessment criteria so the descriptions of what is needed and the weightings given to various aspects of assessment are important conditions in triggering Mechanisms.
Teachers operationalize course aims	The climate the teacher develops in the class, the way they model the work of engineers, and the Mechanisms they exhibit, all create significant social and cultural conditions for the implementation of the EWB projects.

Contexts labelled 'enabling' are the social and cultural conditions that facilitate the operation of supporting Mechanisms. 'Disabling' Contexts are those that make it difficult for supportive Mechanisms to be triggered. Table 2 illustrates the range of Contexts contained in just one cluster, *Focus on conditions of use of the design.*

Table 2: Categories in a single context cluster

C3: Focus on conditions of Use of Design – Enabling		
Category description	**Category name**	**Illustrative examples from data**
Actual conditions in subject community define what students need to do in class	The **"community needs"** context	<u>Example – observation of tutor in class (Go8a)</u> *you won't get perfect solutions. Refer to constraints in brief*
Project context is used to foster diversity of approaches	The **"allowing for difference"** context	<u>Example – focus group (NGUa)</u> *No two designs are the same because everyone had to think their own different way, and what they, how they were going to overcome the problem that was presented to them. Cos everyone had different ideas and stuff, everyone's different*
C3: Focus on conditions of use of the design – Disabling		
Presentation of project/build emphasises technological problem	The **"cool design"** context	<u>Example – notes from discussion with tutors (Go8a)</u> *Some groups have used colour detection as the principle for identifying debris as ping pong balls used in the model are orange. I said "but in the real world…" and the tutors said "yeah it won't work but it was really cool the way they worked it out"*

Presentation of project does not treat it as real.	The **"this is just background"** context	Example – interview with student (Rb) I think it was in the design brief but it may have been elsewhere online – it said that the idea of using human waste as fertiliser clashes with local beliefs and values. So you…and that it would require significant support for the community to actually get on board with doing this. ... And the response… which is fine, that's not my issue, this is just a background.

The mechanisms triggered by these contexts are described at the cluster level in Table 3.

Table 3: Prominent mechanism clusters

Cluster	**Description**
Outcomes motivated considerations	Decisions driven by understandings of the outcomes from the Challenge projects
Sustainability motivated considerations	Decisions driven by considerations of sustainability
Desire to improve work practices	Decisions driven by desire to improve learning processes as well as learning outcomes
Awareness of broader engineering practices	Decisions driven by understandings of the nature of engineering practice

Mechanisms labelled 'supporting' are those that contribute to the attainment of desired outcomes, while those labelled 'inhibiting' work against such attainment. Table 4 illustrates a single cluster, *Awareness of broader engineering practices.*

Table 4: categories in a single mechanism cluster

M4 Awareness of broader engineering practice – supporting		
Category description	**Category name**	**Illustrative examples from data**
Participants experience of project process gave them a more positive view of the discipline	The **"makes me feel good about engineering"** mechanism	Example – student focus group (Go8b) *I'm doing a computing course, and I chose to do that because I like computing, but having done this course I almost feel like changing degree because I had so much fun, and also just because the support is so much better than in computing. It's only really catered by a bunch of nerds that sit in their offices all day, but engineers seem more engaging. I know that's stretching the prototype a bit yeah.*
Student understandings of communication included close work with end users to explain and justify the design.	The **"you have to take them through it"** mechanism	Example – student focus group (ATNa) *Presenting your ideas, not just like, here's the problem, here's your solution, but like actually explaining to people what it is. Because, like, I was thinking that they'll give us a problem, we'll solve it, we'll give them the solution, but nah, it's like you have to take them through everything.*

M4 Awareness of broader engineering practice – inhibiting		
Engineering practice is represented as in the process of change but no actual change is obvious	The **"how engineering is going to be"** mechanism	Example – student focus group (ATNa) *The last lecture we had seemed to say a lot of things about how a lot of engineering is going to be, like, to make things more sustainable, like new ways of doing things, processes and things like that.*
Refusal to accept more than narrow sub-disciplinary boundaries for the work of engineers.	The **"we don't do this in my discipline"** mechanism	Example – student focus group (ATNc) *I think that there is a bit of , I don't know, maybe hedonistic type of flavour to that, saying that well I am a mechanical or an electrical engineer. Why do I have to hear about this topic or this topic. Oh I'm never going to use this or something like that.*

Full description of the evaluation's finings would far exceed the space we have here and these examples are offered only to illustrate the method. Tables such as those above were produced by constant comparative analysis of the data in a series of iterative loops. While this analysis was still going on, we were interested to see whether we could try out some of our insights in a subsequent semester in a course where changes were already planned. This allowed us to test the validity of our results, and also prompted us to identify more significant contexts. The 'cumulation' (Pawson and Tilley, 1997) of explanation is characteristic of realist evaluations.

The implementation phase

The three course controllers who were contemplating change were at different moments in the context + mechanism = outcome equation. Site 1 involved some minor changes to course design to better align assessment criteria and overall course objectives. The changes were designed to encourage students to see their assessment as a true reflection of real-world practice and hence support their adoption of such practices as building in realistic sustainability considerations as part of mainstream engineering. Sites 2 and 3 planned more comprehensive change.

Site 2 adopted the EWB Challenge projects (although not the Challenge competition) in a new third year multidisciplinary course which included students from all faculties at that university. Here the focus was on what outcomes would be achieved and what the impact of multidisciplinary teamwork would be. In Site 3 it was felt that more structure in the curriculum and more scaffolding of learning could improve outcomes. The fact that this was a large fully online course presented challenges to achieving observable and uniform change.

Site 1

This site was a place where the EWB Challenge had been implemented for several years as part of widespread curricular change involving the institutionalisation of a common first year and increased use of project-based teaching methods. At first the EWB projects were mandated for all subject areas but this provoked strong opposition from some departments and staff. In 2010 a new co-ordinator undertook extensive collaboration with staff to arrive at an implementation that would have greater acceptance in the faculty. This meant redeploying some staff who were not used to or interested in the course and allowing some disciplines to pursue non-EWB projects. Even the non-EWB projects, however, were required to pursue the outcomes which the Challenge had been instituted to achieve through a strong emphasis on engineering in context.

These projects were first tried in 2011 with varying degrees of success (Jolly, Crosthwaite and Kavanagh, 2011). We have reported elsewhere that the use of a *Demo Day* where students developed models of their design solutions and tried them out under competitive conditions was motivating for students. However, in the case of some projects it created tensions between what could be accomplished for a single demonstration and the longer-term goals of projects such as the community-based water purification projects proposed by EWB. For instance, one group working on water purification abandoned a fruitful solution because it would be too slow for *Demo Day.* Staff in charge of the course realised the problem at once and redesigned the assessment criteria for 2012 so that such tensions were not created.

In this case the change was a relatively minor one, typical of the small-scale change that is constantly happening in all curricula (Heywood, 2005). While the best-known model of curriculum change (Walkington, 2002) emphasises ongoing and extensive collaboration, this change required little immediate collaboration to bring it about. However, it built on an extensive collaborative process similar to that described by Walkington (2002), which created the necessary trust and acceptance amongst a large teaching team, but at the price of a compromise over the extent to which the EWB projects would be used.

Site 2

The change of context at Site 2 involved the use of the EWB projects in a multidisciplinary third year course called *Leading Change in a Complex World.* While there were some engineering students in the course, they were outnumbered by scientists, architects and social scientists, amongst others. Here the course controller had free rein to develop the course as she saw fit since it sat outside of prescribed formal program structures and the teaching team consisted of the course controller and one tutor, assisted by some guest lecturers throughout semester.

The course was designed to be responsive to students' needs as they emerged over the course of semester. It was run mainly in workshop style and through intense collaboration with students over learning outcomes in a process the course controller called "co-creating learning intent" (Prpic and Hadgraft, 2011): similar to the kind of inclusive process described by Walkington (2002) but emphasising collaboration with students. The objectives of the course included:

- Show evidence of grappling with complex problems through the lenses of your own and others perspectives

- Demonstrate learning consultative skills with stakeholders
- Demonstrate the ability to make and lead a case taking into account your own and others' perspectives
- Demonstrate the use and integration of the knowledge developed over the course of your degree

Of course the challenge with such objectives is to reach a common understanding of what is meant by them and what will count as achievement of them. Time was spent in this course negotiating this in a process similar to Walkington's first stage of developing the proposal. Student groups were asked to articulate their own understandings of the expected outcomes and Figure 2 shows two examples of the results. The very layout of these posters indicate a range of styles from a linear journey with a list of skills that can be checked off, to something more free-form and open-ended, there is still considerable overlap between them and the traditional outcomes being sought by those using the EWB projects in other contexts. During the course of the semester the tutor identified (reflexive journal weeks 3 and 10) a 'nodding effect' in some students. That is to say that although they were happy to go along with the activities they were not really getting it. This was reflected in a bi-modal result in student evaluations which suggested that either students committed to the process and loved it or just went along with it and remained unsatisfied.

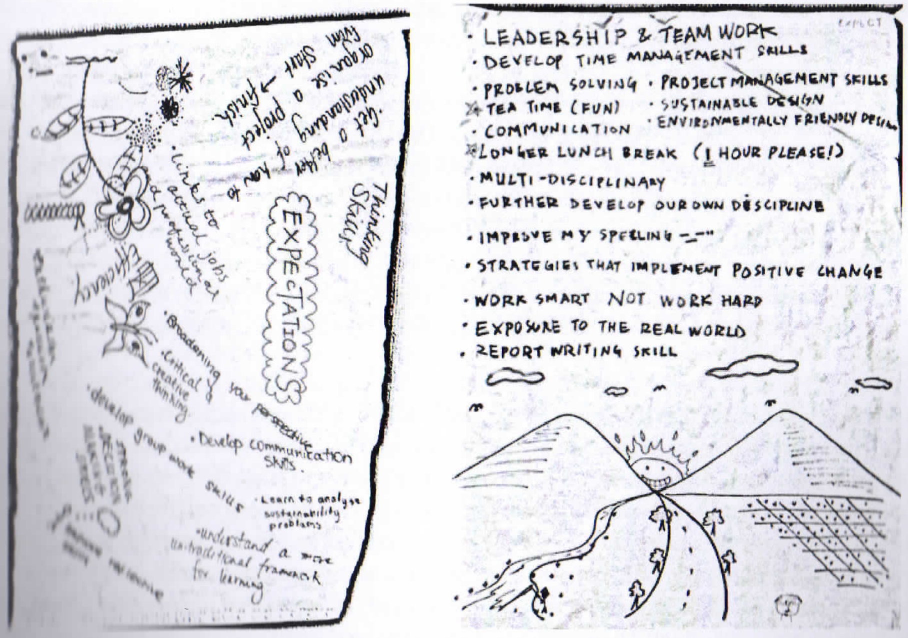

Figure 1: What students wanted to get out of the course (Site 2)

Those who judged the course to be successful had things like this to say:

I am happy to say that I think I have learnt more important skills in this subject than in any other one I have studied at university. Not only have I gained a large knowledge base about the focus of the subject (Vietnam, An Minh, housing, infrastructure and materials) but I have also gained much insight into my learning styles, my weaknesses, my strengths and the benefits that comes with analysis of oneself.

(Final reflective essay).

Significantly, the personal style of the course controller was identified by both students and tutor as a factor in the success of the collaborative approach.

Site 3

The third site was one where a long-standing online course built on problem based learning (PBL) principles and using the EWB projects for most of its content was felt to need rejuvenation. It is notoriously difficult to foster effective group work online and it was felt that a more explicit use of PBL principles would alter the course context by making objectives and process clearer to tutors and students alike, allowing them a greater range of choices in how they would respond and learn. A set of week-by-week guidelines for tutors and revised and simplified assessment rubrics were developed in concert with the research team and in line with what we had discovered seemed to work elsewhere.

In previous years a core cohort of trained and committed tutors had been built up, but in 2011 the course controller was told she could not use most of these people and instead had to use full-time academics. Ten out of the 12 people thus assigned to the course had never had any contact with it or any other PBL course before. They were not familiar with the rationale and processes used and, as it turned out, were likely to be unsympathetic and resistant to the underpinning pedagogy. While the course controller lobbied for more suitable appointments, this all took time and the course had already begun when the final staff list was arrived at. It included three members of staff who didn't want to teach on the course and whose attitudes varied from passive aggressive to explicitly undermining. The course controller set up meetings and tried to make personal contact with these staff members in order to refine the design and get greater tutor involvement but got no response.

The attitudes and behaviours of these three staff members created difficulties for the course controller who had to deal with student complaints about inconsistent treatment by the various tutors. An online staff forum was used to try to help develop consensus but was either ignored by the alienated staff or used to belittle the course controller's efforts and announced a refusal to apply the published rubrics. In the stress of managing this situation the plans for well-structured activities and tutor responses for each week began to slip and even the experienced and committed tutors tended to revert to what had been done in previous years. In one instance this involved one tutor giving advice about problem solving in terms of a model that had been used in previous years but abandoned in this year's changes, to the confusion of students.

Despite all these difficulties, the student evaluations of the course improved and in focus groups students said that they understood what the course was about and why it was important. Significantly they also said that although they began by hating the teamwork aspects, by the end they were finding that teamwork was keeping them on track, not only in this course but in all their other courses.

A model for embedding change

Curriculum change is acknowledged to be a difficult process to initiate and maintain (Graham, 2012; Heywood, 2005). All the authorities agree that a mixture of top-down and bottom-up consultation and collaboration is needed (Desha, 2010; Walkington, 2002), starting with leadership from those who have done the research or at least consulted the literature to find well-justified rationales for the change. These leaders then need to consult extensively with all stakeholders to develop a sense of ownership and buy-in which will ensure ongoing collaboration. This can be problematic with universities increasingly relying on part-time sessional staff. But the authorities also agree that ultimately curriculum change depends on the teacher in the classroom doing what is needed and, given that "people prefer to keep on doing what they have always done" (Desha, 2012 p 139), change initiatives often fail because of not getting the teacher's support or not managing knowledge transfer when there is a new teacher unfamiliar with the change (Graham, 2012; Heywood, 2005). We are reminded very strongly of Heywood's (2005 p 193) observation that "ignoring the element of human behaviour in curriculum change is the reason why so much change fails".

The most recent report on curriculum change in engineering by Ruth Graham (2012) concentrates on widespread changes involving whole departments and concludes that changes need to be "radical and widespread in order to stick" (Graham 2012) as well as enjoying the support of heads of school/department. This finding is supported by Walkington (2002) who provides detailed and much quoted advice for bringing about curriculum change in engineering requiring extensive and recursive cycles of collaboration and consultation (Figure 2). Starting with a proposal based on previous research, this model moves through refinement and modification of the proposal in discussion with stakeholders, then to development of curriculum materials that everyone involved can agree on, and finally to an implementation stage which involves ongoing evaluation and modification.

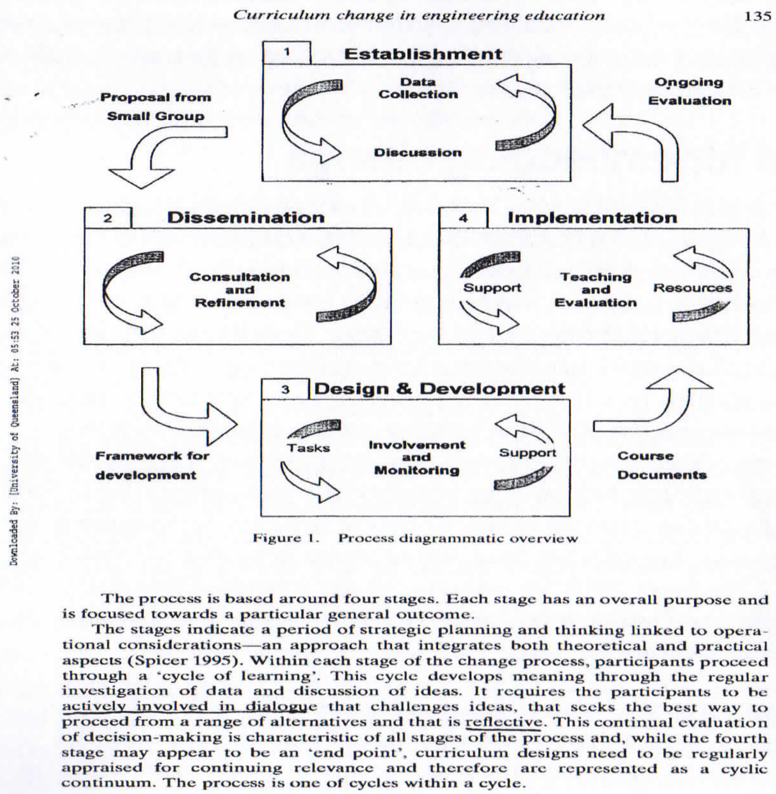

Figure 2: Recommended change process (Walkington 2002)

Conclusions

We had expected that having a soundly research-based rationale for these three proposed curriculum changes, plus the co-operation of committed course controllers, would be all that was needed to implement findings in new contexts. As we have seen, some practical difficulties arose in the areas of gaining acceptance of the change from the whole teaching team and the students.

Site 1 already had a history of gaining that acceptance through negotiation with involved staff before this project began. When further change was necessary this was possible because of broad agreement on what the course was about and how it should be pursued. The earlier round of collaboration over course design meant that some aspects of the course that the originators may have wanted to retain, such as the universal use of the EWB projects, had to be modified. At the same time the process revealed those staff who were unsuited to the course as it was being designed and they could be redeployed. Here

we note that Graham's review of curriculum change in engineering finds that the support of the Head of School is essential and we propose that this is one example of the kind of support that change agents need.

Site 3 similarly illustrates that collaborative change processes such as Walkington's are two-way streets. Initiators of change must do their best to engage and accommodate a range of legitimately different views, but those in the wider group also need to be prepared to give serious consideration to new ideas. Such processes take time and we were probably at fault in trying to bring in relatively large scale changes in too short a span of time with a team that was not fully on board. It may have been better to leave the course as it was for another semester and use the experience of its difficulties to open up a collaborative consultation with involved staff about how to make it better. However, it is fair to say that there was a certain amount of pressure from the faculty management to do something quickly to improve student evaluations of the course and academics often find themselves under such time constraints. Again, a supportive Head of School may be able to play an important role here in applying pressure to staff members who were not fully committed to the course or removing them, but initiating enthusiasts need to make sure they are not trying to do too much too soon.

Site 2 allowed us the opportunity to examine the impact of unusual collaborative teaching methods on the students themselves. We think this is significant for a number of reasons. The first stage of the research demonstrated (Jolly et. al, 2012) that the most common mechanism triggered in students by the necessity to work in teams is that of dividing the work up and all going away and doing it separately. This mechanism creates the risk that students only learn about the part of the project they worked on. Some collaboration would seem to be necessary to reach all learning goals but it is rarely explicitly taught or required in our sample. There are often introductory lectures on teamwork and peer review arrangements requiring students to rate each others' performance, but little advice is offered as to what a collaborative performance should look like and students tend to rate each other for raw input (whether they delivered on time and the quality of their delivery) rather than process behaviours. At Site 2, active learning techniques and structured reflections were used to encourage students to become equal partners with the course controller in designing the course and its outcomes. However, the 'nodding effect' and the bi-modal evaluation results suggest that some students were paying lip service only to their collaboration in creating this course. This draws our attention to another potential problem for implementing change. Where there are power differentials between those proposing the change and those being asked to take part, collaboration may be nominal only. The equivalent situation for staff in collaboration might be those who don't make objections to a change but may not implement it effectively because of their lack of buy-in. Some of this was seen in Site 3. The best advice we can glean from our cases here is that compromise might have to be accepted. Thus in site 1 the initial insistence on all students undertaking EWB projects had to be modified to gain the acceptance of some staff members. Importantly, however, the staff in this site identified that the key educational principle was to teach students about engineering in context, rather than about particular projects. Therefore they insisted on this principle being maintained, no matter what project was presented to students. As we have said elsewhere (Jolly, Crosthwaite and Kavanagh, 2012) the EWB projects allow for this kind of learning but do not themselves necessarily deliver it, and other projects may just as well serve this educational aim. While all successful implementation relies on communication and compromise, the central educational principle needs to be maintained and not compromised away.

We have started by considering how to make best use of research results in bringing about curriculum change and finished by discussing the necessity for collaboration. This is an attribute we often claim to want to see in our students, but as the cases discussed here indicate, we appear to have an imperfect grasp of the process ourselves. Even where we attempt it, we run into barriers of time and lack of organisational support. It is perhaps ironic that we require our students in group-based courses to demonstrate effective team collaboration when we have deficiencies in that direction ourselves. When we consider what we can do to make collaboration easier for students, we need to consider what this project tells us about the kinds of contexts that are needed to enable collaborative mechanisms.

With that in mind, we took the insights gained through these implementation studies to revisit our realist evaluation to add another context cluster which draws attention to the necessity to create conditions that can help collaboration to happen. We labelled this context cluster *Commitment of stakeholders to learning goals* and describe its enabling and disabling categories in Table 5.

Table 5

<table>
<tr><th colspan="3">C1: Commitment of stakeholders to learning goals – Enabling</th></tr>
<tr><th>Category description</th><th>Category name</th><th>Illustrative examples from data</th></tr>
<tr><td>Stakeholders are willing to give up some expectations in pursuit of learning goals</td><td>The “willing to compromise” context</td><td><u>Example – notes from staff meeting (Go8a)</u>

[Course controller] is finalising non-EWB projects with project leaders. This is the culmination of 12 months’ negotiation over the new form of the course. She has agreed to let there be non-EWB projects in the interests of gaining staff buy-in which she appears to have. Some basic issues of assessment plan have to be re-iterated as group includes new staff. She insists on the principle of “engineering in context” for all projects.</td></tr>
<tr><td>Rationales behind actions are explicitly articulated and clearly communicated</td><td>The “principled action” context</td><td><u>Example – course materials (NGUa)</u>

<table>
<tr><th colspan="4">Cultural Considerations for Design</th></tr>
<tr><th colspan="2">Aspects of Culture for consideration:</th><th>Translates as:</th><th>Real life examples</th></tr>
<tr><td rowspan="3">1</td><td rowspan="3">culture as social structure: social dynamics and politics determined by culture – who is in charge, who has the knowledge, who is educated</td><td>Economics – how is wealth distributed in the community?</td><td>A feudal system exists w[...] charge also own all the [...] wealth.</td></tr>
<tr><td>Religion - what role does it play in the community? What influence/rules are observed?</td><td>No work allowed on [...] leader also community [...]</td></tr>
<tr><td>Gender - how are gender roles assigned (domestic and professional)?</td><td>Men traditionally do the [...] the cooking.</td></tr>
</table>
</td></tr>
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<table>
<tr><th colspan="3">C1: Commitment of stakeholders to learning goals – Disabling</th></tr>
<tr><td>Insistence on familiar processes from either staff or students</td><td>The “way it’s always been done” context</td><td><u>Example – interview with staff member (Rb)</u>

I don’t feel I’m trained in making sure that the scaffolding is in place so that the projects work. So that my training is not a face to face, well my experience is face to face teaching and traditional teaching. And here we do, we do still do that, we’re still doing face to face and I still do some traditional teaching every now and then in the project-based learning course, but I’m not trained in making sure the scaffolding is in place for a PBL course. And with my distance students, I don’t, I never learn, I’ve never learned as a distance students so I have no understanding of what they’re going through. I can only but imagine, and again…</td></tr>
<tr><td>Learning goals are recognised as worthy but it is seen as other people’s responsibility to make them happen</td><td>The “arm’s length” context</td><td><u>Example – staff diary debrief (Ra)</u>

[Course controller] is struggling with one staff member who refuses to implement teaching plan, agreed assessment criteria etc. and keeps undermining her on staff forums, saying the EWB projects are no good and she doesn’t know how to run a course. Despite the EWB projects being included at senior management’s insistence, she cannot get any support for action against this staff member’s recalcitrance. The complaints of students come to her and not higher up the food chain and she is expected to just deal with it.</td></tr>
</table>

Perhaps the primary lesson for us is the fact that evaluation research allows us to break down the divide between a research project and the implementation of findings because implementation includes an evaluation component, as in the last stage of Walkington’s model (Figure 2). Using the evaluation methods described here we have been able to provide valid and reliable analyses of student learning experiences. Using consistent methods and approaches we can go on evaluating and modifying practice to keep improving our understanding and adjusting to circumstances. Therefore, using research to improve teaching becomes routine rather than problematic.

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Resolving assessment issues in HE: learning from innovation in programme focused assessment

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Abstract

The Programme Assessment Strategies (PASS) project was set up to directly confront issues which concern every course/programme leader in Higher Education: how to design and deliver an effective, efficient and sustainable assessment strategy which ensures that the main course/programme outcomes are satisfied. This paper discusses the findings of this project.

Programme focused assessment (PFA) offers assessment that is specifically designed to address major programme outcomes rather than very specific or isolated components of the course. It follows then that it is integrative in nature, bringing together understandings of subject and skills in ways that represent key programme aims. As a result, the assessment is likely to be more authentic and meaningful to students, staff and external stakeholders.

The advantages of, and main barriers to, programme focused assessment are discussed through recourse to a sample of case studies from across the higher education sector.

Keywords: Assessment

Introduction

The Programme Assessment Strategies (PASS) project was a three-year National Teaching Fellowship Scheme project funded by the UK's Higher Education Academy. The project team comprised National Teaching Fellows from six institutions: University of Bradford (lead), University of Exeter, Leeds Metropolitan University, Northumbria University, Oxford Brookes University and University of Plymouth and included two former Centres of Excellence in Learning & Teaching (CETL), Assessment Standards Knowledge exchange (ASKe) and Assessment for Learning (AfL).

The project set out to confront issues that concern every course/programme leader in HE, in all academic disciplines: how to design and deliver an effective, efficient and sustainable assessment strategy which ensures that the main course/programme