Podcasting to Engage Industry in Project-Based Learning*

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The value to teaching and learning of industry engagement in engineering education is difficult to dispute. Industry partners provide real-world cases which place in context the theoretical content conveyed by the instructor. Unfortunately, the time and effort required of the industry partner wishing to contribute projects and expertise to a learning programme make it challenging to bring this contribution to fruition. Podcasting offers an opportunity to facilitate this contribution and make it less resource-demanding. Multimedia podcasting content can accommodate the different ways in which students learn (e.g. VARK—Video, Aural, Read/write and Kinesthetic sensory modalities for learning). Multimedia content also addresses the problem of student engagement. This paper describes a case study of an application of podcasting to a final year design module at Loughborough University. The students were assigned a master-planning project on which to work. An industry partner (i.e. the lead architect) was engaged to record an audio-visual session in which he gave an account of the key design considerations and the rationale for the master-planning project. Later, in a dedicated module lecture session, the audio-visual podcast was played. This was the first time the students were introduced to the master-planning project. The students were briefed about the scope of the podcast content in order to ensure that students clearly understood the context and purpose of the podcast. To further contextualise the podcast content, a real scenario directly relevant to the module's intended learning outcomes (ILO's) was selected. The design focus of the module meant that the podcasting project included the architect's account of the design and development processes. The results show that most learning styles were accommodated. The students performed very well in the test and rated the podcast very highly in a questionnaire which solicited their subjective reaction to the experience. It is concluded that podcasts offer genuine value in terms of convenience for industry partners to contribute. The significant value of podcasts to the teaching and learning experience is in the improved engagement and motivation of students, accommodating most learning styles, facilitating self-paced learning and encouraging active participation and learning. Podcasting leverages and augments synergy between industry and academia bringing strong benefits to both.

Keywords: audio-visual podcasts; academia–industry collaboration; project-based learning environments

1. Introduction

The value to teaching and learning of industry engagement in engineering education is difficult to dispute. Industry partners provide real-world cases which place in context the theoretical content conveyed by the instructor. This is particularly true of *design and project-based education*. Real-world projects provided by industry partners include experiential accounts which convey design rationale and provide rich, contextual expertise [1] missing from abstract theoretical lectures. Unfortunately, the time and effort required of the industry partner wishing to contribute projects and expertise to a learning programme make it challenging to bring this contribution to fruition. *Podcasting* offers an opportunity to facilitate this contribution and make it less resource-demanding. Through podcasting, the industry partner can record a video explaining a particular design case, interspersed with other graphics and visuals from the project.

In recent years, there has been a growth in the use of podcasts. There are several examples of successful applications of podcasts in education [2–6]. Drexel University [7], for example, distributed iPod Photo players to its first year education students, with the view of identifying its advantages and disadvantages as a learning and teaching medium [8]. Use of podcasts in learning environments has also been successfully trailed at renowned universities such as Stanford [9], where it was found to benefit existing students in achieving their intended learning outcomes as well as to engage the wider community by providing free access to academic content. By incorporating multimedia outputs such as those facilitated by podcasts as an additional resource to lectures, it is possible to accommodate most learning abilities and facilitate self-paced learning. Podcasts enable audio/video files to be automatically delivered over a network, and then played back on a desktop computer or a handheld media player. Thus, the podcasts can incorporate pictures, videos, soundtracks, voice recordings and text files. Complementary to Gardner's [10] theory of multiple intelligence, other pedagogical research [11–13] shows that learners have different learning styles, and tend to assimilate knowledge better in some media more so than in others (e.g. VARK) [14, 15]. Thus, a multimedia podcasting approach such as the one proposed in this pilot study, would ensure that most learning styles are accommodated. For example, learning for

the "spatial and visual intelligence" type of learners can be enhanced with pictures, shapes, images and 3D space. Podcasting has been widely used for the benefits of mobile learning and electronic learning (e-learning) which provides a much wider range of teaching and learning contents [16]. Lecture recordings used within universities provide a cost effective and easy to use technique to produce e-learning material [17]. Students are able to access the lecture recordings with a portable device that enhances their mobility and usability. Instead of only containing audio information, enhanced podcasts can also integrate data that can be synchronised with the audio information [16]. For example, visual content such as images and drawings or even a PowerPoint presentation if synchronised in a timely manner can provide a holistic approach to the learning outcomes of the enhanced podcast. Furthermore, such an enhanced audio-visual podcast can allow a recorded lecture to have navigation options to a specific lecture separated into several chapters [16]. The use of audio-visual podcasting is still in its infancy, yet it has proven its usefulness as a learning instrument and a communication tool. Diack and Rogers [18] identify several factors contributing to its development and spread, including: availability of affordable recording programs; availability of high speed broadband Internet connection; availability of affordable support and peripheral devices needed for audio-visual content; introduction of portable media devices; and growing competence of current generations in computer, Internet and IT usage. These factors highlight the opportunity to use opportune delivery mechanisms such as podcasts as teaching aids. This project responds to this need, by demonstrating the potential of audio-visual podcasts in a project-based learning environment.

The idea of infusing undergraduate education with industry exposure emerged from a real need to enrich the quality of teaching material by utilising practice-based examples to improve student understanding of design-related issues. Initial attempts to timetable lectures from practitioners had been unsuccessful, especially since lecture times and dates are fixed and offer little time-flexibility. With the intention to address this on-going issue without compromising on student learning, multimedia delivery methods were explored as an alternative to traditional industry lectures. This approach had the potential to overcome previous hurdles to engage industry.

The paper discusses the teaching and learning methodology, describes the project-based learning context, explains the podcasting approach and outlines the industry case study. It then presents the main results of the case study and the actual benefits of academia-industry collaboration. Finally, conclusions are drawn and future issues discussed.

2. Teaching-learning methodology

2.1 The project-based learning context

The podcast was piloted on an Architectural Design Project module taught to final year students on an undergraduate programme at Loughborough. The aim of this module is for students to understand the processes within which buildings are conceived and designed, from concept to scheme design stage and to apply this knowledge in a conceptual building design project setting. Like many art and design disciplines, the pedagogy in this module is primarily studio-based with the lecturer guiding a group of students in undertaking design project work. In this context, lectures are used to provide background coverage of technical, practical and theoretical subject matter throughout the programme and a large amount of the contact time takes place in the design studio. This mode of learning is highly individualised, and project-specific.

The Architectural Design Project module runs in the first Semester with a three hour slot for teaching and studio-based tutorials. The first few weeks of the teaching Semester utilise the full three hours to cover technical, theoretical and practical content. Capturing and maintaining student attention can be quite challenging, during lectures that are spread over a three hour slot and there are always concerns about deteriorating student 'attention' levels as the hours progress. To address this issue and encourage more participation, a more active approach to learning was adopted. This approach afforded the benefits of traditional lectures such as communicating information to many listeners and maximising instructor control, whilst encouraging active-learning. Gibbs et al [19] suggested that an active learning environment allows "students to talk and listen, read, write, and reflect as they approach course content through problem-solving exercises, informal small groups, simulations, case studies, role playing, and other activities—all of which require students to apply what they are learning" [20]. Gibbs et al [19] also suggested that interest can be generated (and active-learning encouraged) by introducing variations in stimuli (e.g. oral/visual aids, videos, gapped hand-outs) in lectures; and by providing students with the opportunity to interact in participatory lectures.

2.2 The podcasting approach

To create an audio-visual podcast of a professional designer describing project work for a design project

Fig. 1. Stages Involved in Creating Audio-visual Podcasts of Projects.

university module, a number of stages are involved. Following is a detailed account of the approach adopted, starting with sourcing podcast content through to publishing and accessing podcasts (see Fig. 1):

1. *Liaise with industry to attain buy-in:* This is an important stage of the project, where early discussions focus on demonstrating the potential value of podcasting to industry practitioners is just as important as is identifying the topic of the podcast. Given that the focus of the pilot project was on architectural design projects, industry practitioners with design experience e.g. architects and property developers were contacted. The purpose of the early discussions was to identify on-going/completed projects and capture the design team's perspective (i.e. decision rationale) about the development of the project. The design decision rationale thus captured is of value to both, students for understanding the on-goings in practice and for practitioners to capture the project knowledge and decision rationale. Given the potential value to practitioners, obtaining buy-in was not difficult. As discussed earlier, practitioners are always eager to gain exposure to new technology. At this stage, it is important to establish rules to govern the protection of intellectual property (IP) rights and exploitation of the IP developed.

2. *Identify record/create audio-visual content of podcast:* This stage involves identifying a project that would provide the audio-visual 'content' of the podcast and enable context-specific learning. Typically this would include project-specific data such as details of functional requirements, spatial organisation, the design brief, design decisions, design drawings, site photographs and other related information that would convey the ethos of the project and its development. For this pilot, one of UKs property developers a major UK property developer was approached and with their help a master-planning project in UK was selected for podcasting. Given that phase one i.e. the conceptual design of the master-plan had been recently completed, the design team was still

intact and design documents and drawings were easily accessible. Thus from a learning perspective, capturing the design decisions that led to the conceptual development of the project would be advantageous. The resulting podcast would benefit both, the students and the project's subsequent design teams as they would be better informed about the design development process and decision rationale. An important aspect at this stage was also to identify design team members who would contribute to the audio-visual podcast. A senior manager from the client organisation identified design team members directly responsible for the decisions. After much deliberation and consultations with design team members, it was unanimously agreed to interview the lead architect, who represented the entire design team.

3. *Create a podcast*: This stage involved creating an audio-visual podcast of a presentation prepared by the lead architect of the project. The presentation slides covered the development of the conceptual design, including details of the site (topography, access ways, and views) and constraints/opportunities for the development. This presentation was created using Apple's [21] presentation software, Keynote. Garage-Band, audio production software was used to record the architect's discussion of the conceptual design development process and the rationale for its development. Using GarageBand an audio segment of each slide of the presentation was recorded and this content was saved as an audio file. This was then synchronised with the presentation in Keynote using a feature that allows users to drag an audio file onto a slide and then playback the recording when viewing that slide. The presentation improved by adding animations to the slides to draw attention to key discussion points. For the audio-visual content to be podcasted, it is necessary that is playable in a portable audio-visual device such as an iPod Touch. The Export option in Keynote enables this process, by allowing the audio-visual presentation to be saved as a podcast.

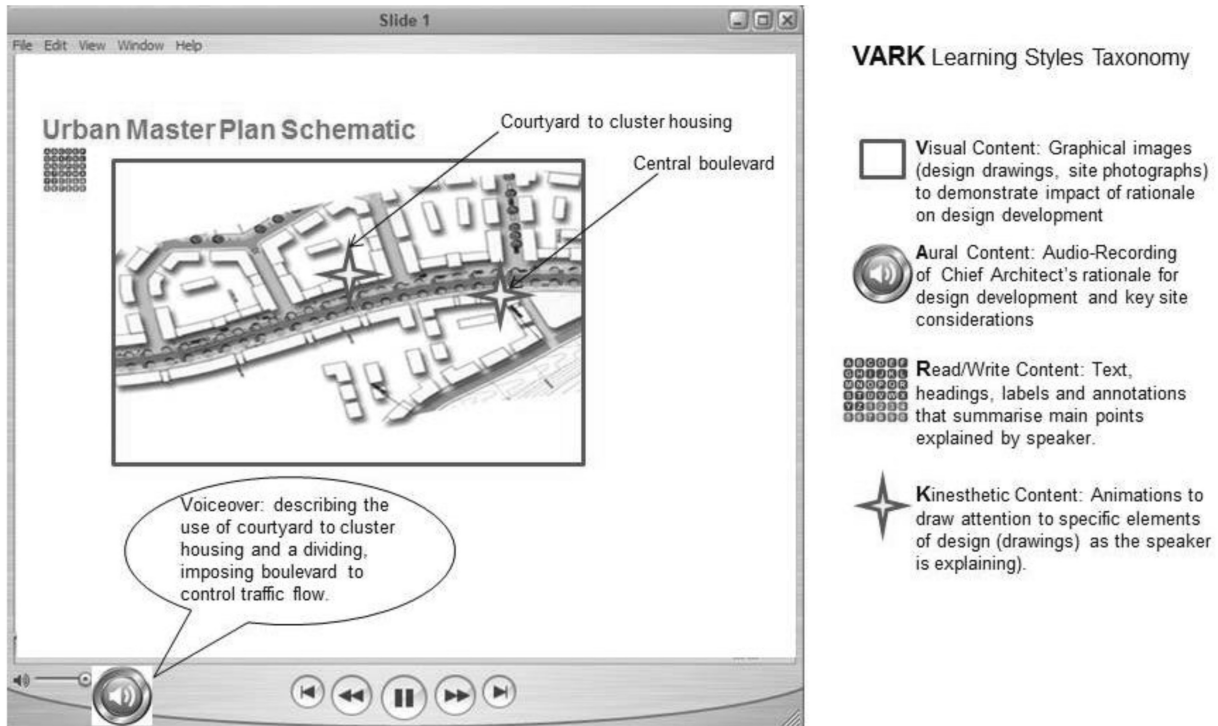4. *Publish podcast:* The podcast was published on an internal server called LEARN—a World

Fig. 2. Example of a Typical Audio-visual Podcast Movie Clip.

Wide Web server, which hosts Loughborough University's Virtual Learning Environment, based on the Moodle platform.

5. *Download and 'view as you go':* The download function allows the podcast file to be saved in the viewer's iTunes library and to synchronise iPod Touch with the computer.

2.3 The case study method

As described earlier in this section, a podcasting case study was undertaken for a final year design project module. Students were assigned a master-planning project on which to work. An industry partner (i.e. the lead architect) was engaged to record an audio-visual session in which he gave an account of the key design considerations and the rationale for the master-planning project. Later, in a dedicated module lecture session, the audio-visual podcast was played. Fig. 2 includes an example of the typical podcast content. This was the first time the students were introduced to the master-planning project. A demo was also shown on an iPod Touch.

The podcast was tested on the aforementioned module taught to final year Architectural Engineering and Design Management (AEDM) students. The students were briefed about the scope of the podcast content in order to ensure that students clearly understood the context and purpose of the podcast. The design focus of the module meant that the project selected for podcasting was that which

included the architect's account of the design and development processes. In the podcast, the architect used 'visual' content such as design drawings, photos and other graphics to explain the design process. Aspects affecting the decision rationale such as the characteristics of the site, its location, constraints, neighbourhood and transport links were also discussed via an 'audio' commentary. Evaluations were carried out at two stages. The first was to assess the effectiveness of podcasts as a learning tool. At this stage the evaluation questionnaire covered topics that fell under headings of effectiveness of podcast content, use in project-based environments and use within learning environments. The second questionnaire was to test how much the students learnt about the project and its context after listening to/ watching the audio-visual podcast. Here students took tests and engaged in interactive discussions about the master-planning project (e.g. testing whether they understood what the main consideration was when defining the village structure of the master-planning project). The students' ability to understand and recall the designer's rationale, gave an indication as to whether podcasts were an effective medium for teaching about and learning from projects. The discussion presented here is based on student feedback received from 34 students out of a possible 42 and is presented under headings that correspond with the structure of the questionnaire.

3. Case study main results

3.1 Effectiveness of audio-visual podcasts

In order to gauge the overall quality of the recorded session from the project architect, its usefulness for design project modules, and the effectiveness of the podcasting medium for delivering this content, students were asked to rate each of these on a scale of 1 to 5 (1 = very bad and 5 = very good). An overwhelming majority agreed that the quality, style and content of the audio-visual podcast were, good, very good, or somewhat good (Fig. 3). The few whose responses were somewhat good explained that the text size could be increased to improve clarity. This can easily be addressed in future podcasts.

3.2 Use in project-based environments

A majority (i.e. 97%) of students agreed that there was future potential to use podcasts in a project-based design module because they thought it was an effective medium that gave them a snapshot of a real

design project and its development process. They felt that the practical example used in the podcast improved their overall understanding of the design development process and thought that this knowledge would be helpful when designing their group's design project. Out of the list of potential uses of audio-visual podcasts presented to the students (see Fig. 4), dynamic access to project knowledge, the ability to capture rich project knowledge and mobile access to audio-visual project content, were identified as the three most beneficial aspects of the podcast, which contributed to its usefulness. Many, however, emphasised that they considered this medium to be useful only if it was used as an additional knowledge resource and not a substitute to traditional lectures.

3.3 Podcasts in learning environments

When asked whether there was potential to use podcasts in learning environments, a majority (97%) of students indicated that it was indeed a useful resource. Students were also presented with
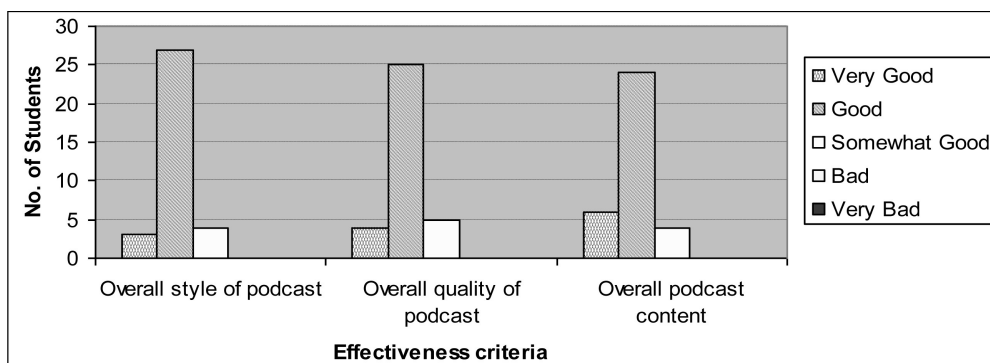

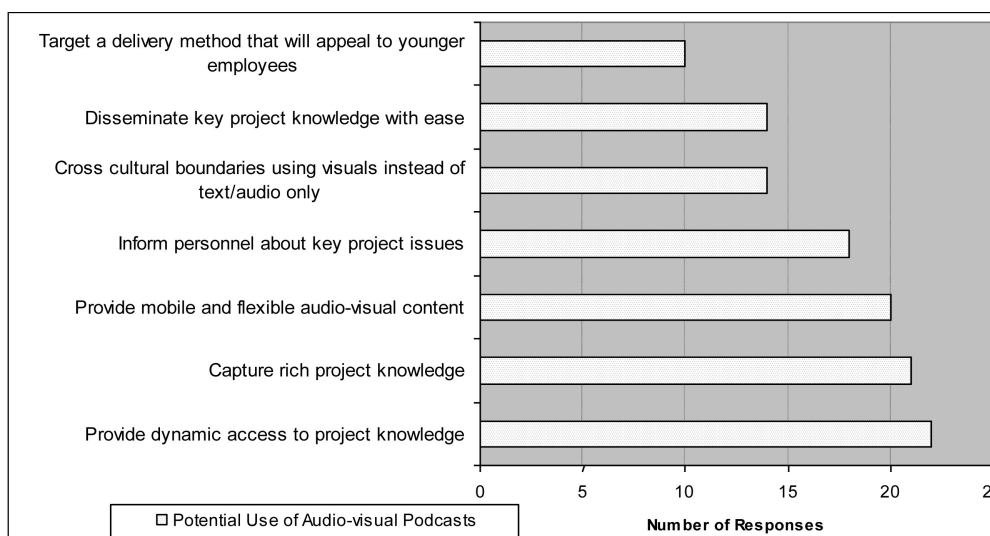**Fig. 3.** Quality, Style and Content of Podcasts.

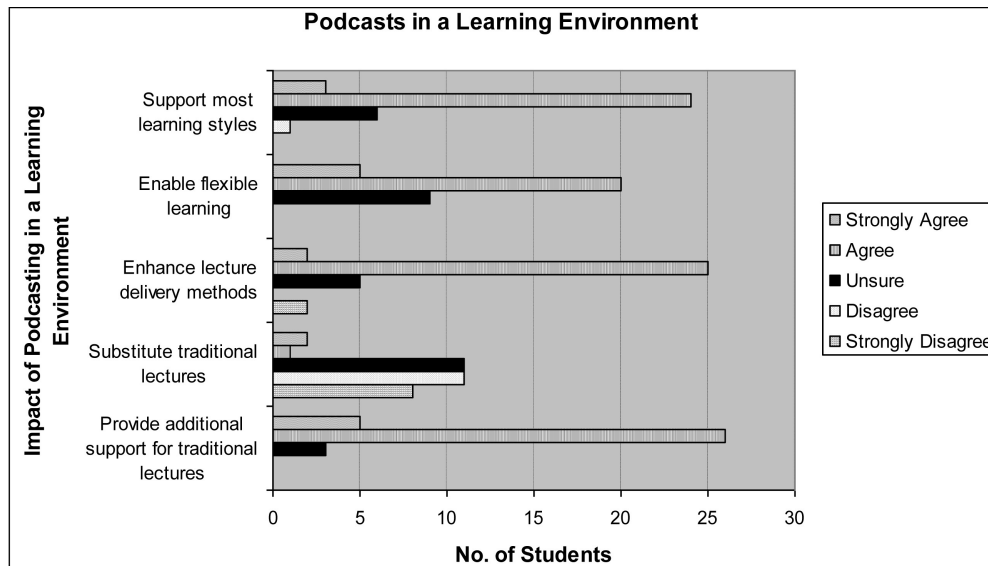**Fig. 4.** Potential Use of Audio-visual Podcasts.

Fig. 5. Impact of Podcasting in Learning Environments.

a list of the potential impacts podcasts could have on a learning environment (Fig. 5). While, a majority of students agreed that podcasts support most learning styles (79%), enable flexible learning (73%), enhance lecture delivery methods (79%) and provide support to traditional lectures (91%), many were either unsure (32%) or disagreed (57%) as to whether podcasts could (or should) substitute traditional lectures. Many said that if podcasts were used as substitutes to traditional lectures, drawbacks such as lack of personal interaction and the inability to ask questions for clarity would inhibit their understanding and hence learning.

Students were also asked to identify the advantages and disadvantages of using audio-visual podcasts in learning environments. The majority thought that there were very few disadvantages; however, some highlighted issues that could prove disadvantageous. Following is an account of the issues arising from student feedback and the lessons learnt:

- If podcast content is lengthy, students tend to 'drift' or lose attention. To keep the interest levels high, content should be short and sharp.
- If the content is not interesting or relevant to the lecture 'theme' it may be ignored. To avoid this issue, explain relevance of podcast content and include Q&A sessions based on podcast content to gauge learning. Also, careful consideration and alignment with the intended learning outcomes of the module are essential.
- If not supplemented with lectures, students may not have the opportunity to ask questions and clarify doubts. Podcasts should therefore, not be

considered a substitute for clear reporting and lecturing.
- Efficiency depends on the level of detail in the podcast content, and clarity and tone of the speaker to grab attention. It might be prudent to introduce humour, include graphics and animations to draw the listeners' attention to points discussed.

As far as advantages were concerned, students thought that the audio-visual content of the podcast added context, was easily understood, visually attractive and provided a clear narrative of 'design history' as well as the rationale driving this evolution. A few considered podcasting to be better than traditional whiteboards, because of the visual element. Some students thought that the combination of graphics with audio and text was effective in capturing their attention and therefore very interesting. They, however, pointed out that in order to avoid boredom, it was important that podcasters avoided monotone speech and introduced humour. One even stated that the voiceover must be engaging and thought that the timely animations and use of contextual graphics (design drawings and maps) in the podcast gave a better visual understanding of the project and increased their interest in the designers' narrative. It was also thought that the audio-video-textual content added context and it was therefore difficult to get distracted and increased their interest in the topic and therefore their motivation to learn. One pointed out that the portable and interactive nature of the lecture content was a change from the norm and provided access like 'on-demand TV'. Many highlighted that the podcast content increased their knowledge
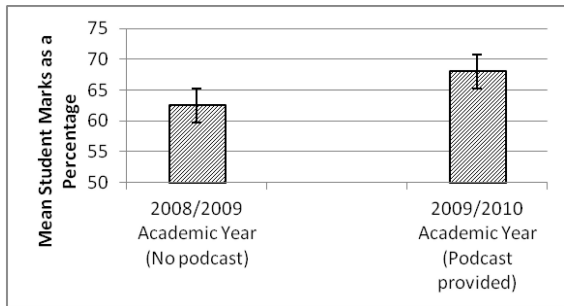
Fig. 6. Mean Student Marks as a Percentage in Two Years With or Without Podcasting (with standard deviation indicated in the error bars).

and understanding of real life projects and how they apply theory to their own design projects. The flexibility and personal convenience of 'anytime' access that podcasts offer was also highlighted as important, as it is easier to re-listen and revisit details/lectures, which had been missed and offers learning flexibility. The students felt that simply knowing that podcasts could be re-accessed, took the note-taking pressure off them and they could focus more on listening to the speaker rather than juggling multiple tasks. One student thought that this was good as a revision tool that strengthened their notes and facilitated deeper understanding.

Others said podcasts were 'good as a back-up tool to support learning', 'better than text hand-outs, more interactive and keep the context', a 'different approach to learning than a PowerPoint presentation', and 'good as a learning aid'. When asked how they would access the podcasts in the future most (85%) said that they would save on to a laptop and listen/watch later. Surprisingly, although most identified the portable nature of the podcast content to be an advantage, very few (29%) said that they would save podcasts onto portable devices because

of the inability to take notes 'on the go' and the inevitable distractions.

3.4 Impact of podcasting

In addition to the subjective reactions to the podcasting experience solicited by issuing a questionnaire to the students, metrics were sought in an attempt to measure objectively the impact of podcasting. The first metric was student assessment, which is directly linked to the achievement of the ILO's. Fig. 6 compares the mean student scores for the academic year when podcasting was provided with the preceding year, when podcasts were not available. Although bold claims of causality can only be made with caution, the data in Fig. 6 certainly indicates that the podcast had a positive effect on student achievement. The teaching environments in the two consecutive years were identical, with the exception of the introduction of podcasting in year 2009/2010.

In addition to the impact on student achievement, previous studies have indicated that incorporating a variety of media in teaching improves student engagement [14, 15]. To test this, activity in the virtual learning environment (VLE) was taken as a metric of student engagement. Fig. 7 shows the number of weekly logged actions in the VLE for each academic semester (of 15 weeks), for both the year podcasting was introduced, and the preceding year when it was not available. Two observations are apparent in Fig. 7. Firstly, the absolute numbers of VLE actions are greater for the year when podcasting is available. Although the cohort in the podcasting year was slightly larger (41 students) than the previous year (29 students), after normalisation by cohort numbers, the activity for the podcasting year is still significantly larger. Secondly, there is a peak in VLE actions immediately follow-
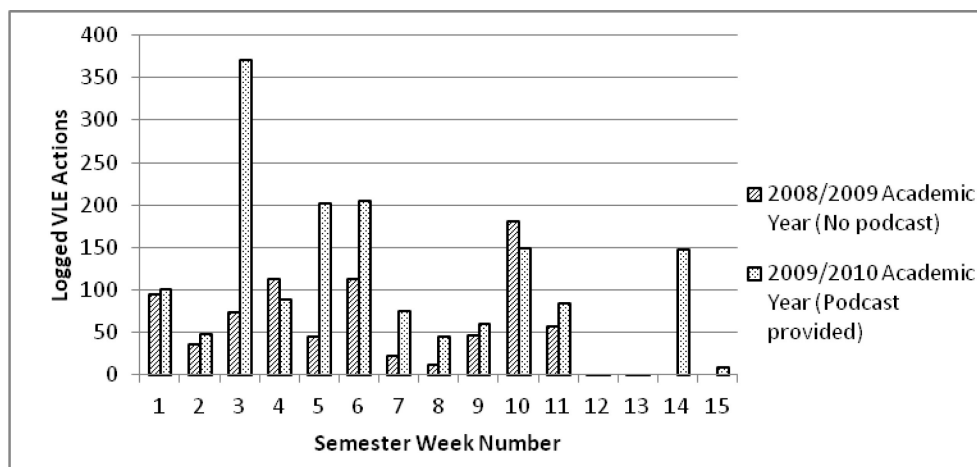

Fig. 7. Comparison of Weekly VLE Logs for Academic Years with and without Podcasts.

ing the session when podcasting was first introduced (Week 3, Fig. 7). These observations suggest that multimedia tools such as podcasts can indeed improve student engagement.

4. Actual benefits of academia–industry collaboration

Can abstract principles be derived from the case study findings? In the context of a design project, an understanding of functional requirements and spatial organisation is crucial. These design-related aspects can be better understood using real cases with practitioners' discussions on design management issues. This can be achieved by collaborating with industry practitioners. The 'real' cases incorporating design team viewpoints when captured and then broadcasted during lectures using audio-visual podcasts provide additional context-specific information and further enhance the learning experience. Besides using audio-visual podcasting as a communication medium to deliver talks by professionals to students, much can be said about the value of professionals talking about their projects, both to students in higher education as well as to novices in industry. These experiential accounts convey design rationale and provide rich, contextual expertise missing from abstract theoretical lectures. The value of storytelling in design has been explored by Demian and Fruchter [22]. Before them, Schön [23] explored the link between professional design practices and design education. Schön argued that every design task is unique, and that the basic problem for designers is to determine how to approach such a single unique task. Schön placed this tackling of unique tasks at the centre of design practice, a notion he termed knowing-in-action:

> "Once we put aside the model of Technical Rationality which leads us to think of intelligent practice as an application of knowledge. . . there is nothing strange about the idea that a kind of knowing is inherent in intelligent action. . . it does not stretch common sense very much to say that the know-how is in the action – that a tight-rope walker's know-how, for example, lies in and is revealed by, the way he takes his trip across the wire. . . There is nothing in common sense to make us say that the know-how consists in rules or plans which we entertain in the mind prior to action" [23, p. 50].

To Schön [23], design, like tightrope walking, is an action-oriented activity. If the knowing is in the action as Schön contends, then a professional's account of design experiences working on a project will be invaluable in nurturing design skills in students, perhaps more so than the academic's theoretical lectures on the design process. Here again, Schön's [23] writings on the thinking of professionals versus academics highlight the value to students of input from professional designers.

Professional experts are particularly qualified to nurture in students the skill of solving design problems. Research has shown that experienced professionals possess distinct characteristics which may be lacking in academics or novice practitioners. These include the use of memory, attitude, strategy and visualisation [24]. Contextual information about the design problem is crucial. Professional design problem solvers tend to examine the problem as a whole before moving to a physical representation of it [25]. Thus, from an academic perspective, the collaboration between academia and industry is beneficial in many ways, as follows:

- Podcasts content adds the industry context, thus students can benefit from expert knowledge;
- Audio-visual podcasts add value to the learning experience given that 'experts' knowledge is accessible on demand;
- Sets academic lectures in context and enhances the teaching and learning experience;
- Audio-visual content with animations engages students, improves attention, accommodates most learning styles (e.g. VARK) and keeps interest levels up;
- Audio-visual podcasts are project-repositories that can be archived and shared (i.e. RLOs—Re-usable Learning Objects); and
- Provide suitable addition to on-line learning and can be useful in distance and flexible work-based learning environments.

From an industry perspective the collaboration is valuable in two ways. First, the audio-visual recordings are valuable knowledge archives with reuse potential. For example, the discontinuity of project teams during the project's lifecycle, loss of crucial lessons because of staff retiring or staff leaving are sources of constant knowledge 'leaks' and are an area of concern for the industry. The potential to record narratives means priority knowledge loss areas can be targeted to minimise the impact of knowledge loss. Second, the collaboration enables the industry is to experiment with and consequently develop competence in the use of rapidly evolving multimedia technologies. Such competence is of value to architectural design practices, which rely on using specialist multimedia tools to produce high quality designs and communicate them to clients. Developing such presentations and designs relies on the competence of the teams delivering the process and in creative use of newer and visually explicit methods to impress clients. For future project and design managers, spatial and visual understanding is as important as effective programming of design and construct projects. Spatial and visual awareness can be improved by creatively using (and thus demonstrating the potential uses of) innovative

technologies and digital media. The industrial desire for exposure to new technology reveals the importance of teaching about technology and teaching using technology to equip students with the skills needed by the industry. Teaching using technology in particular complements Gardner's [10] theory of multiple intelligence, this refutes intelligence as a single measurable characteristic and proposes multiple distinct forms of intelligence. If students can be intelligent in different ways, it therefore follows that they learn in different ways. For example, learning for learners with spatial and visual intelligence can be enhanced with pictures, shapes, images and 3D space. This research fulfils this imminent need.

5. Conclusions and future issues

In conclusion it can be said that there certainly is potential for using audio-visual podcasts in project-based learning environments. Students are 'in tune' with multimedia tools such as podcasts and positively welcome using podcasts as supplementary material for future lectures. The quality and richness of podcast content is largely dependent on the company's willingness to share project knowledge or sometimes even the availability of such data. It is important to work with what is available and 'fill the gaps' during lectures. The industry practitioner's account conveys design rationale, provides rich, contextual expertise and enriches the theoretical underpinning of the lecture content that is provided by the academic.

To better engage students and keep their interest levels up, it is important to include graphics and animations to draw attention to important points. On a practical front, however, care should be taken to keep file sizes manageable as more audio-visual content equals larger file sizes. Podcasts require software and hardware components, which if not tested prior to recording may not always work. It is prudent to prepare a 'test' recording to avoid this anomaly. Handling the technological challenges posed by software and hardware malfunction would largely depend on the academic's competence and the available support from IT staff. It is therefore important to seek support prior to setting off on the podcasting journey. The electronic capture of project data means that it is important to identify acceptable rules to govern the protection of background IP rights and exploitation of the IP developed. Sharing practical lessons learnt such as these would benefit prospective users of podcasting.

Motivation and learner engagement have emerged from this preliminary study as important issues. Podcasting technology is a double-edged sword; the novelty of the technology and the multimedia content seem initially enticing, but the remoteness of the speaker (i.e. their absence from the classroom) means that additional effort must be made to make the podcast engaging.

Still from the evaluation of this pilot study, podcasting offers opportunities for accommodating most learning styles, facilitating self-paced learning and encouraging active participation and learning. Finally, podcasting also leverages and augments synergy between industry and academia bringing strong benefits to both. It is recommended for teaching practitioners to explore opportunities provided by podcasting, and for pedagogic researchers to further develop and assess these technologies from a learning context.

The results show that most learning styles were accommodated. The students performed very well in the test and rated the podcast very highly in a questionnaire which solicited their subjective reaction to the experience. It is concluded that podcasts offer genuine value in terms of convenience for industry partners to contribute. The significant value of podcasts to the teaching and learning experience is in the improved engagement and motivation of students, accommodating most learning styles, facilitating self-paced learning and encouraging active participation and learning. Podcasting leverages and augments synergy between industry and academia bringing strong benefits to both. It is recommended for teaching practitioners to explore opportunities provided by podcasting, and for pedagogic researchers to further develop and assess these technologies from a learning context.

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