

Bilateral benefits: Student experiences of work-based learning during work placement

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Abstract

This article explores the varied learning experiences among third-year students undertaking a structured work placement module in the furniture and wood manufacturing industries. Using situated learning theory, the article considers the outcomes of in-depth interviews with 10 students and offers an insight into the multifaceted interactions between 'novices' (students) and 'experts' in the workplace. Through the experiences and voices of students, the research uncovers evidence of two-way learning between the students and their work colleagues, particularly where the work environment and management support opportunities for knowledge and skills transfer. Three broad themes emerge from those interviews: (1) most students considered that workplaces facilitated opportunities for learning; (2) few barriers to learning were experienced by students; and (3) in most cases, students felt they had opportunities to introduce new skills. This qualitative piece of research underlines the importance for organizations to develop and promote the workplace as a 'learning environment' and to nurture new members so that they can contribute to learning, to the ultimate benefit of the whole organization. The findings highlight the positive role of curriculum design in accelerating the journey towards full participation for new members in a community of practice.

Keywords

Experiential learning, legitimate peripheral participation, student learning, work placement

This article explores students' experiences of learning on a 20-week work placement (WP) module undertaken as part of a degree programme in an Institute of Technology (IoT) in Ireland. The article builds on Fuller et al.'s (2005) critique of Lave and Wenger's (1991) theory of legitimate peripheral participation and the overtly simplistic, linear depiction of the way newcomers learn while on a trajectory towards full participation in a community of practice. Specifically, it sets out to identify what kind of learning opportunities the students experienced and to ascertain whether any instances of bilateral learning occurred between newcomers (novices) and old-timers (experts) (Lave and Wenger, 1991; 2002). In this instance, the students arrive with a range of relevant technical skills in an industry in which there is a tradition of underinvestment in formal training and development for employees (Heanue and Jacobson, 2001).

The students' experiences are contextualized in enterprises involved in the manufacture and design of wood-based products and projects (e.g. furniture, interior architecture and joinery). Their learning model in their

higher education institution (HEI) employs project-based learning as a central methodology. In addition to learning traditional skills in cabinet making and furniture construction, students have also developed competencies in areas of design, advanced manufacturing technologies such as computer-aided design (CAD), parametric modelling, computer-aided manufacturing (CAM) and operations management. The students, who are in the third year of a four-year degree programme, therefore bring with them a toolkit of skills and knowledge that is very relevant and applicable to modern manufacturing environments.

Adopting a qualitative methodology to generate data and explore student experiences, in-depth semi-structured interviews with 10 students revealed frequent examples of the students being able to share and implement their

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knowledge and skills in ways that were of benefit to the organization's operations and practices. A clear pattern of two-way learning and knowledge sharing emerges, presenting the interface between novice and expert as a rich and fertile place of learning and interaction. In some instances, when given scope to implement new systems and processes of work, students are even seen to engage in learning opportunities which foster 'deep learning' (Marton and Säljö, 1976). The findings also support Brodie and Irving's (2006) critique of Lave and Wenger's (1991) 'legitimate peripheral participation' learning theory, placing more emphasis on the facilitation of learning opportunities and the role of the environment and management in workplace learning.

The article first outlines the structure and role of WP in student learning in higher education (HE). The relevant literature relating to theories of learning *at* and *through* work are then introduced. This is followed by an overview of the industry in which the students are engaged and of the structure of the WP module. Finally, a summary of the themes emerging from the interviews is presented, including extracts to enhance the voice of the student where specific instances of learning are captured.

WP as a means of learning

In aligning programme development with the employment needs of the region, strong links have been established between IoTs in Ireland and regional industries. While much education–industry collaboration is manifested through postgraduate research, there are also many strong industry ties at undergraduate level (Linehan and Sheridan, 2011). Government reports and policy tend to stress the need for HE–enterprise engagement strategies, with a focus on improving the employability skills of graduates and the relevance of programme development to industry (Expert Group on Future Skills, 2011, 2015; Strategy Group, 2011). While there has been a strong tradition of experiential learning in certain disciplines in HE (e.g. nursing, medicine and teaching), the value of work-based learning to student development and graduate employability skills is now widely recognized (Brooks and Youngson, 2016; Jackson, 2014; Mason et al., 2009; Murakami et al., 2009; Linehan and Sheridan, 2011; Saunders and Machell, 2000). Boud and Solomon (2001) described the evolution of HE work-based learning as a significant innovation and a serious attempt to engage with the social, educational and economic demands of the time. The workplace itself can be seen as a 'site of knowledge with its own curriculum' (Brodie and Irving, 2006: 12), in which learning can be both horizontal (learning and applying knowledge and skills) and vertical (personal development) (Engeström, 2001; Murakami et al., 2009). One model that is used by HEIs to provide students with opportunities to experience the workplace is through WP, with students acquiring

academic credits based on the successful completion of a period based in industry. The value of embedding work-based learning in HE programmes is that it contextualizes learning and provides unique opportunities to learn *in* and *through* work (Guile and Griffiths, 2001). WP, while challenging and sometimes difficult for individuals (Paisey and Paisey, 2010), is recognized as generally being an enriching experience, enabling students to develop a deeper understanding of how businesses operate in their chosen field (Bullock et al., 2009; Tynjälä, 2008), improving employability skills (Brooks and Youngson, 2016; Mason et al., 2009; Wilton, 2012) and, in the case of 'sandwich placements', positively impacting on final-year academic performance (Jones et al., 2017). Indeed, the level of industry engagement and options for WPs in undergraduate degree programmes have now emerged as factors influencing students' selection of courses (Hurn, 2016).

Saunders (2006: 288) presents WP as an example of the education–economy nexus and a boundary-crossing experience which involves a 'physical metamorphosis of the learning environment'. Murakami et al. (2009) found that improved social competence was a key outcome of learning on WP, whereby students realized the importance of communication and teamwork and how the social aspects of work impacted on their learning. Brooks (2012) argues that students who have undertaken WP are more able to articulate their knowledge, skills and learning in a work-based context and are more career-focused as a result. Furthermore, the literature relating to a range of disciplines finds that, on average, students who undertake WP perform better than those who either choose not to or do not have the option (Brooks, 2012; Crawford and Wang, 2016; Mendez and Rona, 2010; Rawlings et al., 2005) and that work experience is valued as a selection criterion by employers (Jackson, 2014; Mason et al., 2009).

A wide range of designs and assessment methodologies is employed for WP programmes, but before we consider this it is worth reviewing relevant literature to understand the context of workplace learning.

Learning: Experiential and situated

The *Oxford English Dictionary* defines learning as 'the act, process, or experience of gaining knowledge or skill'. This article relates to each of those aspects of student learning with a focus on the intersection of the world of HE, where students are *taught* and *study*, and the world of work, where students learn through *experience*. The theories of how people learn are varied and complex. Kolb (1984) believed that experience forms one of the central pillars in the learning process. In his *experiential learning model*, he defined learning as the process whereby 'knowledge is created through the transformation of experience' (Kolb et al., 2001: 2).

There is a general differentiation between learning that is intended, often referred to as formal, explicit or deliberative learning (Eraut, 2004), and that which takes place without a conscious attempt to learn (non-formal or implicit learning). Proponents of situated learning theory argue that just a small proportion of what is learned at work is acquired through formal education or training and claim that learning is embedded in the activity and environment in which it takes place (Anderson et al., 1996). Brown et al. (1989: i) describes knowledge as 'being in part a product of the activity, context, and culture in which it is developed'. Of course learning through experience is multifaceted and can be effected by many dynamics – both internal and external to the learning environment. This is acknowledged by Lave and Wenger (1991: 70) in reference to situated learning and the many factors that influence the meaning and process of learning when embedded in social activity:

Economics, efficiency, control over the intensity and uniformity of labor, segregation of interrelated activities in space and time, the politics of knowledge control among other characteristics of the organization of work can diminish or enhance access, the curriculum, and the general understanding of on-the-job learners.

Social learning theory places a strong emphasis on learning through communication and participation. In examining the complexity of workplace learning, Eraut (2007) found that most learning that took place arose from the challenges of work and through social interaction, and that working and learning actually could not be separated. Eraut (1998) cited the most important factors in learning as (1) the learner's characteristics; (2) the nature of the work; (3) the organization and management of work; and (4) the workplace climate and culture. Eraut (1998) develops this paradigm, arguing that individual learning depends on confidence, motivation and capability and that the most important role of management is not to organize learning (or training), but to develop an environment that facilitates learning. The role of managers in controlling knowledge resources in *how* and *what* knowledge is distilled and their learning orientation has also been considered key determinants in influencing learning at work (Blackler, 1995; Coffield, 1999).

Boud and Middleton (2003) found that much of the learning that takes place at work is learned from people without a formal role in training or education and that rich sources of non-formal learning are found at the cusp of overlapping communities of practice and within informal networks created within work flows. The next section looks more specifically at the learning interface using the theory of legitimate peripheral participation espoused by Lave and Wenger (1991) in communities of practice.

Legitimate peripheral participation

Rejecting the overtly simplistic method of learning that was implicit in the craft apprenticeship models of traditional societies, Lave and Wenger (1991) offered the concept of *communities of practice*, whereby people engage in a process of collective learning with a shared interest. Within this concept, focusing on the way people learn through informal means, significant emphasis was placed on the newcomer's ability to access knowledge and to learn from established members of the community ('old-timers') and become full participants themselves, a theory Lave and Wenger termed 'legitimate peripheral participation'. While this conceptual framework provided organizations with a better understanding of the importance of informal learning, it was considered too general and simplistic by some researchers. Fuller and Unwin (2003), researching the learning trajectories of apprentices in modern industrial settings, maintained that learning was more complex and ultimately dependent on 'participation, personal development and institutional arrangements' (Fuller and Unwin, 2003: 407). Solomon et al. (2006) also drew attention to the complexity of the workplace environment and its relationship with the quality of subsequent learning and work evolving. Similarly, Kyndt et al. (2012) contended that work motivations, perceived workload and choice independence all impacted on employees' approaches to learning at work and that the ability of members of the organization to access knowledge determined the level and depth of learning accomplished. Engeström (2001) argued that constant learning took place in organizations, often occurring through horizontal interaction during collective problem-solving.

An additional criticism of legitimate peripheral participation theory is that it does not acknowledge barriers to learning, knowledge controls and political matters, all of which influence learning and further complicate the narrative (Steiner, 1998). Finally, Fuller and Unwin (2003) and Fuller et al. (2005) argue that legitimate peripheral participation theory is too focused on the newcomer as a 'novice' and offers little in the way of accounting for how experienced workers learn, or for the learning opportunities that occur when people with expertise are introduced to an organization. This latter point becomes the focus of the findings presented later in this article, showing that students undertaking the WP module bring with them skills that are highly relevant to the industry, facilitating a multi-directional learning interface. First, we turn our attention to the matter of how students learn on WP.

Shaping student learning

There have been various studies on the modes of learning employed by students on WP (Brodie and Irving, 2006; May and Veitch, 1998; Murakami et al., 2009). May and

Veitch (1998) explored the learning practices of student nurses on WP and found that their learning was affected by a range of factors, including their preparation, support frameworks, opportunities to reflect, HEI assessment methodologies and, finally, the strategies employed by the students themselves to maximize their learning. This longitudinal study also found a positive correlation between the efforts invested by tutors in the preparation of WP and the level of learning achieved by students. Murakami (2009) highlights the importance of social competence in how students access learning opportunities in the workplace and, post-placement, in their ability to communicate those experiences to their supervisors. Brodie and Irving (2006) raise the valid question of students' own awareness of learning having taken place and their ability to reflect on and communicate it. Furthermore, Guile and Griffiths (2001) argue that HEI curricula and assessment methods should be designed to acknowledge work in all its forms, including that of student self-development and identity.

One of the difficulties facing students on WP is the time required to adapt to an organization and to understand how it 'works' in relation to processes and procedures and also to the social and political contexts of the workplace. Boud and Middleton (2003: 198) present three significant sources of informal learning: 'mastery of organisational processes; negotiating the political; and dealing with the atypical'. Accessing each of these sources of learning can present a significant and sometimes insurmountable challenge to students, particularly in placements of a short duration, as students may not have adequate time to negotiate the political and operational barriers to knowledge resources. Even on extended placements, the level and depth of learning, and thus perceived performance, can depend on the level of access students are given to the entire organization and on the complexity and scale of the organization. This is consistent with the findings of this study, with students commenting on the positive impact on their learning when managers ensured that they were exposed to the entirety of the organization's operations.

One gap in the theories of learning outlined above is that they do not tend to place significant emphasis on the prior knowledge or experience of the 'newcomer' – in particular, the role of curriculum in preparing students for their experience in the workplace. While Fuller and Unwin (2005) argue that legitimate peripheral participation fails to take account of the role of formal education (block release) in the learning process of apprentices, they do not correlate that to WP students. In the context of the WP module, students have learned skills and knowledge in their programme curriculum relevant to industry and, in some cases, their prior learning may be considered valuable to their place of work and may have the potential to fill a skills or knowledge gap in the organization. This topic is

explored in more detail below in the context of findings from the interviews undertaken for the study.

The next section provides an outline of the structure of the specific WP module undertaken by students in the HEI in which this research was situated.

WP structure

The HEI in question offers a niche range of programmes with a high level of specialism in furniture design and technology, using predominantly wood and wood-based materials. Students undertake the WP module for a period of 20 weeks in their third year of study in companies that specialize in work ranging from small bespoke furniture and joinery products to large-scale commercial interior projects and services. Heanue and Jacobson (2001) have previously highlighted the traditional shortcomings of this sector in Ireland in relation to a lack of skills and expertise in design, production, management and marketing. The degree programmes in question were developed to produce graduates who would help to bridge this skills gap.

Prior to applying to a company for WP, students prepare a curriculum vitae, undertake a self-assessment of their strengths and weaknesses with support from their WP Coordinator, research their desired company and reflect on the type of work they would like to experience and the skills they would like to develop. Students are interviewed by company representatives before being accepted for WP to ensure they meet the company's own expectations. While on WP, students receive visits from a WP Supervisor (academic) and several meetings are arranged over the course of the placement between the academic and the placement company supervisors. For assessment purposes, students regularly submit learning journals and complete a written report and review at the conclusion of the WP. The views of the WP company supervisor are also considered when assessing a student's performance. This study follows the experience of 10 students who have recently completed the WP module.

Data generation methods

To generate data for this study, I carried out in-depth semi-structured interviews with 10 students who had recently completed a 20-week WP module. Interviews were considered the most appropriate means to explore the students' learning experiences and to produce qualitative data of appropriate quality. My role as Head of Department, and previously as a Lecturer, has provided me with knowledge of the industry in which students have been working and of this WP module, enabling me to probe or prompt as necessary to ensure depth and richness in the data generated.

A group of 18 fourth-year students were invited to take part in the study. All had successfully completed their WP module and progressed to their final year of study. Ten

Table 1. Summary of WP students and host organizations.

Student's name	Age	Location of WP	Number of employees (approx.)	Organization's products/services
Alan	22	Ireland	35	Domestic furniture
Brian	32	Northern Ireland	150	Commercial interiors
Conor	23	North America	20	CAD Engineering
Darren	25	Ireland	55	Architectural joinery
Eoin	22	Ireland	50	Architectural joinery
Frank	20	Ireland	4	Kitchen design and manufacture
Gordon	34	Germany	250	CAD Engineering
Harry	22	Ireland	8	Architectural joinery
Iarla	23	North America	120	Architectural joinery
John	21	Ireland	50	Domestic furniture

WP: work placement; CAD: computer-aided design.

students agreed to engage with the interview process. In recognizing the existence of power relations and in order to mitigate against them, the students interviewed had already received their results and feedback from the college and employers. All students invited to partake in the study were given interview information and consent forms in advance and ethical approval was received prior to the research being carried out.

The interview schedule required students to reflect on their learning experiences and interactions in their work environment. The interviews, which lasted on average for 35 min, had eight core questions with a number of sub-questions to explore issues further as they arose (see Appendix 1 for the core questions). They were designed to ascertain the extent to which students felt that the workplace environment had facilitated new learning and how much management and work colleagues had supported their learning. In addition, they were asked if they had experienced any barriers to learning and the extent to which they considered themselves to have become 'full' members of staff. Finally, the students were questioned on opportunities that had arisen to share their skills and knowledge with their colleagues and how well this had been facilitated and received. Each interview was recorded and transcribed and the data generated were analysed using an a priori approach to thematic analysis, identifying broad and sweeping themes and patterns that emerged from the data collected (Braun and Clarke, 2006).

Where inferences are made in the interpretations of students' learning experiences, they are, where possible, contextualized in actions and events recounted. In all cases, their experiences have been triangulated with diary and report submissions from their WP assessments, verifications from their WP Supervisor and, where possible, from employers' feedback forms. To protect the anonymity of the students and host companies, pseudonyms are used for the interviewees.

The students ranged from 20 to 34 years of age, were male and, while some had previous work experience, this was the first time they had worked in the sector relevant to

their degree programme. They undertook WP in companies based in Ireland, Northern Ireland, North America and Germany (Table 1). While all the host companies had links to the furniture and interiors sectors, the types of operations and work practices varied greatly. These included the design, manufacture and installation of furniture and fittings for commercial and domestic buildings and marine vessels; CAD engineering; door and window fabrication; and kitchen design and installation. Of the 10 companies, 7 had previously taken students on WP from this HEI.

The next section presents the findings of the interviews and the themes that emerged.

Findings

Three broad themes emerged from the interviews: (1) most workplaces had facilitated a rich learning experience for the students; (2) few barriers to learning had been experienced; and (3) in most cases, the students reported opportunities to share and introduce new skills in the workplace. This section provides a summary of each theme, contextualized by extracts from interviews where appropriate.

Environments supporting learning

To ascertain the degree to which students felt their place of work had encouraged and supported learning, they were asked whether they felt that the people they worked with were interested in helping them understand and learn. This gave an interesting insight into the different approaches taken by companies in ensuring that students were supported in their learning. Some companies encouraged the students to guide their own learning trajectory:

The first week they said write out a list of what you want to do, and what you want to achieve while you're on placement, and we'll make sure you get to do it. [Alan]

Other companies with experience of taking students on WP had considered the importance of structuring the

placement to support the student's integration into the organization:

I think they had students before and they kind of got pigeon-holed, and ended up staying in one place for their whole placement, so for us they had a really good plan in place when we got out there. [Brian]

They were aware that I was still only learning, they would let me sit in on meetings, just so I knew what was going on in the company on a daily basis as well as what my tasks were. [Iarla]

In relation to learning from others and providing a supportive work environment, it transpired that in the majority of cases management and work colleagues were considered very approachable and supportive:

John was the man I went to if I had any problems; he was brilliant and extremely helpful, they all were. [Frank]

I went to the guys beside me for help and if they couldn't help I would go to the bosses and they were very helpful. [Darren]

In Gordon's case, he was also able to articulate the insecurities of the newcomer during the initial transitional period:

If I had a problem I kind of looked around and thought right who will I talk to here? You know, who has the least to do? But at the same time, I felt like I didn't want to approach people, breaking their concentration. They have work to do – 'Who is this student annoying me? Asking me these silly questions?'

Gordon's feelings are consistent with Wenger's reference to the potential for newcomers to feel 'like a bumbling idiot amongst the sages' (Wenger, 2000: 227) when they first enter the community of practice. As can be seen from these extracts, though, students generally viewed the workplace as a positive learning environment.

Barriers to learning

As outlined previously, the perspective of Lave and Wenger (1991) has been criticized for not acknowledging the significance of conflict or power relations and the potential impact of those factors on learning in a community of practice. Just two of the accounts from students unearthed examples of barriers to learning and knowledge control. In each case, there appeared to have been a lack of understanding on the part of the company concerning the expectations and capabilities of the students. Interestingly, these two companies did not have a previous relationship with the HEI nor had they previously taken a student on placement. In one case, the student perceived that his work colleagues treated him differently because he was a student:

The impression I got from some of the boys in there, including my boss, was that here was this college boy coming in thinking he's the bee's knees. We're at this twenty or thirty years, he's not going to be able to tell me anything I don't know. [Harry]

John also cited examples of difficulties he had faced in accessing knowledge from some of the 'old-timers':

The younger lads, they had no bother helping. When you would get on to the other middle-aged lads there would be smart remarks, they wouldn't be willing to help.

When commencing WP, companies are asked by the HEI to facilitate students in getting as broad a perspective as possible of the work environment. This often includes students working in different parts of the company. John, however, also experienced some frustration with his attempt to move around within the company:

I asked the boss in the last two weeks could I go into the office just to see how things were run in the office and I don't think he heard me at all.

This underlines the impact that power relationships play in the learning trajectories of newcomers. Some of this tension could be explained by poor interpersonal skills or the expert feeling threatened by the novice's ability, which can be correlated with what Goody (1989: 249) refers to as 'the resentment by the youth of endless routine and control, and the older man's fear of being superseded'. Lave and Wenger (1991: 74) also refer to this succession theory when analysing the interdependent relationship between old-timers and newcomers, noting that 'the success of both new and old members depends on the eventual replacement of old-timers by newcomers-become-old-timers themselves'.

These types of scenarios could also possibly be avoided through better communication between the HEI and placement company on the structure, roles and expectations from the WP programme.

High occurrence of bilateral learning

The students interviewed for this study arrived at the workplace primed with a variety of specialist skills highly relevant to a modern manufacturing environment. As well as having learned the principles of furniture making, they had also acquired advanced technology and computer-related skills such as CAD and CAM and project management. A particular focus of this research was to ascertain whether the students had had opportunities to make a positive impact on the workplace using their skills – effectively, to turn the learning trajectory around so that they became a source of knowledge for the old-timers. Could there be possibilities for the learning to go both ways, or for what we might term 'bilateral learning', on

WP? In the interviews, the students were asked if they had had opportunities to share any of their own skills or knowledge with their colleagues. In all but one case, they were able to give examples of bilateral learning, some reporting a minor impact on operations, others transforming certain work practices. Many of the examples cited were centred on students' technical skills in CAD and parametric modelling:

[...] so I basically introduced them to Auto-CAD Inventor to show them what they can do [...] so they didn't have to be wasting wood prototyping them [...] the manager said I saved them several weeks. [Alan]

So they started grasping on to that towards the end, they said 'Yeah, we should really look towards *Inventor*'. So they started learning off me and I started learning *Auto-CAD* from them, it was perfect. [Conor]

With being in college you don't actually think that companies out there don't know stuff, like I was able to teach them things. [Iarla]

As students' understanding of work practices improved with time, and they gained in confidence, further opportunities for bilateral learning were possible as the following extracts demonstrate.

Towards the end of it I was asked my opinion, the lads would be coming up asking me how would I go about doing it. I just showed a few of them an easier way of marking it out. It was a new skill for them. I had learned it through doing Technical Drawing. [Eoin]

There were a couple of situations where I would just say 'Would you not do it this way?' And they would stand back and say 'OK, this makes sense'. It wasn't a case of 'this is how we've always done it'. [Frank]

In one particular case, Brian was working with a company that had won a tender for a multi-million overseas contract. The project involved manufacturing several thousand interior furniture and fittings and shipping them overseas for installation. Brian saw an opportunity to use information technology to facilitate the inventory control system and designed and implemented an *Excel* spreadsheet to replace the existing paper-based system. This had many positive impacts on the logistics of the subsequent shipping of finished goods. After the successful pilot implementation (albeit on a significant project with thousands of components), the company developed the system further and it is now embedded in their processes:

[...] they were commending us for having everything in the right place so that was hugely beneficial and that purely comes down to a simple understanding of *Excel*.

In this particular industry, where there is a reliance on a non-skilled and semi-skilled workforce, the transition

of the student from newcomer to expert in the company's perception can become accelerated. This study found evidence of a blurring of the learning interface between the newcomer and the old-timer, and it is worth noting how quickly one's identity can be transformed into that of an expert:

I think they were a little shocked you know that we were able to go straight in there and use it and knew exactly how to change a tool on the machine and stuff like that. [Brian]

This notion of newcomers entering the community with previous experience and skills is not explored in legitimate peripheral participation theory. Fuller et al. (2005: 61), however, reference the experience of newly qualified teachers as follows: 'In addition, he brought with him some skills which the existing music staff did not possess, so they were also able to learn from him'.

Eraut and Hirsh (2010) highlight the significance of the confidence of the learner in being proactive in seeking opportunities to learn and thus fulfilling their learning potential. Brian further demonstrated this potential when he took it upon himself to review the implementation of lean production reporting in the company's manufacturing workshops. A level of complacency had evolved whereby the lean audits were not having the desired effect on improving efficiency and minimizing waste. Brian decided to read up on the system and then undertook the audit along with the assistant production manager. What is striking about this example is that the subject area was not part of this student's curriculum and so it was done on his own initiative:

I got the Toyota [5 Sigma] book from the office [...] and I read up a few chapters and I looked it up on the Internet and stuff. So I did a little bit of learning on it I suppose before I started.

Brian's learning experience encapsulates the richness and complexity of the workplace learning environment, particularly for students. Fuller and Unwin (2005: 52) cite Goody's (1989) observation on the introduction of people with expertise into a community in West Africa carrying out the production of goods: she notes that this 'led masters to think more comprehensively about the organization of their productive activities'. Brian's experience also concurs with Fuller and Unwin's (2003; 2005) studies in relation to organizations offering an expansive approach to apprenticeships and creating opportunities that foster deep learning. Similarly, Engeström (1994) referred to his model of expansive learning as capable of facilitating the transformation of work practices. That students on WP can be involved with and even initiate such transformative innovations is something that managers and companies should embrace and nurture. By the end of the WP, when asked,

eight of the ten students considered that they had become full members of the workforce. Furthermore, it seems that a number of the students (Brian, Darren, Iarla and Alan) had attained 'expert level' in relation to Dreyfus's (2004) model of skills acquisition in that they demonstrated an 'intuitive grasp of situations based upon deep tacit understanding' (Eraut, 2004: 126), and each had been given a position of responsibility in the company commensurate with that level.

Conclusion

This article focuses specifically on how students view their learning experiences from a 20-week WP module with companies operating in the furniture and wood-manufacturing industries. The findings affirm the rich learning environment provided by the workplace and the importance of the workplace in shaping and facilitating learning opportunities, and highlight the many levels of learning that can take place. In investigating the learning trajectory of the students (newcomers) on WP, it is interesting to note that within a relatively short period, propelled by their prior knowledge and skills and with support from their work colleagues, many had achieved full participation in their respective communities of practice. For managers in industry and host organizations, this demonstrates the significance of affording newcomers with prior knowledge and skills the freedom and responsibility to assert themselves. There are obvious advantages that can accrue to organizations which promote learning and which are open to new ideas and skills – particularly in industries that are in a development stage of applying new technologies. This finding reinforces the limitations of Lave and Wenger's (1991) theory of legitimate peripheral participation in presenting informal learning as a one-directional process. In the context of students on WP, this research demonstrates that the underlying assumption that all learning is a one-way process from old-timer to newcomer is misrepresented and can lead to missed opportunities for individual and organizational development.

For HEIs, the findings highlight the role that curriculum design can play in positively affecting the learning trajectory of students (and graduates) along the newcomer–old-timer continuum. The relevance and currency of that curriculum can also provide rich dividends for graduates in terms of employability skills. Although not a focus of this research, it is also interesting to note that four of the companies were outside the jurisdiction of the HEI, highlighting notable instances of international knowledge transfer and enabling the development of deeper collaborative learning opportunities.

At the programme level, the research underpins the importance of clear communication and understanding between HE providers and placement companies in their respective expectations of the outcomes and demands of

WP programmes. Students who felt that the workplace was not a supportive learning environment also recorded that they had experienced barriers to learning and accessing knowledge. In each of these cases, it was the first time the company had hosted a student from the HEI. In planning WPs, educational institutions must try to ensure they maximize the student's opportunity for learning and personal development and minimize the risk of engaging with companies unable to provide the necessary supportive environment.

While this research is student-centred, it is recognized that other voices are also important in evaluating the impact and quality of the WP experience. Employers, managers and supervisors (both academic and work-based) all play an important role in shaping the learning of students. In order to broaden the understanding of student work-based learning, further research should be considered to explore the views of employers in respect to the WP process, student preparation for and engagement during WP, and the role of work-based mentors and supervisors. Additionally, it is recognized that this research employed a qualitative methodology and that quantitative outputs could add a further layer of analysis, including data generated from academic and work-based supervisors. Finally, acknowledging the relatively small cohort of students and the sector-specific nature of their WPs, there would be value in extending the research to a wider number of participants in other discipline areas and other institutions to explore correlations to the findings presented in this article.

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References

- Anderson JR, Reder LM and Simon HA (1996) Situated learning and education. *Educational Researcher* 25: 5–11.
- Blackler F (1995) Knowledge, knowledge work and organizations: an overview and interpretation. *Organization Studies* 16: 1021–1046.

- Boud D and Middleton H (2003) Learning from others at work: communities of practice and informal learning. *Journal of Workplace Learning* 15: 194–202.
- Boud D and Solomon N (2001) *Work-Based Learning: A New Higher Education?* Buckingham: Society for Research into Higher Education and Open University Press.
- Braun V and Clarke V (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology* 3: 77–101.
- Brodie P and Irving K (2006) Assessment in work-based learning: investigating a pedagogical approach to enhance student learning. *Assessment & Evaluation in Higher Education* 32: 11–19.
- Brooks R (2012) Evaluating the impact of placements on employability: *Employability, enterprise and citizenship in higher education conference 2012*. Manchester Metropolitan University, University of Huddersfield Repository.
- Brooks R and Youngson PL (2016) Undergraduate work placements: an analysis of the effects on career progression. *Studies in Higher Education* 41: 1563–1578.
- Brown JS, Collins A and Duguid P (1989) Situated cognition and the culture of learning. *Educational Researcher* 18: 32–42.
- Bullock K, Gould V, Hejmadi M, et al. (2009) Work placement experience: should I stay or should I go? *Higher Education Research & Development* 28: 481–494.
- Coffield F (1999) *Speaking Truth to Power: Research and Policy on Lifelong Learning*, Vol 3. Policy Press, Bristol, UK.
- Crawford I and Wang Z (2016) The impact of placements on the academic performance of UK and international students in higher education. *Studies in Higher Education* 41: 712–733.
- Dreyfus SE (2004) The five-stage model of adult skill acquisition. *Bulletin of Science, Technology & Society* 24: 177–181.
- Engeström Y (1994) *Training for Change: New Approach to Instruction and Learning in Working Life*. Geneva: International Labour Office.
- Engeström Y (2001) Expansive learning at work: toward an activity theoretical reconceptualization. *Journal of Education and Work* 14: 133–156.
- Eraut M (1998) Learning in the workplace. *Training Officer* 34: 172–174.
- Eraut M (2004) Informal learning in the workplace. *Studies in Continuing Education* 26: 247–273.
- Eraut M (2007) Learning from other people in the workplace. *Oxford Review of Education* 33: 403–422.
- Eraut M and Hirsh W (2010) The significance of workplace learning for individuals, groups and organisations, ESRC Centre on Skills Knowledge and Organisational Performance, SKOPE, Pembroke College, Oxford, UK.
- Expert Group on Future Skills (2011) *The Expert Group on Future Skills Needs Statement of Activity 2010*. Dublin: Forfas, Expert Group on Future Skills Needs.
- Expert Group on Future Skills (2015) *Guidance for Higher Education Providers on Current and Future Skills Needs of Enterprise: Springboard+ 2016 Including ICT Skills Conversation*. Dublin: Expert Group on Future Skills Needs.
- Fuller A, Hodkinson H, Hodkinson P, et al. (2005) Learning as peripheral participation in communities of practice: a reassessment of key concepts in workplace learning. *British Educational Research Journal* 31: 49–68.
- Fuller A and Unwin L (2003) Learning as apprentices in the contemporary UK workplace: creating and managing expansive and restrictive participation. *Journal of Education and Work* 16: 407–426.
- Goody EN (1989) Learning, apprenticeship and the division of labor. In: Michael W Coy (ed.) *Apprenticeship: From Theory to Method and Back Again*, pp. 233–256, State University of New York Press.
- Guile D and Griffiths T (2001) Learning through work experience. *Journal of Education and Work* 14: 113–131.
- Heanue K and Jacobson D (2001) Organizational proximity and institutional learning: the evolution of a spatially dispersed network in the Irish furniture industry. *International Studies of Management & Organization* 31(4): 56–72.
- Hurn KM (2016) Joined up thinking? A review of the impact of a higher education and industry partnership on undergraduate product design students. *Industry and Higher Education* 30: 129–139.
- Jackson D (2014) Factors influencing job attainment in recent Bachelor graduates: evidence from Australia. *Higher Education* 68: 135–153.
- Jones CM, Green JP and Higson HE (2017) Do work placements improve final year academic performance or do high-calibre students choose to do work placements? *Studies in Higher Education* 42: 976–992.
- Kolb DA (1984) *Experiential Learning: Experience as the Source of Learning and Development*. Englewood Cliffs, NJ: Prentice-Hall, p. xiii, 256.
- Kolb DA, Boyatzis RE and Mainemelis C (2001) Experiential learning theory: previous research and new directions. *Perspectives on Thinking, Learning, and Cognitive Styles* 1: 227–247.
- Kyndt E, Raes E, Dochy F, et al. (2012) Approaches to learning at work: investigating work motivation, perceived workload, and choice independence. *Journal of Career Development* 40(4): 271–291.
- Lave J and Wenger E (1991) *Situated Learning: Legitimate Peripheral Participation: Learning in Doing*. Cambridge [England], New York: Cambridge University Press, p. 138.
- Lave J and Wenger E (2002) Legitimate peripheral participation in communities of practice. *Supporting Lifelong Learning* 1: 111–126.
- Linehan M and Sheridan I (2011) *Work Placement in Third-Level Programmes (REAP)*, Cork, CIT Press.
- Marton F and Säljö R (1976) On qualitative differences in learning: I – outcome and process. *British Journal of Educational Psychology* 46: 4–11.
- Mason G, Williams G and Cranmer S (2009) Employability skills initiatives in higher education: what effects do they have on graduate labour market outcomes? *Education Economics* 17: 1–30.
- May N and Veitch L (1998) Working to learn and learning to work: placement experience of Project 2000 nursing students in Scotland. *Nurse Education Today* 18: 630–636.
- Mendez R and Rona A (2010) The relationship between industrial placements and final degree results: a study of engineering

- placement students. *Learning and Teaching in Higher Education* 4: 46–61.
- Murakami K, Murray L, Sims D and Chedzey K (2009) Learning on Work Placement: The Narrative Development of Social Competence. *Journal of Adult Development* 16:):13–24.
- Paisey C and Paisey NJ (2010) Developing skills via work placements in accounting: student and employer views. *Accounting Forum* 34(2): 89–108.
- Rawlings P, White P and Stephens R (2005) Practice-based learning in information systems: the advantages for students. *Journal of Information Systems Education* 16: 455.
- Saunders M (2006) From ‘organisms’ to ‘boundaries’: the uneven development of theory narratives in education, learning and work connections. *Journal of Education and Work* 19: 1–27.
- Saunders M and Machell J (2000) Understanding emerging trends in higher education curricula and work connections. *Higher Education Policy* 13: 287–302.
- Strategy Group (2011) *National Strategy for Higher Education to 2030: Report of the Strategy Group*. Dublin: Department of Education and Skills.
- Solomon N, Boud D and Rooney D (2006) The in-between: exposing everyday learning at work. *International Journal of Lifelong Education* 25: 3–13.
- Steiner L (1998) Organizational dilemmas as barriers to learning. *The Learning Organization* 5: 193–201.
- Tynjälä P (2008) Perspectives into learning at the workplace. *Educational Research Review* 3: 130–154.
- Wenger E (2000) Communities of practice and social learning systems. *Organization* 7: 225–246.
- Wilton N (2012) The impact of work placements on skills development and career outcomes for business and management graduates. *Studies in Higher Education* 37: 603–620.

Appendix I

Interview core questions (not including sub-questions)

1. Tell me a bit about where you were for the work placement.
2. What kind of new skills did you develop?
3. Can you tell me about who you learned from at work?
4. Did you feel that people you worked with were interested in helping you understand and learn?
5. Were you able to share any of your own particular skills/knowledge with your colleagues/management?
6. What was the thing that surprised you most about the work placement?
7. Were there any episodes that stand out in any way?
8. To what extent did you consider yourself to be a ‘full’ member of staff?