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STUDENTS' CONCEPTUAL KNOWLEDGE ABOUT WORKPLACE PEDAGOGIES AND APPLICATIONS TO LEARNING IN THE WORKPLACE

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Abstract

The development of effective workplace pedagogies is integral to work-integrated and work-based learning. Learners need to understand the nature of these pedagogies, and how and for what purposes to use these to achieve a range of learning outcomes. Their conceptions of workplace pedagogies play an important role in successfully integrating knowledge and skills learned in educational institutions into the context of the work.

A pilot study was conducted on students' conceptions of how each of the seven dimensions of workplace pedagogy helps their learning. They provided examples of learning from these sources and stated their preferences for learning in the workplace. A sample of seventeen students, enrolled in the second year of a Diploma in Nursing course at a Technical and Further Education institution, participated in a survey to capture these conceptions and the importance attached to each of them. The findings indicate that these students have basic understanding of how each of seven workplace pedagogic practices can contribute to their learning. They reported relying mostly on daily practices, observing and listening to others, modelling, coaching, and other workers. Their selection of these contributions emphasise significant opportunities for guided learning by others, yet suggest fewer student-initiated interactions, less intensity in interactions, and a tendency for passive learning. The data also suggests that these students rely mostly on using academic learning skill, and limited workplace learning skills. It is proposed, therefore, that students develop a comprehensive understanding of workplace pedagogies and their efficacies as well as develop skills to become more self-directed learners. Knowledge and understandings about workplace learning and pedagogies might be best embedded throughout the curriculum and not become add-on shortly before students go on work placement.

Introduction

The vocational education and training sector uses learning in the workplace as a significant component of many of its programs, most notably in apprenticeships. This is because the workplace offers a range of viable pedagogical practices that can support learning throughout one's working life (Billett, 1992, 2004, 2009; Billett & Boud, 2001; Fuller & Unwin, 2004; Hager, 2004; Raelin, 2008; Symes & McIntyre, 2000; Tennant, 2000). However, students embarking on work placement experiences are more familiar with pedagogies in typical classroom environments. Yet the potency of learning is enhanced when learners draw on and integrate learning opportunities offered by both the classroom and the workplace. Nevertheless, the articulation of learning between academic and workplace frameworks is no easy task because of the distinct environments and types of skills required to optimise learning in each context (e.g., Tennant, 2000; Major, 2005). Therefore, students on work placements need to understand the nature of workplace pedagogies, and how and for what purposes they might actively use them to achieve a range of learning outcomes. In particular

they need to understand how workplace pedagogies differ from traditional classroom pedagogies, and what skills are needed to exploit them. These propositions prompted an inquiry into students' conceptions of workplace pedagogies and their perceived efficacies of the sources of learning in the workplace.

A growing body of research (Entwistle & Peterson, 2004; Vermunt, 1996; Boulton-Lewis, Marton, Lewis & Wilss, 2000; Purdie & Hattie, 2002) shows that conceptions and orientations influence the types and quality of learning outcomes that students achieve. Students' conceptions of knowledge and learning, along with their learning orientations, influence the strategies they use when engaged in intentional learning. These accounts imply that learners' conceptions of knowledge influence their cognitive processing strategies, and that enhanced conceptual knowledge and understanding of workplace pedagogies could improve students' learning during work placement. Moreover, improved conceptions of workplace pedagogies would more likely promote conceptions of learning as *product* (i.e., acquisition of discrete knowledge and skills) and ongoing *process* (Hager, 2004) - hence better inform learners about processes of lifelong learning.

Based on these analyses, it is important to consider how students interpret and engage with contributions offered by placement in work settings. In this paper I report on the findings from a pilot project that explored students' conceptual knowledge and understanding of workplace pedagogies. Arguments for the workplace as a learning site are canvassed, the research methodology is discussed, and the findings are discussed. From these findings it can be argued that knowledge and understandings about workplace learning and pedagogies might be best embedded in the curriculum and not become add-on before students go on work placement.

Workplace as a learning site

Recent research has provided insight into the 'pedagogic and curriculum potentials of workplace and work experiences, not just through a consideration of their physical and social settings, but also on those who engage in and learn through work' (Billett, 2008, p. 4). Workplaces are now widely recognised as powerful sites for professional and vocational learning, where individuals construct and negotiate their work identities, and learn about their self and agency at work (Etelapelto, 2008). Hence, robust learning is no longer held to be restricted to experiences in classroom settings alone. Learning experiences in the workplace contributes to educational institutions providing a more holistic development than purely academic study. Such learning also effects interpersonal and team relationships, professional behaviour, and work projects (Raelin, 2008). Raelin (2008) explains that learning in the workplace has distributed systems of appropriation, where knowledge is developed and mediated within social, cultural, political, and ethical frameworks. These explanations support Billett and Boud's (2001) claims that the workplace provides a context for learners to transform and construct vocationally and socially meaningful knowledge and skills.

The physical and social contexts of workplace settings make work environments and activities integral to cognition. It is because knowledge is conceptualised and contextualised within the context of the workplace (Vygotsky, 1978), that it translates into more meaningful outcomes for individual and organisational objectives. Consequently, workplace pedagogies play an important role in learning and students' need to understand their efficacies well in order to appreciate the benefits. Furthermore, the socio-cultural environment of the workplace and the pedagogies within them alone are insufficient for productive learning to occur. Learners need to action these pedagogies. Billett (2006) argues that access to

workplace affordances is not guaranteed and is not necessarily equitable for all learners. In promoting the educational worth of learning that takes place in the workplace, Billett (2009) stresses assisting learners to develop the capacity to become effective agents to access the learning opportunities. He argues that personal epistemological practices play a significant part in mediating between the classroom and workplace, yet they are not fully acknowledged within the literature. Understandably, mediation between the two sites takes time. Yet, students on work placement over short periods are expected to cope with a diverse set of intersecting factors. Indeed, although much of their participation during work placement is, in Lave and Wenger's (1991) terms, legitimately 'peripheral' they are expected to immerse themselves into the workplace cultural fabrics and engage in learning to become work ready individuals.

While the workplace is rich in cognitive contributions, and can offer pedagogies that complement classroom-based learning, students need a distinct set of skills to complement traditional academic learning skills. Tennant (2000) lists traditional academic learning skills to include:

> learning from instruction (e.g., listening, taking notes, summarising, questioning); performing assigned learning tasks (e.g., understanding the purpose of a task, following instructions, anticipating the kinds of responses required); relating practical experiences to the material being taught and applying the principles derived from theory and research; basic learning skills (e.g., finding information, organising and categorising thoughts, reviewing material for examinations, developing exam techniques); and learning how to generalise and when to generalise (pp. 126-127).

Tennant (2000) contends that these academic learning skills, while appropriate to the requirements of writing assignments, are less applicable to learning in the workplace where students' roles in the process and management of learning becomes more salient. He, instead, suggests that additional skills that are essential for learning in the workplace. These skills include:

- Analysing work experiences.
- Learning from others.
- Functioning with incomplete information.
- Contemplating multiple courses of action to decide on the most appropriate action at a given moment.
- Learning about organisational cultures and sub-cultures.
- Expanding learning opportunities by using a range of resources and activities.
- Understanding various competing interests in the profession.

In this way Tennant (2000), Major (2005) and others advocate appropriate pedagogies, skills sets, responsibilities and learner agency to optimise learning. Billett (2002) identified seven dimensions of workplace pedagogies: daily work practices; coaching; other workers (e.g., co-workers, supervisors, guides, technical experts); questioning; observing and listening to others; modelling; and workplace document procedures. Of these, modelling, coaching, and questioning form the main sources of guided learning strategies. While the academic literature contains discussion on a range of workplace learning concepts, research is limited on how students conceptualise the workplace pedagogies and interpret their efficacies. Yet it is important to understand how students engage in this learning so that we can understand

how best to prepare and position students before, during, and after experiential learning in the workplace.

Understanding students' engagement with learning at work

Seventeen students in their second year of a Diploma in Nursing at a Technical and Further Education institute participated in this project. Sixteen were female and one was male. The students were aged between 21 and 40, with an average age of 29. Twelve participants reported previous work experiences, having held jobs in hospitality, child care, retail, and nursing (as an assistant nurse or as a dental nurse). Among the sample, 25% were international students.

The students participated in a survey before going on work placement. 6. They were asked to state in what ways would the seven dimensions of workplace pedagogies listed by Billett (2002) help them with learning in the workplace. Considering their previous learning, students were asked to state ways in which they would learn best in the workplace. Furthermore, the sample listed the sorts of things they would learn best through the seven dimensions of workplace pedagogies. Lastly, the sample indicated their preferred approach to learning in the workplace for their current course.

The survey was administered during class at their institute, a week before they went on work placement in various hospitals. The data was analysed and discussed in relation to Billett's (2002) hypothesis about seven pedagogical dimensions in the workplace. The conceptions were also deliberated against Tennant's (2000) academic and workplace learning skills to ascertain which of these the students were included to use.

Findings and Discussion

To understand students' conceptions of workplace pedagogies and their usefulness, as noted, they were requested to state ways in which daily work practices, coaching, other workers, questioning, observation and listening to others, modelling and workplace document procedures help them with learning in the workplace. They responded by writing single words and brief statements. At least 25% of the sample was international students whose written statements were unusual in terms of structure and grammar. Consequently, in these ways the data were not strong. However, it was possible to draw on the data to report and discuss statements provided about each of the proposed contributions to their learning.

Daily work practices

The students' responses here were grouped into two areas of contribution. The first related to the application of theory learned in the classroom to practice (53%). Students claimed that daily work activities allowed them to relate their theoretical knowledge to practical activities and reinforced what they learnt in the classroom. Statements supporting this view included: 'Helps put theory into practice; reinforce what is being taught'. The second was the development of work skills and practice that made students more competent (35%). Comments included: 'Practice makes a man perfect; to continue improve [sic] performance; achieve optimum result.'

These responses concur with Billett's (2002) account of how daily work practices contribute to learning. However, the role of daily work practices in opportunities to learn from mistakes, enhance problem solving abilities, and increase confidence was not mentioned. Students saw daily practices as a way of mastering the skills through the repetition of a range of routine daily procedures such as 'medication recognition, basic skills of personal care and dressing,

peoples' skills, and time management'. The respondents stated that daily practices enabled them to gain efficiencies, learn about punctuality and routine aspects of their job roles. They also indicated that daily practices were the best strategy and the most preferred approach to learning in the workplace, giving this dimension of workplace pedagogy much significance. Their responses highlight a focus on learning and practicing the expected routine tasks of the job and confirm that the source of competence for work is principally learned in the workplace (Collin and Tynjala, 2003). However, Billett (2009) cautions that while integrating experiences in practice and academic settings has significance, simply rehearsing and reproducing occupational capacities is constraining and less productive in developing individuals' capacities to be strategic, adaptive, and innovative.

The students' responses suggest that they relied on three of the five academic skills listed by Tennant (2000): relating practical experiences to the material being taught and applying the principles derived from theory and research; performing assigned learning tasks; and learning how and when to generalise. Yet, in perfecting their skills through practice, it is not clear which of Tennant's (2000) seven workplace learning skills they were using. Hence, while these students report that part of their learning was associated with the important task of learning an occupational practice that has evolved over time and through practice, the responses suggest lower levels of projective or adaptive knowledge for later use.

Coaching

The sample perceived coaching as contributing to learning in three ways:

- Improving understanding by clarifying matters and getting clear explanations.
- Learning the accepted techniques, and receiving guidance and assistance to become more efficient.
- Identifying areas for improvement, providing encouragement, and maintaining motivation.

These responses align well with Billett's (2002) summary of how coaching contributes to learning. Students' conceptions of coaching are not surprising because they are familiar with the notion of learning from instructions when they observe demonstrations of the correct ways by their teachers. This type of learning employs a common academic learning skill of observing. Students said watching the coaches demonstrate the accepted ways could help improve by reviewing and refining the skills they learned at the technical and further education (TAFE) institute to perform similar tasks. 'When an experienced person is able to educate you in a hands on way - it helps to find more efficient ways of doing the task than book variety.' One respondent said coaching would maintain her motivation and develop confidence, presumably as a result of regular feedback and encouragement from coaches.

Students voted coaching as the second best way (after daily practices) of learning in the workplace. Their perceived value of coaching might also have influenced the nature of their responses. The statements about coaching as a source of learning indicate that students do not see themselves as active workers expected to perform the duties of novice nurses. Rather they remain 'learners' who are shown the accepted ways of conducting their roles during the period of work placement. The data about coaching do not clearly reflect students' ability in using any specific workplace learning skills.

Other workers (co-workers, supervisors, guides, technical experts)

The students believed other workers would provide support, supervise activities, and help them settle into the culture of the workplace. They held learning from other workers to help share information and discuss problems, learn new techniques and views, gain deeper understandings, revise difficult topics, and receive assistance with difficult situations. By discussing different aspects of the job with other workers, students said they would 'gain different understandings, learn new skills and observe demonstrations of the 'right way' of performing tasks', and expand their experiences. With the help of other workers, they could discuss situations and get advice and supervision, as a result, gain knowledge and confidence. Other workers also were reported to provide support in terms of assisting with any gaps in performance for follow-up when they are still learning. 'Other workers provide support-where one falls short one picks the other up'. Working with others would also help them to "learn the rules and regulations of the workplace, and time management techniques." The students wrote they would be able to communicate openly and get to know the workplace better. 'Working as a team and with other co-workers allows you to discuss and talk about different aspects of the job.' Surprisingly, only one student indicated learning from other workers as a preferred approach to learning. This was surprising because the short duration of work placement relies heavily on learning from others in the workplace.

Students' responses are consistent with what Billet (2002) found to be the role of other workers in accounts of learning through work. He explained that other workers might share their knowledge, and exchange knowledge and experiences with novices, should they be motivated or obliged to do so. This guidance enables novices to learn about different ideas and perspectives, most helpfully when the reasons for responding in particular ways and use particular procedures were made explicit to the learners. However, the motivations and obligations to openly share their knowledge and expertise with student visitors may not be taken as seriously as with other novices who are co-workers. Co-workers can also provide technical and moral support. The examples in the data suggest that the interactions with other workers play an important role in learning. This dimension of workplace pedagogy relies heavily on skills in collaborative learning with peers. It also involves workplace learning skill in getting to know about organisational cultures and sub-cultures; expanding learning opportunities by using a range of resources and activities; and understanding various competing interests in the profession. However, the potency and range of learning outcomes through other workers rely on the interests and agencies of the learners to initiate and extract knowledge and understandings from other workers who may not necessarily see the importance of explaining without being specifically asked.

Questioning

The participants reported four main purposes of questioning as a learning strategy. These were clarification (41%), correction of errors (29%), expanding their understanding (29%) and supporting further learning (12%). Statements from the respondents included: 'Make sure I understand what I've learnt; to correct any errors or to make sure its [sic] correct; to understand more in-depth; and increase the wants to learn [sic].' Examples of the types of learning by questioning included specific medical skills, job roles, and brainstorming ideas.

These responses indicate that students' understandings are similar to Billett's (2002) notion of how questioning contributes to learning. Responses to the questions provide clarity, present quick answers, and explain the rationale for the way things are done and how problems are generally solved in the workplace. The list of ideas and practices that students

expect to learn best through questioning were technical matters such as medical skills, operational practices, and clarification or confirmation to gain better understanding. Questions about operational practices, such as job roles or tasks, and personal opinions on specific topics would make useful contributions to their learning. While the purpose of questioning as one of the workplace pedagogies seems to be well understood, none of the students expressed a preference for learning in the workplace by questioning. The cultural practice of not questioning those in authority may have influenced their preference for questioning as a source of learning, perhaps accentuated here because students were clearly positioned as students, rather than as novices. The fact that about 25% of the sample was international students may have some implications based on their cultural background and confidence in questioning.

Tennant (2000) views questioning as part of learning from instructions and as a useful academic learning skill. The students appreciated this particular dimension, and understood the importance of questioning to learn about organisational cultures and sub-cultures (a workplace learning skills). However, this aspect of learning relies on the confidence and competence in questioning.

Observing and listening to others

The sample said that observing and listening to others would help them learn in three ways. First, observing others makes it easier 'to understand the situation and techniques at work, clarify and improve methods, and expanded the knowledge and skills'. Most responses indicate that the students value observing and listening as the key source for 'understanding the situation and techniques at work'. Second, observations offer the opportunities to watch other more experienced workers demonstrate 'new and better ways of completing tasks'. This second way is useful for self-evaluation to confirm and reinforce correct practices. The technique also supports 'individual learning styles' of some learners. Third, students are able to learn new skills and appreciate different viewpoints and learn how others interact and perform in the workplace. They are able to gain some understanding of the workplace cultures, distinct ways in which work is completed in particular workplaces. These responses are similar to how Billett (2002) describes the efficacy of observing and listening to others. Observing and listening to others was a preferred way for learning for 29% of the sample. It engages workplace skills such as learning from others; and understanding various competing interests in the profession. Consequently, this seems like a strategy that might be worth preparing students to undertake before going on work placements. This strategy seems to be helpful for students on placement, because they can control the process, and are not reliant on others to enact.

Modelling

The students stated that modelling demonstrated professional practices, and enhanced understanding and confidence. They saw modelling as a way of learning the correct ways of performing tasks, learning new techniques and building confidence at work. These same outcomes are also achieved through daily work practices, coaching, other workers, and observing and listening to others. Students' responses reflect Billett's (2002) notion of modelling in that it illustrates the correct way of solving problems and these are then used as models of practice. None of the students indicated this as a preferred approach to learning. It may mean that modelling is also interpreted and covered under the category of 'coaching', 'other workers' and 'observing and listening to others', hence students did not see the distinct differences between these and modelling. Modelling involves learning from others, which is a

common academic as well as workplace learning skill. Students are already familiar with teachers modelling the correct ways of performing tasks and are able to experience similar outcomes from experienced workers, coaches or supervisors.

Workplace document procedures

The students stated that workplace documents ensure the procedural aspects of work and compliance with legal obligations. Their perceptions were oriented towards matters of a compliance based nature to ensure that work practices conformed with pre-defined standards ('Gives the heads up on way forms should be filled in and their legal requirements') and the importance of rectifying any deviations from these standards ('To maintain accuracy and abide by legal rules'). These documents are seen to help them avoid mistakes, follow the correct practices and maintain consistency in practice across particular workplaces, thereby enhance individual confidence. As one student put it, 'Corrects practice, confidence'. Workplace documents also provide a range of medical terms that the learners need to be familiar with. Students said they would be able to learn the 'Appropriate standards as per the workplace'. The responses did not include Billett's (2002) point that some documents also provide systems thinking, which allow students to understand how their roles and tasks relate to the overall business of the organisation.

Four of Tennant's (2000) academic learning skills come in use when learning from workplace document procedures: learning from instructions; performing assigned learning tasks; basic tasks such as finding information, organising and categorising thoughts, and reviewing material; and learning how and when to generalise. Expanding opportunities by using a range of resources and activities ensures that a workplace learning skill is also used. What is useful here is that, in this form of work, documents and forms are important artefacts and are used in health workplaces to inform others, and to monitor and order patient care. In this way, their use is quite distinct from many of the workplaces that Billett (2002) investigated. Hence, the particular requirements and pedagogic potential of these workplace artefacts is emphasised here.

Limitations of the study

Although the findings reported here are useful, the nature of responses to the survey highlighted some limitations in the study. Not discounting the brief statements from the international students, there was an untested assumption that the students fully appreciated the distinct differences between each of the seven concepts of workplace pedagogies. It was assumed that they all interpreted the scope of each dimension consistently. The background information on the seven workplace pedagogies did not state the types of things included or excluded under each of the seven sources of learning. These and other limitations suggest that improved understandings of how students conceptualise pedagogical sources and their utilities would be better gained from additional qualitative data that can best emerge from in-depth interviews.

Conclusion

The students in this study have basic understanding of how each of the seven workplace pedagogies could contribute to their learning. However, their survey responses provided few examples of learning outcomes that could be best achieved by each of the pedagogies. As such these data are limited in confidently verifying their conceptual understanding for

purposes of enhancing their learning in the workplace in the most efficient ways. Their responses imply that they may tend to rely more on daily practices, observing and listening to others, modelling and coaching, and other workers more than the other pedagogies. These passive approaches may not allow full benefits of other learning sources. For instance, observing and listening to others, coaching and modelling form significant guided learning. A tendency to rely on these sources of learning also suggests that there may not be as many student initiated interactions and less intensity in any interactions that did take place. All of this implies that perhaps they do not display highly agentic roles in accessing and using workplace pedagogies to achieve their learning outcomes. Billett (2009) stresses the importance of learner agency for rich learning and professional practice because it is the individuals who make meanings as they negotiate learning between the two settings. Subdued engagements reinforce the notion of learning as a product (Hager, 2004, p. 3) instead of learning as a product and process. Nevertheless, despite the low level of interactions, the students can still develop work process knowledge as they attempt to learn about the socio-cultural environment of the workplace and selected occupation.

The responses to the survey, especially the nature of the examples of learning outcomes they provided indicate what the students could achieve these using only selected workplace pedagogies that rely mostly on typical academic learning skills listed by Tennant (2000). The examples suggest limited use of distinct workplace learning skills that include analysing work experiences, functioning with incomplete information, contemplating multiple courses of action to decide on the most appropriate action at a given moment, learning about organisational cultures and sub-cultures, expanding learning opportunities by using a range of resources and activities, and understanding various competing interests in the profession. The data indicate some basic conceptual understanding of workplace pedagogies that appears to lead to using only a few cognitive processing strategies. More meaningful data through follow-up interviews and focus groups could illuminate on the depth of students' conceptions and how these influence the types of workplace pedagogies they use.

To narrow the gap in students' conceptions, the knowledge and understandings about workplace learning and pedagogies need to be integrated within the curriculum and developed gradually from the start of a course, rather than be an add-on shortly before students go on work placement. This approach will help them establish more meaningful conceptualisations and appreciate the complementary nature of learning in the classroom and the workplace more coherently. Furthermore, students can be encouraged to engage in meta-cognition by consciously thinking about and reflecting on the act of learning and using the most appropriate pedagogies and learning skills to optimise learning. As Billett (2009) asserts, developing and guiding the exercise of personal epistemologies needs to become an important educational priority. Only then will students going on work placement begin to embrace workplace pedagogies as useful cognitive tools for lifelong learning.

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