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Theory to practice: Canalside Studio, a case study

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Abstract:

Purpose
The study looks at the experiences of university academic staff setting up a small computer games studio to provide work placement opportunities for undergraduate students and the supporting role of industry.

Approach
The case study uses sense making to explore the boundaries between "simulated" and "real" work in an educational setting.

Findings
For students and teachers to work together in a commercial setting, relationships have to be reconstructed. Teaching focuses on developing the individual and personal attainment, the work environment prioritises the Team so that organisational and business needs are met. Differences in culture and working practices between industry and academia and the organisational constraints of a university, present challenges for academic staff engaged in enterprise.

Research limitations/implications
The authors recognise the limitations of a single institution case study and intend further investigation into factors around employability, enterprise education and the availability of work experience for students studying in the creative technologies including experiences in other institutions.

Practical implications
Practical experience and business knowledge gained through the studio development process by the student and staff, has informed the curriculum through the introduction of team-working modules. The Studio provides a unique interface between the university and games industry partners.

Originality/value

The study shows the value of a university based games studio in providing work experience for students and enhancing employability and provides insights into university/industry partnering.

Keywords: Computer games, employability, enterprise, work placements, team-working

The employability agenda in UK Higher Education

Successive government reports on Higher Education (HE) have sought to emphasis the role of universities in supporting the economy by supplying industry with skilled workers (Dearing, 1997; Roberts, 2002; Wilson, 2012) The function of universities as set out by government places graduate employability and industry needs centre stage however organisations such as the Sector Skills Councils (SSCs) continue to argue that graduates lack essential work skills (SSC, 2013). The role of universities in supplying the talented graduates needed by the creative technology industries and

their importance to the UK economy, in particular Video Games and Visual Effects was also the subject of a report commissioned by NESTA (Livingstone & Hope, 2011).

University strategies for meeting the employability agenda include curriculum based approaches such as involving industry specialists in curriculum development for courses and embedding generic work skills in the curriculum (Fallows & Steven, 2000; Knight & Yorke, 2002) and formal provision for work based learning through short placements or sandwich degrees. Sandwich degrees are a traditional route for undergraduates to gain practical experience in industry as part of an approved course, often centred on engineering and technology subjects, the benefits of the placement year are well documented and provide opportunities to gain generic work skills and the social competencies around work (Murakami *et al.*, 2009) they also show measurable benefit through greater student attainment and academic performance on final year (Duignan, 2003).

In spite of the benefit of work placements to students and the enthusiasm expressed for them by employers sandwich degree provision has declined over the last decade (Cable & Willetts, 2011) . Whilst larger employers accept responsibility for development and training of new employees and see long-term benefits in partnerships with universities, a consequence of massification in HE is that many employers see it as a function of universities to provide work ready graduates (many of whom are doing jobs that would previously have been undertaken by school leavers and who would have received workplace training) and training costs are displaced to HE and the individual student (Brown & A.Hesketh, 2004).

The expansion of the HE system and increased student numbers at a time of current economic downturn makes it harder than ever for institutions to secure sufficient suitable work placements and the changes to funding mean that managing work placements may be seen as an expensive burden to universities (Cable & Willetts, 2011; Little & Harvey, 2007).

Whilst much of the political rhetoric focuses on employability skills and preparing students for work generally there is also wide debate on the changing role and nature of universities and the commercialisation of HE (Bok, 2003; Slaughter & Leslie, 1999) and their role in the global economy (Cable & Osborn, 2011; Etzkowitz & Leydesdorff, 2002; EU, 2000). How particular institutions position themselves in the context of the employability agenda is significant and there is no single approach. Boden and Nedeva (2010) argue that the employability agenda may create two tiers of university, "*those that produce docile employees and those that produce employers/leaders*". Brown *et al.* (2003) suggest that students are aware of the need to "package" themselves by providing evidence of cultural capital as well as academic skills when seeking employment; elite universities are seen as advantageous because they provide evidence of cultural status. Such elite institutions do not need to concern themselves with the discourse on employability or go out of the way to address work skills within the curriculum since their cultural status serves to endorse their graduates in the job market. In a system which contains diverse institutions, work based learning and preparation for employment could be seen as the domain of the ex-polytechnics since this was precisely why there were founded (Boud & Solomon, 2001) and this polarity in the HE sector is nothing new.

The current period of change in HE will certainly see further stratification and differentiation across the sector, however for this to result a two tier system with elite institutions producing employers and leaders and others producing employees seems over simplistic. Just as the universities are changing so is the nature of work and employment. It should be anticipated that as universities are themselves now in the marketplace (Bok, 2003; Giroux, 2003) and students increasingly see themselves as customers (Eagle & Brennan, 2007; Gibbs, 2001) there will be increasing variety in how institutions position themselves in relation to the employability agenda and whether they see their own marketplace as primarily regional, national or international. With the government

allowing university status and award giving powers to new providers there may also be some move to more specialist institutions choosing to focus on a narrower range of courses.

The increase in student numbers at university was in part in response to a belief in a knowledge economy and that personal and national wealth in the future would be guaranteed by the activities and innovations of knowledge workers (Etzkowitz *et al.*, 2000; Powell & Snellman, 2004; Rinne & Koivula, 2005). A recent study of the UK class system by staff from the University of Manchester in conjunction with the BBC identifies a new technical middle class which might suggest some evidence for this (Savage *et al.*, 2013).

In tandem with notions of the knowledge economy and closer more dynamic relationships between government, industry and universities, the so called triple helix of government, university and industry interaction (Etzkowitz & Leydesdorff, 1999), has been a growth in the idea of 'the entrepreneurial university' (Etzkowitz*, et al.*, 2000; Shattock, 2005; Slaughter & Leslie, 1999) often associated with entrepreneurial academics, research groups, spin out and value creation from university IP (Brennan *et al.*, 2005; Etzkowitz, 2003; Meyer, 2003; Shane, 2004) followed by a trend to support student enterprise and enterprise education through increased provision within the curriculum and support for graduate business start up (NGCE, 2010). Whilst enterprise education has largely developed around business schools it is increasingly seen as normal part of other disciplines and where enterprise skills are seen as closely linked to employability skills. (Rae, 2007).

There are still large employers and multinational companies who will recruit their quota of graduates every year however much of the nation's current and future wealth will be generated by smaller companies, the size of an organisation (i.e. number of employees) is not necessarily linked to it economic value, and many graduates will be employed in small organisations (often High Tech) or self employed. Universities need to cater not just for the future leaders/employers and employees but for those who (have the abilities) may elect to be self employed because they are creative thinkers, innovators and practitioners or who resort to self employment through lack of opportunity in the job market.

Whilst evidence of work experience of any sort remains vitally important the types of work experience that best equip students for employment in a particular sector is within that sector. Where this is niche or the majority of employers are small and medium enterprises (SMEs) or micro-enterprises it is especially difficult to find placement opportunities since the costs and level of supervision can make taking on a placement student unattractive. In certain sectors such as the creative technology industries including computer games, employers have additional concerns such as confidentiality, protecting IP, and the risk to a project where reputation, success and finance are attached to milestones deliveries of a small team and where quality concerns are difficult to monitor (as in the production of programming code). Although some smaller companies are willing to take on placement students they may not have the resources to do so each year and so universities and students are constantly searching for this kind of opportunity and they are fiercely competitive so many able students miss out.

Case study

The University of Huddersfield's (UOH) School of Computing and Engineering has been successfully running degrees in Computer Games Programming and Computer Games Design for several years. With a long history of teaching applied subjects and working with industry (UOH began as the Huddersfield Mechanics Institute in 1884) the University is an established provider of sandwich degrees. Although the University successfully continues to place many students in external companies as part of their degree programme there has always been a shortage of work

placement opportunities within computer games companies and reasons such as those cited above are often given to explain this.

The following case study describes the experiences of staff and students from UOH's School of Computing and Engineering in setting up an in-house Computer Games company to provide sandwich placement opportunities for groups of students on the games degrees.

The case study focuses on the challenges and processes involved in moving from a teaching environment concerned with theory, experimentation and "practising" to one of professional "practice" involving real commercial concerns. Using a descriptive approach to the case study (Yin, 2009) and sense making (Weick, 1995) we seek to explore the boundaries between "simulated" and "real" work experience in the educational setting and the effects and implications of creating real work and a real business within a university department.

Having recognised the problem of limited work placement opportunities for students its undergraduate games courses, the School of Computing and Engineering at UOH set up its own in-house computer games business "Canalside Studio" in 2005, funded through the Higher Education Innovation Fund (HEIF) and UOH. The funding provided facilities and equipment for the studio and bursaries for the first year to pay a group of eight undergraduate games students during their sandwich year.

Academic staff from the course teams, were tasked with managing the student team and helping them to develop a game. Although the academic staff had relevant technical and creative skills they did not have any experience of commercial games development and there were significant knowledge gaps. The technical capabilities of the student team were obviously limited (although they were ambitious and enthusiastic) and this naturally constrained the types of project that could be reasonably attempted. Barriers to entry also existed for many platforms; AAA console development e.g. X-Box, Playstation etc. was out of the question since the studio lacked the required track record and resources to be considered for partnership with any of the console manufacturers and mobile gaming was very much in its infancy and had added complexity at the time because of a lack of standardisation across platforms. Development on PC was considered the most suitable option and Microsoft had recently launched the XNA toolset to support indie development and "homebrew" games, for release on X-Box Live Arcade (XBLA).

Industry support

Knowing the team lacked skills and industry expertise the academic staff leading the project sought advice from games industry partners who had previously advised on curriculum content on the games courses. Whilst the team's unpreparedness was obvious (and failure almost certain) we were treated generously and given advice and encouragement from professional developers who almost certainly had better things to do with their time.

Members of the games industry in the region supported us and visited the studio to listen to game pitches, discuss ideas, provide advice on team working, creative and technical issues, working with publishers etc. The studio became an unique interface between the University and the games industry because we were engaged in practical development, we were able to have conversations about all aspects of the process with other experienced developers that could only occur in the context of live development. As we were frequently making mistakes and needing help the experience was intensely challenging but also an exciting and rich learning environment. Although we learned the hard way the experience served as a rite of passage and gained respect from the industry.

Having made the decision to progress work using the Microsoft XNA framework the studio team developed a number of initial prototype games based on their own ideas, although none of these seemed to stand out particularly the student team were confident enough with one to submit this to Microsoft's first "Dream Build Play" competition in 2005 (Dream Build Play is international competition open to indie developers). Out of 3400 entries across the globe the Canalside team were awarded second place and subsequently a development contract with Microsoft for XBLA to complete and release the game on their platform. Being offered a publishing contract by Microsoft on XBLA was a tremendous opportunity and immediately transformed the circumstances of the studio. The level of professional status it afforded was equivalent to that of other commercial studios. It provided direct access to Microsoft XBLA technical support in Seattle and a confirmed route to market via distribution on the XBLA global network.

Understanding Enterprise inside the University

The award of the contract was in itself a great achievement for the studio team but it quickly raised a series of problems. Although the studio was part of UOH Enterprises Ltd and therefore able to engage in commercial activities, the publishing contract from Microsoft was outside the normal range of University business activities. It involved American law on indemnities and insurance and the University was also required to complete paperwork to cover tax exemption under the American system. This unfamiliarity caused concerns, and senior managers within the School were reluctant to sign the contract until the University lawyers had approved it, and uncertainty over the implications and possible cost of the necessary insurances led to lengthy delays. Once the legal and administrative issues around the contract were resolved, other problems arose in arranging for appropriate levels of access and security on the computer networks. The Studio was part of the University computer network but University regulations on network security prevented the necessary permissions (i.e. opening of certain computer ports) for access between the Studio and Microsoft XBLA; since no agreement could be reached with Computing Services over access on the existing network the Studio eventually had a separate ISDN line connected. These teething troubles highlighted both the commercial inexperience of the academic staff attached to the Studio and also a lack of understanding and agility in University administrative practices in supporting this type of activity. For the academic staff involved this meant learning to manage business relationships on two fronts, externally with Microsoft and internally with the University's enterprise support systems. Each of these presented distinct cultures and working practices, Microsoft as a multinational commercial organisation was precise in every detail and swift to respond to any questions, and though the weight of its reputation made it an intimidating partner the XBLA support team in Seattle were always relaxed and friendly and removed any anxieties we had about our shortcomings. The University on the other hand moved much more slowly on decision-making and showed some ambiguity over its position on commercial activities. Within the School there were difficulties in how to label the Studio's activities and School management recorded these as teaching rather than enterprise because the studio team included students (this led to problems later on, over budgetary control because income from teaching and learning projects does not allow carry over between financial years and this affected studio cash flow). Uncertainty about enterprise at different strata of the University (i.e. staff or support services not directly engaged with enterprise or the commercialisation of research) meant that what we were trying to do was often not fully understood and it was often more difficult to make things happen within the organisation than when operating externally. As we acquired a fuller understanding of how the larger machinery of the University operated, and what we needed to do to make things run smoothly we developed new networks across the organisation.

Staff development

Whilst the academic staff and student team members were learning the practicalities of how to make a video game together, the smooth running of the Studio also required business knowledge and management skills. In order to fulfil this the academic staff sought a variety of appropriate personal development. Coming from different backgrounds and bringing different skills and experience to the studio there were individual as well as shared development needs (one of the academic staff had an engineering and programming background and the other was experienced as an artist and designer). Undertaking training at different times, both staff completed the University's Academic Leadership Programme and a part time MBA programme. One of the academic team was also awarded a Yorkshire Enterprise Fellowship and received business mentoring and training through the Regional Development Agency and the second undertook training in communication and assertiveness to address confidence issues around management and leadership. The formal training was useful in providing greater understanding of business and management issues in a broad context, and provided some degree of professional recognition. The MBA in particular gave authenticity to their role of studio managers, as a respected professional and academic qualification this was important internally within the University as it provided evidence of competency and helped endorse the academics' work in the studio as enterprise rather than teaching. Although the MBA was invaluable, the qualification was not the main source of learning how to manage the studio team and its activities, as Mintzberg stresses, an MBA may provide the science but not the art and craft of management (2005). Learning to manage and to think and act in ways compatible with starting up a new business venture through the experience of doing the job, supported by advice from industry professionals who acted as occasional mentors and the broader industry network that had become our community of practice. This combination of individually sourced formal training, informal mentoring, industry network support and practice based activity effectively provided a type of 'Enterprise Apprenticeship' for the academic staff (De-Luca & Taylor, 2012).

Team-working and managing

The Studio's student team were recruited from the BA Computer Games Design and BSc Computer Games Programming degrees who were progressing onto the sandwich year after two years of full time study. The job roles were advertised through the University's Placement Unit and shortlisted students were interviewed. The students were selected on the basis of their technical and design skills but with high importance also placed on evidence of team-working skills since this was recognised as crucial to the success of the studio.

The first student team bonded well initially; keen to get started on development projects and eager to show what they could do; however over time there were some issues with competing egos and tensions within the team which required intervention. The phenomenon of forming, storming and norming (Tuckman & Jensen, 2010) within small teams is familiar and manageable when understood however the length of time spent on any "storming" does have implications for a team who are working on a fixed term project. In the case of the Studio each new team is only employed for the duration of their sandwich year, this means that with each new intake the cycle of team building, skills development, studio processes etc. have to started from scratch. Although the problems are never exactly the same from one year to the next and the academics have become more adept at handling any that arise, it is still time consuming. The main weaknesses of the Studio as a commercial entity is that the teams are so short lived and only operate at their best towards the latter stages of the placement year and knowledge and experience is lost each time.

There were various issues around team behaviour and performance that were made more problematic by the location of the Studio on campus. The transition from study to work requires a change of mind set as well as an adjustment in behaviours and it was clearly difficult for the student team to adapt to the changed expectations of the work environment when the Studio was on one

floor and the classrooms they had previously been studying on the next. The physical proximity of other students was a potential distraction that the team had to learn to ignore when entering and leaving the Studio, putting student life firmly on one side of the door and work on the other. Most students on work placement will be joining an established and mature team; understanding what is expected and how to behave should be quickly obvious by observing others in the workplace. In the absence of already experienced team members understanding general levels of professionalism and behavioural standards took longer to establish. Issues such as maintaining a "library atmosphere" to avoid disturbing team members immersed in a particular task, not using Facebook, YouTube, mobile phones etc. and even good timekeeping had to be frequently re-stated by the academic staff. After a generous settling in period it was then expected that the Studio rules would be followed and if professional standards slipped formal Human Resources (HR) procedures would be followed. This would take the form initially of a conversation between the individual and managing academic to determine if there were any mitigating circumstances and then a reminder of the rules of employment in the Studio and what was expected. Any repetition of the same issue would result in a formal verbal warning, followed by a written warning and potentially suspension, withdrawal of bursary payments or dismissal.

Managing individual behaviour and performance is essential within a team; in a small group if one person is underperforming or behaving badly it undermines the moral of the whole team. If one person arrives late on a regular basis and nothing is done, timekeeping is seen to be unimportant and a casual attitude to this may creep in. If the team is not united there will be disagreements, communication deteriorates and productivity drops; protecting the cohesion of team ensures effective working.

Lessons

The need to prioritise and protect the team over the individual is one of the most significant differences between work in the Studio for the students and equivalent work based learning in the classroom. No individual's behaviour or performance could be allowed to undermine the Team as a whole or the quality or completion of the project. Over the six years that the Studio has been in operation there have been a handful of instances where formal disciplinary action has been required and whilst there have been no formal dismissals student placements have been terminated by mutual agreement.

In the Studio we have real work commitments, responsibilities, deadlines, costs etc. and failure to deliver on any can have real financial consequences, which may affect the success of an individual project or the whole viability of the Studio.

In order to work effectively as a team, the transition from student to employee for the students and from teacher to studio manager for the academics required a reconstruction of prior relationships. Although the Studio is within the University and is still part of the wider learning environment, what defines it as a workplace, is this fundamental shift in relationships. Where a teacher may make suggestions or give advice to a student on how to do something, a manager directs work and gives instructions; the teacher's advice may be ignored with the worst consequence being a low grade, whereas ignoring instructions from a manager is likely to provoke disciplinary action. Where teaching focuses on developing the individual and personal attainment, the work environment requires individuals to put the Team first in order that organisational and business needs are met.

Impact

The experiences gained through partnerships with the games industry, and by practical development and team-working in the Studio has been fed back into the curriculum on the games courses which now have an interdisciplinary team-work module on each year of the degree. The Studio continues

to provide an important interface between the University and games industry partners ensuring that knowledge and approaches to development remain up to date and relevant and that this can be fed back into the curriculum. Students who have undertaken placement years in the Studio have been successful in gaining employment in the games industry following graduation and feedback from employers has been that their understanding of teamwork, development and business gained from this has made them stand out amongst other candidates.

The commercial success of the Studio has enabled the academic staff involved to undertake further Enterprise projects. Income generated by the Studio has been used to provide bursaries for students wishing to undertake Masters by Research (MRes).

Conclusions

The study highlights the challenges and practical difficulties of setting up commercial activities and industry working practices within the constraints of an academic institution and the importance of industry engagement and networks. Differences in culture and modes of thinking between industry and academia had to be addressed by the academic staff involved, requiring changes in behaviour and outlook in order to deliver the project. This led to a shift in emphasis from teaching related values such as "individual learning", "experience" and "process" towards pragmatic industry values like "time", "cost", "quality" and "the team" and the move from theory to practice. Relationships between students and teachers had to be reconstructed so that they could work as employees and managers and act collectively as a team. Feedback from industry partners and employers has been positive, students working on the scheme have been successful in gaining employment after graduating; a model of interdisciplinary studio practice has been introduced into the undergraduate curriculum. In response to this case study the authors intend to further investigate factors around employability, enterprise engagement and the availability of work experience for students studying in the creative technologies.

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