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E-mentoring for employability

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Abstract: Recession and higher costs of education have over the past few years raised increasing concerns over employability amongst engineering and construction students. International students can face particularly difficult problems securing placements and internship which improve their employability. UK employment law can prohibit, or at best discourage, some larger UK companies from employing international students. Whilst, increasing costs motivate others to complete degree courses as quickly as possible, thereby giving them a disadvantage in terms of work experience. Furthermore, the growing numbers of international Masters and PhD students with high qualifications can have little or no work experience, which at a time of increasing competition for jobs, lowers their chances of gaining employment after graduation. To meet these challenges Loughborough University School of Civil and Building Engineering has established a pilot e-mentoring scheme for students. The development stages and early pilots are supported by a Higher Education Academy Departmental grant. The results of the first stage of this pilot are examined in this paper, together with the emergent experience of students, illustrated through narrative and GoogleDocs online survey entries. What emerges from the mentees is a need for information about the everyday working practices of the UK engineering community, which for international students could be described as intercultural competence, as well as reassurance and practical career support.

Introduction

Loughborough University's Engineering programmes are exceptional for their links to industry; however an average of 25% and up to 47% of undergraduate students on certain programmes still lack this important experience and International research postgraduates generally miss this opportunity. Within Masters and PhD programmes the problem is particularly acute. To cite a PhD student engaged in a construction research programme with the School of Civil and Building Engineering:

> *I really have worries about my post PhD life because I would like to be involved with industry, but suddenly feel like I am a fresh university graduate (even after getting PhD!). There is so much uncertainty, and if I am being honest some lack of confidence on my part (Loughborough University, School of Civil and Building Engineering, International PhD Student 2011).*

Current students face a changing and uncertain employment environment. Recent graduates are more likely to work in a lower skilled job than ten years ago. Figures show that nearly 36% are employed in a lower skilled job compared with 26.7% in 2001 (the Graduates in the Labour Market 2012 report published by the Office for National Statistics). The banking crisis, global downturn and transition to a low carbon economy mean that broader skills are needed by graduates, including empathy with needs and demands of professional practice that e-mentoring programmes offer the potential to provide.

The introduction of employability statements and the Higher Education Achievement Report (HEAR) given to students on completion of their courses forms part of the formalisation and endorsement of employability within HEI's. These sorts of development have led to an interest in awards recognising extra-curricular activities and achievements, and perceived as improving student employability.

In March 2011 the CBI working with the NUS produced Working towards your future: making the most of your time in higher education (NUS, 2012). The case studies developed demonstrate the importance of recognising 'added value' alongside the HE experience, and this was emphasised by employers seeking graduates 'who stand out from the crowd'.

The Government White Paper Higher Education: Students at the heart of the system (BIS, 2011) states the need for employer engagement and similarly the Wilson Review (Wilson, ed., 2009) recommends that Universities work more with employers. The Royal Academy of Engineering (RAE) 2010 report Engineering Graduates for Industry states that the UK economy needs engineering graduates to underpin its future; however, businesses have also stressed the new and distinct roles engineers now play in businesses: '…the technical specialist imbued with expert knowledge; …the integrator… operating across boundaries in complex environments; and ... the change agent providing the creativity, innovation and leadership necessary to meet new challenges' (RAE, 2007).

Hence, despite the formalisation of employability, the changing technical environment and everyday working practices of engineers continues to raise questions about curriculum for employability, at the same time as resistance from more reactionary academic staff concerned about a loss in educational standards within the subject (HEA Academy Event, 2012).

Nevertheless, employability as conceptualised within educational literature is not simply about finding employment, not even finding the right job, but rather about skills, which can even include creativity and entrepreneurial activity: it is about developing as an individual (Pool and Sewell 2007, Yorke 2006). Furthermore, defining employability in this way, Harvey (2003) states:

> Employability is more than about developing attributes, techniques or experience just to enable a student to get a job, or to progress within a current career. It is about learning and the emphasis is less on 'employ' and more on 'ability'. In essence, the emphasis is on developing critical, reflective abilities, with a view to empowering and enhancing the learner.

The Higher Education Academy (HEA) Departmental Grant

With this difficult context, and in order to address some of the issues of employability and internationalisation, the HEA awarded a Departmental Grant of £29,500 to Loughborough University, School of Civil and Building Engineering for "Improving Student Employability Through E-Mentoring". The project seeks to reinstate the role of the industrial tutor as mentor through an e-mentoring initiative; exploiting the latest free and readily available technology including Skype, social media and email.

The project will foster awareness of practice and the needs of employers and thereby improve the employability of undergraduates, but it also aims to address the growing needs of international students at postgraduate level. Moreover, by recruiting young alumni engineers and local engineering graduates employed within the construction industry, it builds on the requirement for outreach identified by the Institution of Civil Engineers (ICE).

The proposed e-mentoring programme will develop, test and evaluate the benefits of student interaction with industrial mentors and provide insights for improved curriculum. The aims of the project are to:

- examine the changing skills needed by graduates joining Industry;
- explore the employment benefits of e-mentoring schemes for undergraduate and postgraduate students;
- pilot and refine e-mentoring processes;
- develop sustainable implementation plans for undergraduate and graduate programmes at Loughborough University;
- create a tool-kit for the adoption of e-mentoring by other Universities and other disciplines.

Outputs will include:

- A project web-site to provide guidance to participants and to disseminate findings and outputs;
- An overview publication about implementing mentoring through use of technology, which describes experiences, lessons learned and the resulting effective practice.

The programme is in its initial pilot stage, but nevertheless has already elicited interest from the institution. The President of the ICE, Richard Coackley gave a lecture on the theme of energy to the School of Civil and Building Engineering where he focused on three areas of development for the

engineering institution: harnessing new sources of sustainable energy from natural resources; harnessing the skills and talent of the UK's engineers and future engineers; and harnessing the energy of the ICE's partnerships with industry and Government. Citing the HEA e-mentoring project, he stated:

> *The e-mentoring pilot scheme, headed by Professor Simon Austin, links students with construction professionals according to interest and career path to provide the principles of traditional mentoring but exploiting the free and readily available technologies of Skype, social media and e-mail to foster the awareness of professional practice and the needs of employers. This is an excellent example of harnessing the energy: with mentors using their time and energy to harness and refine the energy of their mentees providing them with important experience of industry. (Richard Coackley, 20th April 2012, Loughborough University School of Civil and Building Engineering).*

The project is also sponsored strategically by the University's Pro-Vice Chancellor for Enterprise and the Regional Director of the Institution of Civil Engineers for the East Midlands, who both recognise the need to enhance the employability and enterprise of students.

Exploring the need for e-mentoring programmes in Higher Education: Employability and Internationalisation

The potential benefits of the initiative, if successful, are evident: knowledge and understanding of employer needs and professional practices will give students an advantage in finding employment through first-hand knowledge of life in industry. Furthermore, industry will have more useful young professionals, better able to meet changing needs, with personal, social and professional networking skills.

The key information set cited by the Graduates in the Labour Market 2012 report published by the Office for National Statistics (ONS) suggests that unemployment amongst graduates is rising; at the latter half of 2011 it was recorded as being at 18.9%. Graduates from the engineering disciplines still receive one of the highest rates of pay, only exceeded by medicine and dentistry, but this does not lessen the significance of complex inequalities within the employment market that curriculum change cannot refuse to address. Statistics demonstrate that graduates from some ethnic backgrounds still find it more difficult to gain employment compared to the ethnic majority and some other ethnic groups (Blasko et al. 2002). A similar situation applies in respect to graduates from lower socio-economic groups (Blasko et al. 2002; Panel on Fair Access to the Professions 2009). Graduates with disabilities are equally disadvantaged (AGCAS 2007) and despite legislation for women, pay differentials in favour of males are commonplace for early career graduates. For example, male graduates in information technology, electronics and communications, it has been determined, earned 20% more than females within three years of graduation. Parental socio-economic status has also been found to influence employment statistics (Panel on Fair Access to the Professions, 2009). These inequalities remain unchanged in relation to salary differential and career prospects, despite greater equalities legislation. This has led to Pegg et al (2012) to argue that employability needs to address the question of difference as anything else simply perpetuates inequalities. She writes:

> …continuing to make assumptions that students can all be treated in the same way, and have equal confidence in dealing with the labour market, runs the risk of perpetuating disadvantage as the relatively advantaged are able to maintain their position (Pegg et al, 2012).

In the past bachelor students had access to 'industrial tutors', giving them a chance to experience day-to-day activities of local engineers' working lives. More recently the ICE has established an Ambassadors programme where professionals engage with young people (albeit limited to school-aged children). Research documenting the history and development of e-mentoring programmes has suggested that benefits associated with e-mentoring strongly correspond to those associated with face-to-face mentoring (Single, et al., 2002) with one exception that e-mentoring facilitates relationships where mentees benefited from the impartiality of the mentor.

The benefits of mentoring have been described as: informational, psychosocial and instrumental (Single et al). Informational benefits refer to the transfer of subject-matter that they would not otherwise have access to. Psychosocial benefits include self-esteem enhancement and confidence building, and when mentors provided opportunities for the mentees, they were described as the beneficiaries of instrumental benefits. The impartiality of e-mentoring, however, allows the e-mentoring

relationships to develop to the point where there was trust and openness within the e-mentoring pairs.

One of the reasons for early e-mentoring programmes not always working well is reported as one of distance: as a lack of commitment to a relationship, because mentors and mentees do not meet in person. Kiesler and Sproull (1992) in a paper much cited in this field argue that e-mentoring and electronic communications have fewer reinforcement cues to encourage the maintenance of a relationship. This has led to the suggestion that all e-mentoring relationships are challenging, and indeed require programmatic support. Judi Harris, a prominent e-mentoring researcher, has even argued that '…e-mentoring should only be done when face-to-face mentoring isn't available, feasible, or appropriate' (National Mentoring Center, 2002).

However, despite potential problems with e-mentoring, the Internet's potential for supporting programs that address social justice and educational equity was recognized as early as the mid - 1990s (Muller, 1997). Like mentoring programs, e-mentoring programs are argued to have the potential to "'level the playing-field' by providing mentoring opportunities for those who otherwise would be left out of important informal networks" (Single et al.) It is not surprising that many of the earliest e-mentoring programs focused on creating educational and professional opportunities for underprivileged or underrepresented populations (Bierema & Merriam, 2002).

Hence, literature would suggest that e-mentoring could be viewed best as providing an opportunity that otherwise would not exist. This was precisely the opportunity presented by the Higher Education Academy grant to the School of Civil and Building Engineering. The pilot links to several major initiatives within Loughborough University, including: the Employer Mentoring Scheme, run by the Careers and Employability Centre of Loughborough University for home students of Black British, African, Caribbean and Asian decent; Loughborough Research Staff Mentoring Scheme; and the Higher Education Mentoring Scheme. It has similarities to work being carried out at Herriot Watt University exploring e-mentoring; and Culture of External Mentoring (CEMENT) which has been developed for undergraduate study and 3rd year students, mentored by industry professionals with the purpose of improving their employability.

Literature suggests that e-mentoring is contingent upon the development of a meaningful and useful relationship through remote communications, but the project seeks to explore this question through the use of a variety different social media exchanges, including Skype, rather than relying simply on impersonal email.

Pierre Bourdieu's social theory has been adapted by those examining mentoring processes, and who otherwise argue that mentoring has a relatively 'flimsy' theoretical base. Colley (2003) argues that 'we know little about the didactic relationships and how they work' (Colley, 2003a, 1). Theories of habitus and field (Bourdieu & Wacquant, 1992) have been used to critically explore how mentoring works and to challenge over simplistic theories of personal transformation (Philip and Hendry, 2000 and Smith, 2001, Colley 2003b). Colley argues in her critique of 'engagement mentoring' an approach used with 14 – 19 year olds as part of the Connexions service within the UK that such traditional models "…treat personal disposition as a raw material to be wrought into 'employable' dispositions, with little or no acknowledgement of complex institutional fields of power which act to reinforce inequalities" (Colley, 2003b 78). This has particular value when considering the question of internationalisation as described by mentees, initially in terms of cultural competence. The question of employability is not simply one solved by gaining knowledge of working practices, whether in the UK or abroad, as a home or international student. Employability not only suggests development of work related skills; it is a function of the development of the person. Inequalities within the workplace only emphasise that employability is not simply a question of personal self-development and as Culley states mentor-mentee relationships take place within a broad social, economic and political context which can act to reinforce those inequalities. Curriculum change for employability has to be able to address the whole spectrum of diversity within the study body and remain mindful of cultural issues associated with discrimination within the employment market.

E-mentoring has a proven history of supporting those from underrepresented groups; the problem of internationalisation in HE, as cited within literature is however, a rather fluid concept. It may refer to very different problems: "Intercultural competence", "Transnational education", or equally the "Bologna process" and its potential for student mobility. The problem of internationalisation as it emerged is one of 'intercultural competence' within the construction industry.

The Pilot

The pilot exploited the School of Civil and Building Engineering's extensive network of alumni and companies that sponsor its programmes, recruiting both recent graduates and experienced alumni engineers as mentors. Mentor's organisations include: Laing O'Rouke, Kier Construction Limited, Balfour Beatty, Costain, Halcrow, Carillion, Morgan Sindall, Network Rail and British Power International. Mentees were predominantly MSc and PhD students (cohorts where there are large numbers of international students) and 2nd year undergraduates not undertaking an industrial placement. The research involves two semester-long programmes, each with 12 mentees, and followed by a period of two months analysis. The research programme is, at the time of writing, within the first stage pilot.

After the selection stage, mentees from the School of Civil and Building Engineering were matched, the only criteria used being that of the same or similar degree programme as mentors (although not all the mentees could be matched exactly). In addition, the mentee and mentors who could attend were introduced in person at the launch meeting. (Despite the need identified for this first meeting in person only six of the mentors could attend whilst all of the mentees did attend.) The mentors had been recruited with the help of the Alumni office of the University and so most were Loughborough University graduates. However, a small proportion, had been recruited through the local meeting of the Institution of Civil Engineers, and were graduates of other Universities.

The launch meeting programme of introductory presentations were video recorded and made available online on the project website using the University Echo 360 software for the mentors who could not attend. Presentations included those from the academic leads for the project, moreover, the career service, experienced in running mentoring programmes, presented a modified training session. However, the crucial part of the launch programme was the announcement of the mentee and mentor pairs and the time both had to introduce themselves to each other. After the end of the launch event, the mentors and mentees were free to arrange meetings and to communicate through email, telephone, msn, Skype or any other media of their choosing.

Emerging Results

To monitor the development of the relationships an interim online questionnaire using GoogleDocs was sent out mid-way through the first pilot to gauge the activity between the pairs and the results collated, and interviews were carried out in person with a select number of mentees. At the time of writing the frequency of engagement of mentee and mentor ranged from three emails exchanged, to regular weekly Skype meetings, and to a combination of email, texting and meetings in person. Mentoring discussions have been reported as focused around CV production and it is clear that mentors in many of the relationships were being used by students for advice about the processes of applying for and being selected for employment. From the mentors' point of view, this was reported by some as limiting, and to a degree frustrating, for others, it was evidence of the success of the mentoring relationship.

Mentors and mentees have both reported the importance of planning for meetings; having a set of questions to ask and being able to reflect on answers from mentors. In one of the most successful partnerships the mentee had clearly taken the lead in the relationship, as reported by the mentor:

> Communication started slowly and did not happen over the Easter break. The two times that we have chatted have been really good and I believe have been beneficial for both parties. The best format has been when the mentee has provided questions prior to meeting. I could then think through suitable answers and evidence prior to meeting.

From responses to other questions about the topics of conversation, it is clear that some mentees had very clear ambitions for what would be achieved by the relationship, as one mentee stated:

> Discussions to date had been about: How do you organise a large business; what procedures do you need to put in place when planning/running a big project; the qualities of a good manager; how is knowledge shared within large organisations; and continuous development of staff within industry and whose responsibility it is.

The mentor reported a commitment to a regular Thursday meeting and that conversations had been facilitated using:

> a) Phone call b) Text message c) Skype Video Call d) Skype Instant Messenger e) Email f) Intranet forum Note: Text message, Skype instant messenger and emails have been used to organise the Skype video call [but] Intranet forum was not a successful way of communicating.

The pilot has seen extraordinarily successful partnerships with meetings in person as well as text and telephone calls. One of the mentor reports:

> I remain as enthusiastic about the programme as I was when I signed up, and am usually delighted to receive a text or email from L*** [mentee's name] (my mentee) which I think speaks to the success of the programme.

Recalling at length the subject of conversation, he stated:

> Our initial conversations were a bit of an ice breaker discussing both my background and L***'s [mentee's name]. We discussed the path L*** had followed to go to University and what she expected from a career in civil engineering. We also discussed her academic strengths and weaknesses. Following on from that L*** had arranged a sponsorship interview with V** [construction company], so we discussed in great detail CV's including going through some of my own older ones and my and L*** current CV's . We then talked about what it's like to be an interviewer and I introduced L*** to the WASP technique of interviewing. After this we talked about the best way to answer interview questions and we covered the STAR method. Then we looked at L***'s CV and I asked her some interview questions that I would ask a candidate with that CV, and we coached each other on the answers using the star method. We have also discussed some of the coursework and lab projects that L*** has been working on including the Perspex Bridge and the concrete lab. We briefly ran down the questions sheets and discussed how L*** might approach the problems and I tried to give some real world examples of where this might come up. We have also discussed what L*** can expect from her summer placement and how to get the most out of it. I'm sure we've talked about other stuff to but I'd have to check my notes which are at home.

To demonstrate the degree of communication, which was, as stated, atypical, the mentor reports:

> I've sent L*** 9 emails and 29 text messages, and called her back on a number of occasions. L*** has sent me 7 email and 24 text messages and called me up on around 4 occasions. We have also had 2 face to face meets we did have another one scheduled in between these two but I had to cancel due to a short notice site visit.

Student mentees who did complete the questionnaire recorded positive and beneficial discussions that were not however limited to CV or interview skills:

> Discussions are generally about the experiences gained in the industry and guidelines and tips on how to be successful in industry. The way things are done in the construction industry in Ghana and UK were discussed and compared.

Nevertheless, it was clear that not all the partnership in this first pilot were effective. In response to how well the partnership was working, one mentee states:

> Very slow. Because of the time difference. My mentor is C*** [name of mentor] from Australia. So we had quite difficulties to keep up in this program. When first time contacting him, we discuss about general information about ourselves and I express what I want to gain from this program. After that we discuss what is the best time to make the first online meeting through Skype. But it seems so hard for us to get the suitable time, so we still don't have the chance to do it. At the moment just contact through email and I have asked few things about what I wanted to know, and he is going to reply soon.

Two extended interviews were carried out with international mentees, one from Rwanda and one from Ethiopia, and it was this that allowed us to begin to get a picture of how important mentoring could be for international students, albeit if we could ensure the success of the mentor and mentee partnerships. For the first student the objective was clear: to obtain as much information about working practices within the UK as he could within the period of the pilot:

> Researcher: If there are key things that you know you've learnt and that you are going to change about what you do back home, what are they? Are there things you'll say, yes, I'll do that, or are there things you're just thinking about?

> Student: …things that really stand out for me are that at this level after Masters when we go back home we're going to be more of manager's than technical people. People management, which is a very difficult thing, working with big groups, I've learnt a couple of things about that. The thing I've learnt is about strategies, this was completely new to me, you know. Every business, everything in life, there's a strategy. You need to know where you want to go and have some sort of plan to get there. Before we just used to wake up and do things and get there.

For the second mentee the programme had not worked so well as whilst a similar intention was stated to learn about working practices in the UK, this mentee who had some significant work experience in Ethiopia had wanted to learn more specifically about water engineering company practices in the UK, his area of work and of Masters level study. Nevertheless, he believed the mentoring pilot to be of benefit and of particular value to those without work experience:

> I used to supervise new graduates in my workplace as well and one of the problems new graduates face is that they get shocked at the new challenge […] working under pressure and it helps when someone tells you how he is so busy and so under pressure and then those issues prepare a fresh graduate for the future.

Conclusions

The project remains at the pilot stage and improvements will be made to the second pilot next semester. Our own research has identified the need for student planning when engaging in a mentoring relationship and this is an aspect of training that we will incorporate into the launch day for the next pilot group. Some of the student mentees had come to this conclusion early on in the process and pro-actively managing the mentee-mentor relationship, which had resulted in a high degree of success. However, some students had obviously found the mentoring process intimidating and did not progress far beyond exchanging emails. The value of an initial face-to-face meeting was also evident and of the 'successful' relationships (as best we can measure at this interim stage) all met their mentors at the launch event. The question obviously arises how much the e-communication platform, which was the basis of the project, was felt to be a benefit or barrier to the mentoring relationship. Nevertheless, the e-communications technologies used supported relationships that could not otherwise take place due to time and travel demands and competing pressures of their study and work.

It is clear from the themes of conversations that students felt that industry mentors would be helpful in coaching them towards obtaining jobs in the engineering sector and some relationships were very evidently directed towards that aim. Bourdieuian theory, however, has value for critically examining the development of mentee and mentor relationships, claims made about employability, and the significance for processes for curriculum change that addresses the problems of internationalisation and employability. This broader discussion reveals some interesting potential trajectories for further research questions around:

- a critical examination how employability is being simplistically conceptualised within the HEI context;
- The nature of responsibility within the mentee-mentor relationship;
- The benefits of the involvement of the wider engineering community (and other mentors in the pilot) in the co-construction of intercultural competence.

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