Surveying Practice Involvement in Providing Vocational Skills Training For Undergraduate Building Surveyors, The ICZ Way.

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Abstract

The paper starts from a documented premise of there being a critical shortage of skilled building surveyors. It also uses a researched premise that all stakeholders to building surveying education favour the incorporation of vocational skills training alongside academic instruction. This creates graduates already possessing of core vocational skills and a knowledge of practice. The question posed is whether practice themselves can assist in this skills transfer, or whether it should be left wholly to specialist educators to devise ways of delivering such knowledge. A fortunate opportunity which allows the author to evaluate two identical activities of dilapidations surveying undertaken by the same learners, in the same academic period, under identical conditions, with one facilitated and lead by a specialist surveying tutor as an industrial simulation and the other facilitated and lead by a current practitioner, on a current dilapidations instruction. . Findings tend towards a belief that practice reaching out to assist educators is a worthwhile way that any future skills shortages can be addressed through graduates entering practice with greater experience of vocational practices and skills.

Key Words

Skills Shortage, Vocational Skills Training, Industrial Collaboration, Industrial Simulation,

Introduction

It is widely believed that industry involvement in teaching vocational material is beneficial, for the learner, (Kuper, 2012), but has anyone actually ever tested that premise in like for like conditions? Kuper proposes that;

"*By working more closely with industry, higher education institutions will be able to produce graduates who are more likely to succeed in the workforce and more aptly skilled for gainful employment*", (Kuper, 2012).

The Royal Academy of Engineering, (RAE), propose that there are benefits to fostering the relationship between industry and academia and they support learner engagement with genuine industrial activity, but also advocate the industry should in their turn invest in engagement activities to produce motivated and skilled future employees, (RAE, 2016). Gentelli had canvassed learners on the benefits of having industry professionals as guest lecturers with positive results, (Gentelli, 2015) The British Council cite the value of practical skills taught alongside academic and

theoretical knowledge, (British Council, 2017). University College London cite the benefit of learners shadowing industry professionals when they are allowed to have the opportunity to test their skills in the workplace, (UCL, 2017). The activity proposed is an industrial simulation, where learners get to perform vocational tasks in an industrial context, so they will become more proactive at becoming involved with industry tasks than they might expect if they were shadowing or attending a guest lecture.

This paper covers an area of surveying practice which is starting to become critical. The construction insurance provider CRL produced a critique of the surveying industry, and cited statistics like

"Over 85% of UK surveyors who responded to an RICS survey said that they experienced recruiting problems due to lack of qualified candidates"

"Approximately 43% (or two in five) surveying firms are presently unable to accept new business opportunities due to the skilled workers shortage. Each of them is forced to pass up an average of five contracts every year.

The RICS warns that the problem will worsen over the next five years.

Some surveyors claim that they can refuse up to five new projects every week in the present market conditions such is the demand. The scarcity of supply is impeding the growth of many businesses who are desperate for support from experienced surveyors and construction staff" (CRL, 2015).

If the potential increase in surveying workload following the aftermath of the Grenfall Tower disaster fully materialises, then skills shortages might be argued, if not already so, will be the most important issue currently facing the building surveying industry. Consequentially it is rapidly becoming training the surveyors who should be doing the work, rather than how the work is performed which is of primary importance going forwards, and worthy of pagination in surveying journals. The question to be answered is whether the surveying practices which need competent new blood can become successfully involved pre-graduation in training the graduate surveyors of the future, upon whom they will ultimately come to depend.

The Confederation of British Industry, (CBI), has long noted the correlation between having skilled workers and economic prosperity, and the flip side of that where skills shortages hold prosperity back.

."Ensuring that Britain's workforce is equipped with the right skills is essential to delivering sustainable growth and prosperity". (CBI, 2014).

This quote is particularly important in surveying education where future success and prosperity depends largely upon possession of advanced vocational skills and knowledge, which can quite quickly attract a specialist fee. The question is whether these skills can, or should, be wholly imparted post-employment or whether some

should be incorporated into the graduate education process. Previous research by the author discovered that of the four stakeholders to surveying education, learner, education provider, employer and professional body are all in favour, for different reasons, of education being a blend of academic knowledge and vocational skills training. (Mclean, 2015). Authors like Fisher have also recorded the desirability of vocational and transferrable skills being taught alongside academic knowledge, (Fisher et al, 2006).

Rationale

The University of Salford, (UoS), has taken the overlap between academic and vocational teaching further than many others by establishing itself as an Industrial Collaboration Zone, (ICZ), and decreeing that every course taught at the university is made ICZ ready and be taught in collaboration with industry.

"The development of Industry Collaboration Zones is our single strategic priority. ICZs will provide new ways for our students, colleagues and industry partners to co-create, experiment and learn together". (UoS, 2018*).*

The following paper looks at the performance of two activities involving undergraduate Building Surveying students at UoS. Both activities followed the ICZ principles cited by UoS in respect of providing a practical vocational learning experience. One was undertaken as part of an industrial simulation set up by the tutor, himself a chartered building surveyor, albeit with the aid of an industry partner who loaned a building for the duration of the exercise. The other one was undertaken in partnership with a large nationally based surveying practice, who ran a project briefing, organised the loan of a building, supplied supporting paperwork, and sent two members of staff to support the learners on site.

The focus of the academic knowledge was learning about building pathology, the added vocational skills relate to undertaking condition surveys particularly in the context of dilapidations surveying, as practiced at the termination of a commercial lease. The principle of the building pathology teaching plan is to introduce the agents of deterioration of buildings in a classroom location and then for the learners to survey actual buildings to observe and record examples of these phenomena. The two activities studied were one of a number of site-based activities during the teaching of this module. The vocational focus in addition to practicing surveying and recording observations on site was to undertake work which simulated a dilapidations survey. The learning outcomes were identification, establishing cause, identification of complimentary defects, photographic and written recording of findings, and proposing remedial actions. This was achieved by completing a photographic Scott Schedule to a Royal Institution of Chartered Surveyors, (RICS), proposed format, and then the completion of a Scope of Works to describe the repairs and their required remedial actions in order to procure remedial works. Both documents required the learners to meet the academic learning outcomes but additionally they were able to practice producing stock documents that they would hopefully encounter in practice. 80% of

grades for the assessment were focused upon the pathology outcomes rather than excellence in writing industry documents, the reward for striving for such excellence could be felt during future employment interviews.

The author has access to an employee survey completed within a national surveying practice of both graduate and chartered building surveyors located nationally. The question was simple each employee was requested to list important things each thought were missing from the curriculum of their particular building surveying course. Meaningful dilapidations activity was very high on that list. It was so high that when a large local office for a national building surveying practice offered to run a practical dilapidations surveying activity in one of their client's buildings that was currently at the end of a lease and going through the dilapidations process, albeit one that would not facilitate academic assessment opportunity, the author jumped at the chance and booked a coach immediately. This provided the opportunity to look at two industrial simulation activities in the same teaching subject area, both set up as part of the teaching of the same module, to the same group of learners in the same academic year. Using an action research methodology of observing and evaluating the outcomes directly from each activity it may be possible to establish the impact if there are advantages to working directly with industry in an ICZ way or whether industrial simulation run wholly without current industry support offers similar or better vocational outcomes.

Case Studies

Case study one was a building the author found whilst sourcing a case study to use for another module. It was an early 1950s built industrial unit with a variety of past uses from its opening as a bakery, food distribution centre, retail unit, dance hall to its current use as a church hall. The building displayed all of the main defect types covered in the curriculum, damp, timber decay, structural cracking, metal corrosion, cracked concrete, etc. The use of this building was clinched for a simulation based upon dilapidations when the property owner said the outgoing tenant, the local church, should have repaired the building but had not. In order to undertake a dilapidations industrial simulation the author used a generic repairing lease for a small commercial property and the premise that at the commencement of the lease the building had no outstanding repairs and therefore all current repair requirements are the responsibility of the tenant and therefore breaches of the terms of the lease.

Case study two was sourced from a number of current dilapidations instructions within the client portfolio of a large national building surveying practice. The property was an industrial unit, larger than case study one, but still containing enough repair items and building defects to be a good vehicle for practicing pathology skills. This being said the building was highly typical of one that regularly features in dilapidations instructions at the end of a lease but displayed fewer defects which were focused upon in the pathology module .than case study one. The building did however come complete with the actual lease signed by the outgoing tenant. The activity was supported by a chartered surveyor currently active in dilapidations, a senior figure in his practice and the module tutor a chartered building surveyor with some past experience in dilapidations surveying.

Setting Up Each Activity

Activity One was conducted on the 14th February over a 3 hour on site time slot. Learners reached the venue by coach, and the university supplied the equipment required for surveying, namely a Skycam, environmental meter, borescope, thermal imaging damp meters, folding ladders, distance measures and tapes. Learners provided their own torches, cameras and recording media. An industry adopted method statement covering health and safety on site was issued to all students in the format used by industry before survey work is undertaken commercially. Additionally the building was photographed using a 360 degree camera to generate a 3D walkthrough internally and externally.

Case study one engaged the learners. The equipment saw frequent use, and health and safety instruction such as ladders must be held and no direct access to the roof were fully complied with. The survey was more of a condition survey with discussion on site focusing almost exclusively upon the disrepair, and its causes, rather than its impact upon a future landlord claim. The main elements of disrepair were corrosion to the steel windows, suspected corrosion to steel beams which appeared to be elevating the top 450mm of brickwork, a flat roof at the end of its cycle, an apex roof with displaced tiles. Wet rot was active on external timber elements, delamination was occurring on the plywood which faced external doors, standing water was present in one internal area. There was general cracking, both stepped and straight line, to the internal and external walls, probably caused by the expansion of the corroded steel window frames, and damaged glazing due to the same cause. Some frost damaged brickwork, was observed and some inappropriate pointing. There was a general , failure of rainwater goods, drains and gullies, and general disrepair to sanitary fittings. Imternal paintwork had started to blister and fail. It was a perfect building to learn about pathology in, with all the main defect types, UPVC degridation excepted, potentially in evidence.

The dilapidations angle will become a greater issue as the learner's complete industry accepted documentation to produce a landlord's claim for damages and procurement documentation to repair the building. Learners will then need to focus upon dilapidations as they not only record defect, cause, consequence and remedy, but also identify each repair as a breach of lease conditions tying each to the lease clause which has been breached. There was no previous schedules of condition for this building so a premise of a building with no outstanding repairs at inception of the current lease had to be made, which made all disrepair noted a breach of the lease.

Activity Two took place on the 14th March. As before the same learners were taken by coach, the surveying time slot was the same time, the equipment identical, and all activities controlled by a health and safety method statement issued to all participants. The building was larger than in case study one, it was a warehouse and office unit recently vacated by a commercial tenant. Unlike case study one; an actual bespoke lease to this building was available. Other differences were that three chartered surveyors were present, and the activity leader was a current practitioner supported by his regional director and the university tutor, who had previously taken the lead role in case study one.

The building was a steel portal frame warehouse, with an attached single storey flat roofed reception area and toilet/kitchen block. Cladded with composite panels it contained Asbestos insulation and Asbestos containing materials formed the roofing panels. Walls were cladded in profiled steel. Defects included main roof leaks, a failed flat roof, a variety of forms of damp ingress, blocked drains, metal corrosion, defective rainwater goods, invasive plant growth, internal mould growth and issues relating to cleaning the site and removal of industrial detritus. There were also issues of reversal of alterations to the building which needed to be addressed

As with case study one learners surveyed the building noting all areas requiring repair, which might form a part of a landlords claim for repairs. Although much larger the building in case study two was technically much simpler, and although in a quite poor overall state of condition did not contain as many different types of defect as case study one. Also in common with case study one there was no schedule of condition assigned to a lease, and a premise of a building which had no outstanding repairs at the inception of the lease was used to assess if disrepair should form part of a dilapidations claim. The warehouse was to be repaired and re-let so diminution was not a factor in this case study. Unlike case study one where a generic British Property Federation commercial lease had to be used, in case study two an anonymised copy the actual signed lease was available.

Evaluation of the Two Case Studies

Both activities were well attended by students. Feedback on both was positive, and all students engaged with the tasks on both site. The observation of disrepair provided for lively discussion and questioning of the support tutors. The learners were observed on both sites to be taking detailed notes, and photographs as later required by assessment. Later questioning of learners identified that learning took place at both activities in both matters of building pathology and dilapidations claim process Activity two coming after activity one saw the presence of a more informed learner and more specific questioning. Learning outcomes were met at both activities. These were;

The practice of surveying techniques and recording methodology
Specific skills relating to dilapidations surveying
Identification of building defects, their causes and remedies
Introduction to industry documentation, (Scott Schedule and Scope of Works)
Application of survey findings to conditions and breaches of conditions from a lease.

Additional Skills were also introduced, such as:

Working together
Use of surveying equipment and IT
Site recording of information
Application of health and safety instruction.
Professional conduct whilst surveying
Use of evaluative deduction
Writing industry accepted reports and documentation

Summary of Findings and Conclusions

The initial question was one of benefit to learners by industry involvement in simulated vocational activity. Case study one was run as a pure devised simulation, created by the tutor and made realistic by creative wording of the activity brief and use of generic documents and premise. Case study two was an actual building going through the end of lease process, it was a much more typical example of a building that you might find in a practice situation. Learners appeared to be more comfortable with the simplicity of building two. Building two would however only realistically be available for teaching purposes through the goodwill of a surveying current practice and their landlord clients. On this basis case study two provided a superior learning experience, and one unlikely to occur without industry assistance.

Teaching academic learning involves reference to supporting written material, i.e. guidance material on dilapidations, the dilapidation protocol, works relating to building defects, etc. Industry whilst steering close to the practice recorded for academic instruction, tends to evolve its site practice in a more practical way when dealing with certain situations and conditions observed on site. Learners seemed to value getting a more practical and pragmatic view, from the surveyor who had just surveyed this building commercially, and who was currently preparing the claim.

There is no substitute for current experience. As stated the lead surveyor was the one tasked with the actual dilapidations work upon that building. The university tutor as with the learners was able to take experience away from spending time with current practitioners which will feed into future instruction on dilapidations. Learners seemed to value the currency of access to industry practitioners, and engaged with them.

Case study two afforded a very valuable element of added value. Particularly with two practioners on site, one of a very senior rank, students were able to ask questions and seek information on the industry that they intend to join. Discussion about building surveying in general became quite prevalent, particularly later in the activity as learners completed their surveying tasks. Practice members are encouraged to come to the university and share their experience with the learners, however doing so on a site, whilst performing vocational tasks seemed to increase the value of these discussions. It also proved to be a two edged sword as practice got to look at the graduate surveyors of the future, in a vocational non-pressure situation.

One thing to come from this exercise was the value of the double case study approach. Having already completed a dilapidations survey the learners had some vocational skill in this area. Most during activity two were able to start performing an organised logical inspection immediately. Questions related to observation rather than what to do. This maximised the value of the practitioner's input. Had this been the learner's first experience of dilapidation surveying then the learning experience may have been different.

Was the involvement of practice in learning vocational skills beneficial?. In every criteria evaluated in respect of these simulations it undoubtedly was. It was beneficial as a realistic survey activity to increase the learner's practical skills experience, but also provided a vehicle to test the academic taught building pathology material. The currency of practice and a pragmatic approach in activity two proved to be a valuable foil to the academic material used in classroom teaching.

Modern education is a partnership of stakeholders prominent amongst those is the learner. Feedback from participants of case study two was highly positive. The social media that the learners set up to communicate with their classmates in undergraduate building surveying was very busy with positive comments from participants.

Will the author seek to repeat this form of learning in the future? Undoubtable it was highly successful and worthy of repeating. The author who for many years has used industrial simulation as a pedagogy for teaching building surveying noted the improvement in overall value of having current practitioners participating. The relevance of the building provided a much more realistic experience, however the loss of overall tutor control, might make practioner lead activity less suitable when there are assessed outcomes.

Recommendations

One set of industrial simulations do not establish irrefutably the benefits of using industrial practitioners to help deliver vocational education through simulated industrial activity. Evidence from the studied activities and some academic research do suggest it to be so. Building Surveying tutors who are not viewing this as a description of their usual practice might consider declaring themselves an Industrial Collaboration Zone and try to harvest the benefits of industrial involvement. Likewise surveying practices reporting the commercial ills caused by the skills shortages in surveying might proactively reach out to their local education providers with offers of practical assistance, as a mitigation strategy against those ills. A third recommendation is the provision of greater amounts of this type of activity. Evidence from learner engagement and feedback suggested that they really enjoyed participation in both case study one and case study two, but particularly case study two. Happy engaged learners tend to attract other learners to the discipline, and greater numbers of starters tend to follow the programme to its conclusion. Graduate surveyors with better skills entering practice in greater numbers, what more could the industry wish for.

References

British Council, (2017), The importance of practical learning, Vocational Education Exchange magazine April – June 2017, British Council Publication, London

Confederation of British Industry, (CBI), (2014), as cited in The UK Skills System An Introduction, British Council Publication 2015/F165, https://www.britishcouncil.org/sites/default/files/f165_uk_skills_sector_study_web.pdf

CRL, (2015), UK Surveyor Skills Shortage Reaches Critical Levels, https://c-r-l.com/content-hub/article/surveyor-skills-shortage-reaching-critical-level-in-uk/

Fisher K, Lobaugh M, Parante D, (2006), An Assessment of Desired Attributes for Engineering. Technology Graduates Journal of Engineering Technology 23.2 Autumn 2006, Elsevier, Amsterdam

Gentelli L, (2015), Using industry professionals in undergraduate teaching: Effects on student learning. Journal of University Teaching and Learning Practice, Volume 12, Issue 4, Article 4, UNSW, Australia

Kuper S, (2012) Industry Relevance and its Role in Student Success and Corporate Training, Journal of Bew and Innovative Market Opportunities, written 28th September 2012, Cited in Evolllution Higher Education Newspaper, 19th March 2018, .Canada

Mclean S, (2015) Paper Presented to iBEE Conference, University of Bath, September 2015.

Royal Academy of Engineering, (2016), Effective industrial engagement in engineering education – A good practice guide, RAE Publications, London

UCL, (2017), Undergraduates gaining industry experience through work shadowing, https://www.ucl.ac.uk/teaching-learning/case-studies/2017/jul/undergraduates-gaining-industry-experience-through-work-shadowing

University of Salford, (UoS), (2018), ICZ Ready Curriculum, https://www.salford.ac.uk/qeo/iczready