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Nicola Building Virtual Tour; Considering simulation in the equity of experience concept

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Examining equity of learner experiences across delivery modes is a contemporary issue, particularly in comparing onshore and offshore or local and distance experiences. This paper begins the journey of reviewing equivalence of learning experience for local and distance students in a vocational course in a Property Services learning program, just as this case joins a larger multiple-case study examining equivalence. It focuses on the potential of a simulation in providing equivalent 'practical' experience of conducting a building inspection. A simulation designed to help achieve this, the Nicola Building Virtual Tour, was trialed in a small cohort in the Property Services program, and a survey harnessing learner opinion of this tool received largely positive feedback, but also provide some guidance in how to proceed.

Keywords: Simulation; virtual tour; equivalence; property services; vocational tertiary sector.

Introduction

Equity of learner experience in onshore and offshore delivery modes is an issue of focus in several universities in Australia, particularly since the 2007 approval by the Ministerial Council on Education, Employment, Training and Youth Affairs for a national protocol directly related to this (MCEETYA, Oct 2007: protocol 14, p.2, in Palaskas et al 2010). At RMIT University, Melbourne, there has been intensive work on an evolving project focusing on equivalence between on and offshore student experiences (i.e.: local students compared to students studying from outside Australia) in like learning courses (subjects). This work has resulted in 'a model for achieving equivalence and comparability in higher education courses offered 'transnationally' in the College of Business at RMIT (Gopal et al., 2010). The project has since extended in two project directions; the first into a university-wide implementation planning phase, and the second, a focus on how educational technologies can help achieve equivalence and comparability in learning experiences. The latter, in draft as 'Harmonisation of onshore and offshore teaching supported by enterprise educational technology' (Botterill, 2011), is under review by learning and teaching staff against the contexts of sample courses in both higher education and vocational (TAFE/college) tertiary sectors, using multiple-case study methodology. This concise paper highlights the commencement of reviewing one such targeted vocational case for review of equity of experience with supporting educational technology, in the Property Services learning program. In particular, it focuses on the use of a virtual tour designed to better support off-campus or distance learning by providing 'access' to a facility to enable virtual building inspection practice.

The Nicola Building Virtual Tour was integrated into the Property Services program in 2010 and evaluated by way of surveying students post integration. Focusing on this tool was in recognition that while content-rich learning might readily transfer via enterprise educational technology options (e.g., lectures or tutorials via Lectopia or Elluminate; see Botterill, 2011), practical and applied learning experiences require additional consideration. Online interactive activities are well established for learners to apply concepts and skills; helping to engage, motivate and enable practice to reinforce learning (e.g., JISC, 2004). However, it remains important to evaluate the quality of learning offered in growing online and global education markets as “High performance standards, commitments to practice, and ethical conduct legitimize virtual curricula and the environments in which learning takes place” (Carrier, 2010:28). The survey data comprised largely positive responses to the virtual tour as an activity and an alternative to physical building inspection. The minority negative responses were generally further illustrated by free form, qualitative survey responses, which were useful for tool improvement and for consideration of implementation issues across differing delivery modes.

The ‘Property Services’ case context

The Certificate IV in Property Services is delivered in several program offerings in the vocational sector of RMIT, to cater for a range of specific learner cohorts locally and interstate and is currently under analysis for offshore/international delivery. Each Property Services offering presents in a different blended learning mode to suit the learner cohort, including blends of in-class, workplace and online/distance learning, where in-class can be on-campus locally scheduled classes or interstate ‘fly-in expert’ intensive workshops. The broad program structure is made up of a mix of core plus cohort appropriate Units of Competency (training curricula/modules), which are ‘chunked’ together into several learning ‘themes’ for meaningful delivery. Several of these units require access to physical properties such as residential, commercial or public facilities. For example, the unit ‘Plan and coordinate property and facility inspection’ falls under the learning theme of ‘Maintenance and Service in the Property Industry’. This theme is currently undergoing learning re-design and development, while the ‘inspection’ unit has been selected for review against principles of equivalence or ‘harmonisation’ across the various delivery cohorts.

The ‘Harmonisation’ or equivalence project

The ‘harmonisation’ project (Botteril, 2011) acknowledges that educational technologies are not used to the same advantage in offshore RMIT teaching courses compared to onshore. It recommends an increase in technology use in the support of elements of equivalence and comparability (Palaskas and Gopal, 2011, in Botterill, 2011). The project promotes the institute’s current range of educational technologies but also includes the open-ended technology of ‘eSimulations’, or “virtual simulations ... [that] allow students to demonstrate theory in practice in non-threatening or risk-free situations while ensuring active learning experiences” (Botterill, 2011:22), highlighting usefulness in situations of limited access to resources.

Nicola Building Virtual Tour / simulation

Traditionally, building inspections are conducted during scheduled on-campus (local) Property Services classes utilising an ageing building, under the supervision of teaching staff with follow-up debrief activities. For the Nicola Building tool, a similarly aged building was specially photographed for ‘stitching’ together into a virtual tour for online learning access. Additionally, the images were graphically altered to provide more interest areas for inspection (predominantly faults) under the guidance of a subject matter expert. Support resources such as an inspection report template and a how-to guide were designed and developed. Learner access to the tool and resources were then enabled via the institute’s learning management system (Blackboard™).



Figure 1: Screen capture of Nicola Building Virtual Tour

The Nicola Building simulation is a web-based Virtual tour not unlike what property services personnel employed within the real estate industry are familiar with, with exceptions mainly related to purpose. An example of divergence is that most property tours aim to highlight advantages while a building inspection for learner critique needs a more realistic view; they need access to both faults and advantages to enable a realistic facility report to be produced. The Nicola Building comprises two floors, and allows the learner to navigate their own way through the building moving from area to area as they choose. Depending on the intended learning outcomes for each relevant course activity, the teacher sets instructions utilising the tour, predominantly for what type of inspection report is required but also for other learning purposes such as safety and risk analysis. The learning goal in the trial was to produce an inspection report detailing the current condition of a facility, emulating the standard required in the industry.

The Nicola Building Virtual Tour was trialed by the traineeship cohort of Property Services (Operations) students. The traineeship students attended weekly classes on-campus and benefitted from concurrent training in their various property services work environments. The students were mature-aged and had a range of workplace roles and industry experiences. Fifteen students out of a class of 24 completed a paper-based survey after using the virtual tour in their classroom activities. The survey comprised both quantitative and qualitative questions, including 11 five-point Likert scale questions seeking responses of ‘Strongly agree’ through to ‘Strongly disagree’, followed by six open-ended questions. The first open question asked for detail related to the responses given to the previous quantitative responses, and others sought to draw out both negative and positive aspects of learning with the simulation.

Findings

Generally, the students in the trial positively received the Nicola Building Virtual Tour, as reflected in Figure 2. An additional question posed in the negative: ‘I was very unsatisfied using Virtual Tour’, received only two responses out of 15 that indicated they were unsatisfied with the tool. Another question set, asking for opinions of the tool as a regular part of the course for future students, received predominantly positive responses.

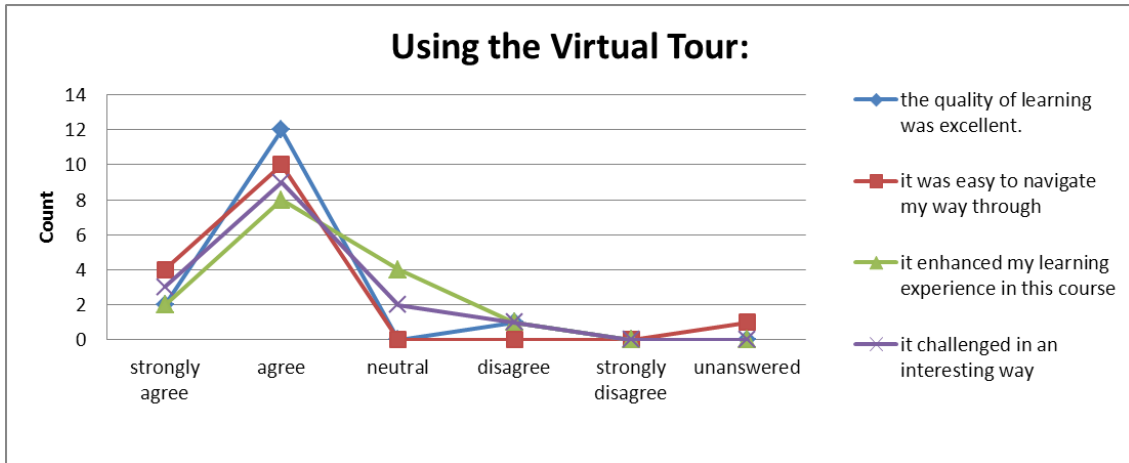


Figure 2: Learner perceptions of general learning value of the Virtual tour

However, the results were more mixed in key questions seeking to determine if the tour was a good replacement for a physical/actual building tour. Responses (see Figure 3) raised the question of why were up to 2 in 5 students either neutral or negative in that the tool was excellent for inspecting a facility? Some explanation of this was found in the qualitative responses discussed below.

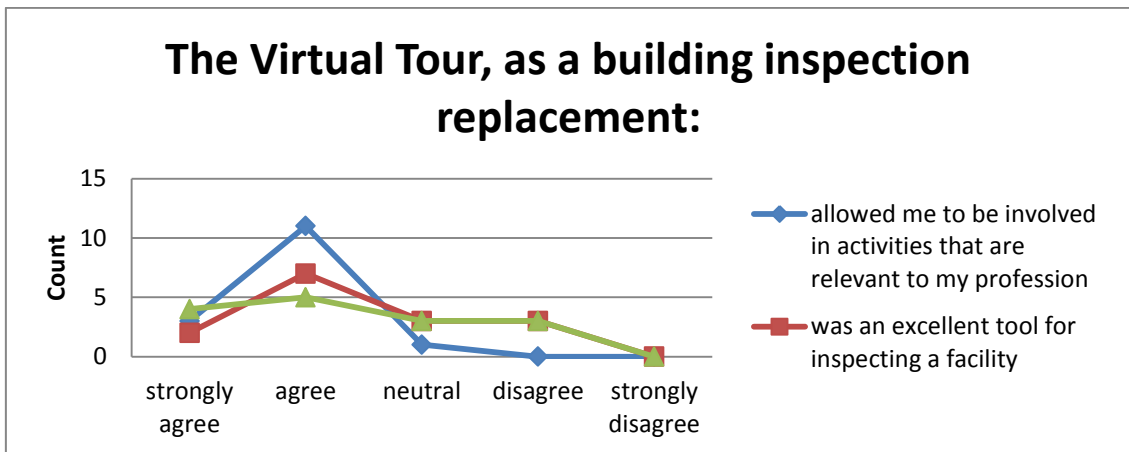


Figure 3: Learner perceptions of the Virtual tour for building inspection

The qualitative open-ended responses were themed into five main issues: technical problems, learning and teaching, and instructions/support materials, with all remaining in either positive or negative issues (not already coded into other themes). A number of issues raised were simply dealt with by tool and/or accompanying resource improvement, while others were illustrative for the focus of this paper.

Positive overall views were the most common feedback items, and included responses such as: “I thought it was excellent. A great learning tool & experience”; “Easy to use”; “Easy and quick access to facility inspection”; “Flexible & Freedom – not restricted to access”; “Alternate method for a building inspection remotely”; “Ease and the fact that it was quicker to have a look and take notes as opposed to the normal running around”; “Refer back to it if something is missed”; “The visual aide instead of referring to powerpoints or documents only”.

The negative issues related primarily (and importantly to this paper) to a virtual tour not being as effective as a real tour, for example, “Not able to look in every nook & crannie [sic.] (detail)”; “I think you pick up more in the actual tour”; “Easier to detect faults when looking in real life”. This seems to indicate that while the virtual inspection is useful in learning, it is likely to continue to be appropriate in combination with real-life/physical building inspections, regardless of the delivery cohort (on/offshore, etc.). That is, at an appropriate point in the course, a real inspection could be available via teacher-industry cooperation to allow the full benefit of the simulation to be realised. The tour could therefore provide preparation and/or repeated practice.

General learning and teaching issues were highlighted. Three students noted the need for some content direction before the tour, particularly if they hadn't been exposed to inspection tours before and needed orientation. For example, "for people who have not completed inspections before it is difficult to know what to comment on"; "I think there would be greater value in talking about different types of inspections. Eg. OHS. Property condition – life cycles & maintenance"; "Enable feedback on area's to inspect if not use[d] to this in role".

Discussion

Issues of equivalence and comparability of simulated practical learning versus alternate methods of learning are offered in the literature. For example, in a study involving learning electrical wiring by computer simulation (Liu and Su, 2011), it was found that students who used the simulations performed better than those accessing only lectures and demonstrations, and, compared to laboratories, simulations allow more time on task compared to set-up for actual experiments. The study also provided warnings, including that simulations may not provide the same level of irregularities as found in real-life scenarios, and that hints and supports should be available virtually instead of waiting for teacher feedback. This would apply to the Nicola Building Virtual Tour, in that the students who were perturbed by not having access to the same level of detail as an actual tour could be better supported by management of expectations of what can be achieved and offered feedback by direct teacher responses and/or access to a worked example to compare with own work (e.g., sample inspection report).

The learning and teaching issue of prior knowledge raised in the findings remains an important one for future issues of on and offshore or local and distance equivalence. Simply assuming adequate prior knowledge for such simulations is no substitute for basic learner needs analyses. In noting problems in learning from early computer-based simulations, Stead (1990) cited work by cognitive psychologist Ausubel (1978) to acknowledge simulations were of no value "to those with no prior knowledge of the topic ... [as they] would be unable to interpret information from the simulation [as] meaningful" (p.107). Findings from the Nicola Building trial would indicate this is still the case. Other caution is found in Stead's work in relation to equivalence in learning experience, highlighting the need to embed the simulation in a complete learning activity, including the need for "time ... to permit reflection and discussion" (p.116). Thus providing a reminder that simulations shouldn't be simply given to offshore/distance cohorts without adequate learning and teaching support structures in place.

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