Journal of University Teaching & Learning Practice

Volume 17
Issue 4 *Advancing Non-placement Work-integrated Learning Across the Degree*

Article 4

2020

The Impact of Prior Work-Experience on Student Learning Outcomes in Simulated Internships

Leopold Bayerlein
University of New England, Australia, leopold.bayerlein@une.edu.au

Recommended Citation

Bayerlein, L. (2020). The Impact of Prior Work-Experience on Student Learning Outcomes in Simulated Internships. *Journal of University Teaching & Learning Practice, 17*(4). https://doi.org/10.53761/1.17.4.4

The Impact of Prior Work-Experience on Student Learning Outcomes in Simulated Internships

Abstract

In this paper, the extent to which a compulsory non-placement work-integrated learning (WIL) activity, in the form of a simulated internship, in an Australian undergraduate accounting program, created learning outcomes for students with different levels of prior work-experience is assessed. The paper extends prior, theoretically based literature by providing an exploratory evaluation of the experiences of students undertaking a specific simulated internship. This evaluation is important because it enables students and higher education providers to evaluate the extent to which a simulation is likely to meet the learning needs and expectations of individual students and student groups. Despite the critical importance of such an evaluation, prior literature has thus far focused on theoretically based evaluations and comparisons of simulated internships, with empirical evidence being largely absent from the literature. Using a series of semi-structured interviews with students, the current paper shows that the evaluated simulation was generally able to develop cognitive, skill-based, and affective learning outcomes, and that students' learning outcomes were strongly influenced by their prior real-world work-experience. In addition, the paper also shows that the lived experiences of students within the simulation were much more multifaceted and diverse than anticipated in the prior literature. The findings of this paper are relevant for higher education providers and students planning to undertake a simulated internship, or other non-placement WIL activity. Potential challenges and opportunities for different groups of students arising in the analysed simulation are identified and discussed.

Keywords

non-placement work-integrated learning, simulation, learning outcome, student experience

Journal of University Teaching & Learning Practice

Volume 17
Issue 4 *Advancing Non-placement Work-integrated Learning Across the Degree*

Article 4

2020

The Impact of Prior Work-Experience on Student Learning Outcomes in Simulated Internships

Leopold Bayerlein
University of New England, Australia, leopold.bayerlein@une.edu.au

The Impact of Prior Work-Experience on Student Learning Outcomes in Simulated Internships

Abstract

In this paper, the extent to which a compulsory non-placement work-integrated learning (WIL) activity, in the form of a simulated internship, in an Australian undergraduate accounting program, created learning outcomes for students with different levels of prior work-experience is assessed. The paper extends prior, theoretically based literature by providing an exploratory evaluation of the experiences of students undertaking a specific simulated internship. This evaluation is important because it enables students and higher education providers to evaluate the extent to which a simulation is likely to meet the learning needs and expectations of individual students and student groups. Despite the critical importance of such an evaluation, prior literature has thus far focused on theoretically based evaluations and comparisons of simulated internships, with empirical evidence being largely absent from the literature. Using a series of semi-structured interviews with students, the current paper shows that the evaluated simulation was generally able to develop cognitive, skill-based, and affective learning outcomes, and that students' learning outcomes were strongly influenced by their prior real-world work-experience. In addition, the paper also shows that the lived experiences of students within the simulation were much more multifaceted and diverse than anticipated in the prior literature. The findings of this paper are relevant for higher education providers and students planning to undertake a simulated internship, or other non-placement WIL activity. Potential challenges and opportunities for different groups of students arising in the analysed simulation are identified and discussed.

Keywords

non-placement work-integrated learning, simulation, learning outcome, student experience

Introduction

Contemporary undergraduate accounting programs are often focused on the acquisition of technical skills, rather than the holistic development of students as professionals (Bayerlein & Timpson 2017; Evans et al. 2010). This focus exists because technical skills are seen as a learning outcome that is applicable to a variety of workplace settings (Boyce et al. 2012; Guile & Griffiths 2001). In combination with the higher education sector's strong commitment to the notion of 'job ready graduates' (Jackson et al. 2013), one would expect that technical skill focused degree programs produce graduates that are able to enter the accounting profession with little difficulty. However, the successful entry into the workforce has long been, and continues to remain, challenging for accounting graduates (Andon et al. 2010; Bressler & Pence 2019).

This challenge persists because traditional, technically focused, education programs allow the development of technical skills in isolation, and outside the contextual setting of a real-world environment (Bayerlein 2015). Technically focused programs are also likely to discourage critical thinking because they are well suited to rote learning (Chomsky 2000; Gray & Collison 2002; Rabasso & Rabasso 2010). Furthermore, programs that focus on the transfer of a finite set of knowledge have typically been regarded critically because they are unlikely to prepare students for their future workplace challenges (Coll & Zegwaard 2006; Fleming 2008; Jackson et al. 2017).
In order to address these shortcomings, prior literature (for example, see: Bayerlein 2015) advocates for education focused skill development programs that interrelate the acquisition and application of (technical) knowledge in the context of a workplace environment. This contextualisation of learning activities within an application setting aims to improve student learning outcomes by developing technical and professional skills concurrently (Evans 2010; Gray & Collison 2002). In addition, the applied technical skills developed through such programs are thought to be more aligned with the contemporary needs of graduates and graduate employers alike (De Lang & Watty 2011; Hancock et al. 2009; Jackson et al. 2014; Kavanagh & Drennan 2008).

Two key requirements for the creation of contextualised skill development programs are: (1) the creation of a situation that enables students to understand the demands and challenges of their chosen profession (Fleming 2008; Guile & Griffiths 2001); and (2) the provision of an environment in which students have the ability to meet these challenges through the contextualised development of their skills (Evans 2010; Gray & Collison 2002; Hancock et al. 2009). Whilst these requirements could be met through a variety of activities, the current paper focuses on work-integrated learning (WIL) as the conduit through which a well-contextualised and educationally focused skill development program in accounting is delivered to students. (Burritt et al. 2010; Business Industry and Higher Education Collaboration Council 2007; Knouse & Fontenot 2008)
WIL is able to create benefits for students in a variety of disciplines (Candy & Crebert 1991; Maertz et al. 2014), including in accounting (Hiltebeitel et al. 2000). Benefits from WIL arise because it reduces the "culture shock" that surrounds the transition from higher education to the world of work (Hiltebeitel et al. 2000). WIL achieves this outcome because it prepares students for the demands of a workplace (Jackson 2015; Rosenberg et al. 2012; Wilton 2012), and relates theoretical classroom knowledge (Hergert 2009) and technical skills (Jackson et al. 2014; Kavanagh & Drennan 2008) to complex practical environments. In addition, WIL provides students with the opportunity to develop their professional skills and identity (Maertz et al. 2014; Smith & Worsfold 2015), and allows them to assess their suitability for their chosen career (Rothman & Sisman 2016).

In traditional face-to-face WIL, learning outcomes are strongly related to students' integration into the workplace environment (Bayerlein & Jeske 2018b). Integration into the workplace is important

because it enables students to access extensive guidance and advice from colleagues and supervisors (Heron 1999), both formally and informally. This access to systematic as well as informal learning opportunities (Candy & Crebert 1991), enables students to develop and apply (technical skills) within a contextual setting (Jackson 2015). Face-to-face WIL is therefore well suited to address many challenges in undergraduate accounting programs.

Students draw benefit from WIL because it integrates classroom-based theory into relevant work-place settings (Stanley & Xu 2019). Given the potential benefits of WIL for students, the demand for WIL in Australian higher education is increasing (Universities Australia 2019). This increase has resulted in resourcing as well as placement availability challenges for higher education providers in accounting (Stanley & Xu 2019), as well as other discipline areas (Bayerlein & Jeske 2018b). To overcome these challenges, new models of WIL are required (Kay et al. 2019), and prior literature has highlighted that well-developed alternatives to face-to-face WIL have the potential to achieve learning outcomes that are comparable to traditional WIL models (Zegwaard & Rowe 2019).

The current paper adds to the growing body of literature in non-placement WIL by assessing the student learning outcomes associated with a specific simulated internship in Accounting. A detailed description of the assessed simulation is provided in Bayerlein (2015), and Bayerlein, et al. (2020). Prior literature highlights that this simulation should theoretically be able to produce student learning outcomes that are comparable with those of face-to-face WIL (Bayerlein 2015; Bayerlein & Jeske 2018b). The current paper starts to provide empirical evidence shortcoming through an exploratory evaluation of students' learning outcomes in a simulated internship in an undergraduate accounting subject at an Australian university, as well as the learning outcome differences that arose for students with limited and extensive prior real-world work experience.

The potential of simulated internships

Simulated internships represent structured WIL experiences in which students are placed in an immersive virtual environment that replicates a real-world workplace setting, but is controlled and supervised by a higher education provider (Bayerlein 2015). Building on recommendations in the prior literature, simulated internships are conceptualised as an immersive scenario based learning activity in which students engage in well-established educational activities to simultaneously develop technical and professional skills. Within the analysed simulation, students assume the role of an intern and are required to resolve simulated real-world workplace challenges through activities and peer-to-peer/mentor interactions that mimic those of a traditional face-to-face WIL environment (Bayerlein 2015; Bayerlein et al. 2020). Simulated internships are an application of problem-based instruction to all aspects of the students' learning and assessment, with the aim of relocating the students' frame of reference away from the classroom and into the social fabric of a workplace.

WIL experiences may focus on a range of activities and aims (Maertz et al. 2014), and this diversity is highly valuable for students (Cunningham & Hillier 2013; Hoyle & Deschaine 2016; Marsick 2009), and employers. The current paper represents an initial empirical evaluation of student learning outcomes in a specific simulated internship. The analysed simulation is defined as a structured learning experience in which a temporary (non-permanent) work placement is used to support students' transition from higher education to the world of work. This definition is well aligned with the general intentions of simulated internships (Bayerlein 2015), based on which the analysed simulation was developed. In practical terms, this means that the analysed simulation is expected to create positive educational outcomes, and to develop students' ability to navigate real-world work environments successfully. The strong alignment of the evaluated simulation with the

work of Bayerlein (2015) allows the current paper to be closely linked to previous theoretical evaluations of simulated internships (Bayerlein & Jeske 2018a, 2018b). Thus, building on the work of Bayerlein and Jeske (2018b) the current paper utilises exploratory qualitative interview data from students who completed a compulsory simulated internship experience in undergraduate accounting to provide an empirical evaluation of the three key learning outcome expectation (cognitive, skill-based, and affective) of WIL experiences identified by Kraiger et al. (1993).

At the most basic level, WIL should enable students to develop an improved understanding and organisation of the skill and knowledge that are required in a given workplace (Kraiger et al. 1993). Such cognitive learning outcomes (Kraiger et al. 1993) are well supported by a structured exposure to the knowledge (organisation) frameworks utilised within a given organisation (Eyler & Giles 1999; Watson et al. 2016), and a modelling of the required behaviours by colleagues and supervisors (Eyler & Giles 1999). Prior theoretically based literature (Bayerlein & Jeske 2018b) argues that simulated internships should be highly successful in developing cognitive learning outcomes for students. As a result, the current paper expects the analysed simulation to support the development of cognitive learning outcomes for students effectively (Expectation 1).

WIL should also assist students in the mastery of practical processes that are performed within a workplace (Jackson 2015; Kraiger et al. 1993). The mastery of such processes requires students to gain an understanding of the workplace in question, and to apply their existing theoretical knowledge within this environment (Hergert 2009; Jackson et al. 2014; Kavanagh & Drennan 2008). WIL supports the development of skill based learning outcomes, because theoretical classroom knowledge is related to workplace practice (Hergert 2009), and students explore the application of theoretical skills in complex workplace environments (Jackson et al. 2014; Kavanagh & Drennan 2008). Simulated internships should also be highly successful in developing students' skill-based learning outcomes, because they require students to develop applied theoretical knowledge through a constant movement between theory and practice ((Bayerlein 2015; Bayerlein & Jeske 2018b). In addition, the online/blended learning activities that underpin the simulated internship experience are highly conducive to the development of practical process knowledge (Bayerlein & Jeske 2018b). Based on prior literature the current paper expects the analysed simulation to support the development of skill-based learning outcomes for students effectively (Expectation 2).

Successful WIL should also create affective learning outcomes (Kraiger et al. 1993) by developing students' values, attitudes and identity in a holistic professional setting. WIL achieves this outcome because it enables students to observe and interact with colleagues and supervisors. Whilst all WIL has the potential to develop affective learning outcomes, experiences that provide extensive opportunities for opportunistic and/or accidental engagement are likely to be most effective (Candy & Crebert 1991). An important factor for the creation of such opportunities is the integration of students into the social fabric that surrounds their workplace. Bayerlein and Jeske (2018b) argue that simulated internships are likely to be only moderately successful in creating affective learning outcomes for students because they are controlled by higher education providers, and do not allow for direct interactions between students and workplace professionals. As a result, the current paper expects the analysed simulation to be only moderately effective in supporting the development of affective learning outcomes for students (Expectation 3).

Data collection and assessment methodology

This research relied on constructivist thinking in its research design and data analysis activities. An exploratory constructivist approach was employed because although simulated internships, and WIL

in general, are narrowly defined as a structured learning experience that assists students in the successful transition from higher education to the word-of-work, the impact of simulated internships on students is likely to be varied and highly contextualised.

It aims to collect a variety of perspectives through in-depth semi-structured interviews. All interviews were of 45-60 minute duration and conducted with students that had successfully completed a specific simulated internship experience as part of their enrolment in an Australian undergraduate accounting degree. The analysed simulation is a compulsory second year (intermediate) undergraduate financial accounting subject in which all learning activities were contained within a simulated internship, supported by a blended learning environment. Human Research Ethics was granted by the University of New England, Approval No: HE13-120.

A total of seven students with various levels of real-world work-experience before as well as after their completion of the simulation were interviewed. Interviewees were drawn from a total of four individual subject offerings, which occurred over a three-year period between 2013 and 2015. Within each subject offering, students completed the simulated internship over an 11 or 12-week period in a blended environment where formal group-based learning activities occurred for 2 hours per week. Participants were deliberately selected from a range of years and subject offerings to minimise the risk of results being driven by issues related to a specific subject offering. Whilst the technical subject content underwent minor changes during the analysed three-year period, all subject offerings relied on an identical learning and teaching framework and activity structure. In addition, all offerings were taught and coordinated by the same teaching staff. All interviewed students completed their simulated internship at least six months prior to being interviewed. The time-lag between the students' completion of the simulated experience and their interview was chosen to enable a meaningful reflection on the experience and its impact. All interview questions were general in nature and revolved around:

(1) the students' work-experience prior to their simulated internship,
(2) the students' learning experience within the simulated internship,
(3) the learning outcomes in relation to professional and technical skills,
(4) the activities that enabled them to achieve learning outcomes,
(5) the extent to which the simulated internship prepared them for work as an accountant, and;
(6) the extent to which the simulated internship changed their view of the work of accountants.

Each student interview was audio recorded, transcribed and systematically analysed to identify thematically similar statements (Langdridge 2004). The identified themes where then used in a thematic matrix display analysis to identify coherent concepts within the interview data (Miles & Huberman 1994). Throughout the analysis, additional themes were added to the matrix to accommodate newly identified concepts. Following these initial data analysis steps, similar concepts were combined around key learning outcomes to enable a holistic evaluation across the data set. The subsequent results and discussions utilise this condensed interview data-set to investigate the extent to which students' experiences within the simulation were aligned with the expectations outlined by Bayerlein and Jeske (2018b). Although the aim of this paper is to provide empirical evidence of the learning outcomes developed in the analysed simulation, its exploratory nature and small sample size does not enable transferable conclusions to be drawn. Instead, the paper provides valuable insights into the experiences of a small number of students that undertook the analysed simulation, and provides guidance for future research in this area.

Results and discussion

The aggregated results of the thematic analysis indicated that the simulation was generally able to create learning outcomes across all three expectation categories of Kraiger et al. (1993). Given these results, the three expectations underpinning the current paper initially appeared to be met. The thematic analysis also identified two learning outcomes that represent integrative themes through which several students connected the individual components of their narrative. As a result, these themes were deemed to span the cognitive, skill-based and affective learning outcome categories.

The interviewed students initially appeared to discuss a homogenous set of themes related to cognitive and skill-based learning outcomes (see table 1), with differences between students being predominantly related to their affective learning. However, the lived experience of individual students within the simulation differed substantially from this initial evaluation. The heterogeneous nature of students' experiences was not unexpected because all forms of WIL, including simulated internships, allow students to focus their activities on a range of different areas (Maertz et al. 2014). This allows students to pursue an experience that is responsive to their individual needs (Cunningham & Hillier 2013; Hoyle & Deschaine 2016; Marsick 2009). The analysed simulation facilitated such student specific development by conceptualising the internship as an umbrella program that provided students with the flexibility to focus their learning on the development of skills that were most relevant to their individual needs (also, see: Bayerlein 2015).

Whilst some differences between students' lived experiences were related to their individual circumstances, further analysis showed that the simulation's benefits varied substantially with the students' (self-reported) prior work-experience. Such variations were evident across all three learning outcome areas. A detailed analysis of the lived experiences of all interviewed students, as well as students with extensive and limited prior work-experience, is provided below.

Table 1. *Summary of Interview Results*

Learning outcome expectations		**Cognitive LOs**		**Skill-based LOs**			**Affective LOs**			
Integrative learning outcomes		**Peer learning**								
		Understand practice								
Participants	**Prior work-experience**	Conceptual Relationships	Lateral thinking (1)	Lateral thinking (1)	Being proactive	Group work (2)	Group work (2)	Productivity through motivation	Communication as requirement of success	Confidence
Student 1	**Limited**	X			X				X	X
Student 2	**Extensive**					X	X	X		
Student 3	**Limited**	X	X	X	X	X	X		X	X
Student 4	**Limited**		X	X		X	X			
Student 5	**Extensive**									X
Student 6	**Extensive**		X	X	X	X	X	X	X	
Student 7	**Limited**		X	X	X	X	X		X	
TOTAL		2	4	4	4	5	5	2	4	3

Within Table 1, (1) denotes a theme that occurred within the Cognitive and Skill-based learning outcome areas; (2) denotes a theme that occurred within the Skill-based and Affective learning outcome areas; and Prior work-experience is classified based on students' self-reported workforce participation in accounting or a related field prior to their simulated internship experience.

Students' overall learning experiences within the simulated internship were substantially influenced by two integrative themes: peer-learning (discussed by five out of seven interviewees), and the students' understanding of practice (discussed by all interviewees). Although each theme represents a specific (subject) learning outcome, they may also represent a personal transferable outcome for the student (Allan 1996). This is the case because the learning that relates to these themes is much more specific to each student's individual experiences, activities and context than other learning outcomes (Allan 1996). However, the current paper does not treat peer-learning and students' understanding of practice as learning activities, because both represent an artefact of the outcome of the students' activities in the simulation, rather than an activity itself.

Students that utilised peer-learning as an integrative concept in their discussions did so through either unreflective statements, indicating the presence and general value of such learning, or through reflective statements that specifically connected peer-learning with their professional development. All unreflective statements, such as *"sometimes I would do work and the others would go oh, that's how you do it. Sometimes they would do it and I'd go aha, now I understand"* (S1) were made by students with limited prior work-experience. Such statements were classified as unreflective because although they contained information that highlighted the value of peer-learning, students were unable to identify the value of these outcomes for their own learning. Unreflective statements are consequently likely to indicate that students were unable to sufficiently contextualise this particular learning outcome to access its full benefits.

Reflective statements, which linked peer-learning to other specific learning outcomes, or the student's professional development, were provided by students with extensive as well as limited prior work-experience. Representative examples of such reflective statements were:

> *"Professionally, I think, I learned that you have to listen to other people. It's not just your opinion, you really need to take on other people's point of views and how they solve problems, because that's what happens in the workplace. You have to do that to succeed"* (S3).
> In *"my group, because a couple of them already have jobs at accounting firms, or do that sort of thing at work and it was quite interesting listening to them "go oh, I've got absolutely no clue how to do this because at work, we just put it in the computer and it does it for us." That really opened my eyes to how different accounting is to what's taught in Uni"* (S1).

Such reflective statements show that students understood the potential impact of peer-learning on their development. However, even within this group, the connections between peer-learning and students' professional development tended to focus on the students' learning needs, rather than the application of skills and knowledge in professional practice. A good example of such a focus was provided by the comment of S1 above. In this comment, the student identified the concept of peer-learning as being instrumental in recognising differences between classroom learning and the application of skill and knowledge in practice. Whilst the student could have utilised this realisation to adapt his own activities for improved professional development, the statement indicates that the reflection did not extend to such a level of detail. Instead, the student's reflection concluded with an identification of how real-world work differs from educational contexts.

The identification of peer-learning as a key integrative student learning outcome also provided some evidence that the simulation was able to create an environment in which unplanned learning opportunities arose. Such opportunities are critically important (Candy & Crebert 1991), because they enable students to contextualise their knowledge development within an environment that is relevant to them (Jackson 2015). However, it is important to note that most reflective statements about peer learning related to situations that involved at least one student/group with extensive prior work-experience. As a result, it appears likely that the successful creation of this particular learning outcome within the analysed simulation was jointly dependent upon the design of the simulated work activities as well as the presence of a sufficient number of experienced participants who were prepared to act as (informal) peer-mentors.

A second integrative concept that was discussed by all interviewed students, relates to students' understanding of accounting practice. The identification of this concept as an integrative learning outcome is important because it addresses a key shortcoming of traditional classroom based undergraduate (accounting) programs (Fleming 2008; Gray & Collison 2002; Sondergaart & Murthi 2012). The frequent occurrence of this concept in the interview data supports the notion that the simulation was principally able to reduce the divide between higher education and the world of work. However, it is important to note that the comments relating to students' understanding of practice could principally be divided into two areas: relating to (1) a comparison of the simulation with "traditional teaching", and (2) a comparison of the simulation with real-world work activities.

Comments linking the simulation to real-world work, such as *"I'd be working through something in [the simulation], and ... it would jog my memory, like, "Oh, um, this is similar to something I've done in my previous role"* (S5), were only provided by students with extensive prior work-experience. On the other hand, comments that focused on a comparison between "traditional teaching" and the simulation were predominantly provided by students with limited prior work-experience, and in fact all students within this category provided some comments that compared the simulation with their learning experience in other subjects. Typical comments in this area were:

> The simulation *"is a little more hands on than sitting in a lecture, like we actually had to do the work ... of the accountant"* (S3), or
> The simulation *"is almost like bridging into work. If you do the introductory [subjects], it's very much taking the content and do the questions. And then you go into the simulation and you not only do the questions and taking the content, but you're also applying it in a way that might be expected in a lot of work environments"* (S7).

Given these findings, the current paper concludes that students with limited prior work-experience were likely to perceive the simulation as a teaching approach, rather than a form of workplace experience. Students with extensive prior work-experience, on the other hand, held either perception. Although the current paper is unable to identify the causes underlying these perceptions, it is likely that students with limited prior work-experience lack the practical understanding required to build strong connections between the simulation and a real-world workplace situation.

Cognitive Learning Outcomes

Several students with limited prior work-experience also used their comparisons between traditional teaching and simulated internships, to reflect on how the simulation assisted them in the integrative

organisation of content (Expectation 1), whilst only one student with extensive prior work-experience made such reflections. However, all students that discussed the concept of knowledge organisation did not appear to have reflected on its relevance or value in detail.

Support for this conclusion is provided by statements that highlighted the students' focus on the process through which their knowledge organisation was influenced, rather than the outcome of this process. Students made statements such as: It was helpful to have "*the continuation of the same sort of project, I guess you could call it, throughout the trimester rather than doing ... I guess in most [other subjects] you do lots of little questions"* (S7) to describe the simulation's impact on their knowledge organisation framework. Another student provided a similar comment, but also included a surface reflection of the potential impact of this change in knowledge organisation in practice, stating that: "*I guess those exercises were different to other [subjects] in that they built on the same organisation. And then it sort of had the same context each week. And I guess that was good because … you sort of get that understanding of how an organisation would operate. Opposed to just doing random questions from a text book, [where] you sort of don't get the whole picture"* (S3).

Whilst S3 hinted at the presence of a link between the simulation and real-world knowledge organisation requirements, it is important to note that this description was provided in the context of an evaluation of the student's subsequent real-world work-experience. Furthermore, the context in which this statement was made did not indicate that the student had recognised these benefits when undertaking the simulation. As a result, the student's comment most likely indicated a deferred learning outcome, which was only accessible to the student after gaining real-world work-experience. However, if real-world work-experience does represent a prerequisite for the recognition of this particular learning outcome, one would expect this theme to feature prominently in interviews with students with extensive prior work-experience. Given that this was not the case, the current paper is unable to provide a robust explanation for this particular finding.

In relation to Expectation 1, mixed overall evidence is presented in this paper. Whilst the presence of student comments relating to knowledge organisation provided initial support for Expectation 1, the detailed evaluation of students' varied experiences did not allow such a strong conclusion to be drawn. Instead, the current paper is only able to conclude that the analysed simulation was moderately effective in developing an awareness of the knowledge organisation differences between higher education and the world of work in students with limited prior work-experience.

Skill-based learning outcomes

Several students with limited as well as extensive prior work-experience also discussed concepts related to skill-based learning outcomes (Expectation 2), with a particular emphasis on independent problem solving. Comments related to independent problem solving were typically focused on peer-learning, and/or the impact of this learning outcome on students' further education. A student with limited prior work-experience (S3) stated that she:

> *"liked the idea that we had … problem[s] to solve each week, because that's what it's actually like in my experience, you are faced with a new problem pretty much every day, and … then I'd be trying myself, and then you have … the other accountants on your level. And then… if we couldn't solve it we'd go to [the teacher], which is … how it worked where I was working as well. You would try to do everything yourself, and then you would have that help available"* (S3).

Such comments demonstrate that the simulation was principally able to introduce students to some real-world processes of the accounting profession, and to develop students' independent problem solving skills. However, the comments made by S3 are based on a reflection of the simulated internship in relation to subsequent work-experience. As a result, these learning outcomes may not have been available to the student during, or directly after, the simulation. Further evidence that students with limited prior work-experience are unlikely to be able to draw strong connections between the simulation and real-world work was provided by S1. This student reflected extensively on the simulation's impact on their subsequent study behaviour, stating that the simulated internship prompted them to adopt a more independent approach to problem solving and knowledge creation during their further studies, without drawing a connection to real-world workplace practice.

Comments from students with extensive prior work-experience explicitly described independent problem solving as a "*trial and error*" (S5 and S6) activity, linked to the concept of peer-learning (S6). Neither S5 nor S6 provided any deeper reflections of the value of this activity for their subsequent studies or the relationship of this activity to their practical experience. The students' use of the term "trial and error" is somewhat perplexing because both students utilised the term to describe the process through which they developed, either individually or through peer-learning, solutions to the practical workplace challenges within the simulation.

The current paper is unable to definitively identify the reasons why two (out of three) students with extensive prior work-experience utilised this term to describe their engagement with an important learning activity within the simulation. However, it appears possible that the supportive higher education setting that is required to enable students with limited prior work-experience a meaningful engagement with the simulation (see: Bayerlein 2015; Bayerlein & Jeske 2018b) also influenced students with extensive prior work-experience. This impact could have arisen because experienced students recognised that the simulation represented a safe low-risk environment in which experimentation, and the development of incorrect answers to simulated workplace challenges, was not linked to immediate negative consequences. What remains unclear from the comments of S5 and S6 is whether students with extensive prior work-experience utilised the safety of the simulation to attempt a meaningful, bold and innovative engagement with the underlying learning materials, or relied on an evasive trial and error strategy to avoid such meaningful engagement. However, some evidence that most students with extensive prior work-experience engaged in the simulation in a meaningful way is provided by the previously discussed importance of such students in the peer-learning context. The importance of experienced students in this context provides evidence of a meaningful engagement in the analysed simulation, because students with limited prior work-experience would have been unable to achieve the reported peer-learning outcomes if experienced students would have adopted an evasive engagement strategy.

Given the outlined evidence, Expectation 2, which predicted the effective development of skill-based learning outcomes in the analysed simulation, can only be partially supported. The author is able to conclude that students with limited prior work-experience developed extensive skill-based learning outcomes in the simulation. However, such students may not be able to access the full benefits of these outcomes, nor be able to recognise the attainment of these learning outcomes, until they had the opportunity to reflect on the simulation in a real-world context. In addition, the author is unable to draw a firm conclusion regarding Expectation 2 in relation to students with extensive prior work-experience. Although students falling into this group discussed themes related to this expectation, the language used may potentially imply the utilisation of an avoidance strategy in relation to the simulation's skill-based learning activities, and only indirect evidence to the contrary could be identified.

Affective learning outcomes

Students that possessed extensive prior work-experience also reflected extensively on the simulation's impact on themes related to affective learning (Expectation 3). Of particular note are comments provided by S2, who completed real-world work-placements in accounting prior to participating in the simulation, as well as following the simulation. The comments made by the student provide a strong indication of the transferability of the simulation's affective learning outcomes into a real-world environment. Specifically, S2 stated that "*for me it would have been really beneficial to ... get some insights into [the workplace earlier], because, you know when you're starting off working, like in a company that I did [in their internship prior to the simulation], I was very recluse. And ... to me ... I guess one of the takeaways [of the simulation] is that ... you're there to do work but you know, you want to interact with other employees"* (S2). Although the student perceived his difficulties to engage with other employees effectively as a personal challenge, literature (for example see: Jackson 2015) highlights that this challenge is shared by many students. Furthermore, graduate skills in the area of "communication" continue to be a key area of concern for accounting employers and the accounting profession (Employment 2015; Jackson 2016).

The analysed simulation recognised this challenge by requiring students to resolve work-place challenges through extensive peer-interactions. The intention underpinning these learning activities was to construct an environment in which the integrated development of technical skills and professional values is facilitated. A detailed reflection of the simulation's impact was provided by the same student who reported communication to be a challenge in his first real-world work-experience. Specifically, the student stated that the simulation *"gave me the confidence to ... engage with other employees. And to ask questions and, yeah try and do things more efficiently by doing that"* (S2). After the simulation, S2 undertook a second real-world internship, and reflected that *"heading into my second year of interning, like after I'd done the [simulation], I guess I was more comfortable working in a professional setting. And I engaged more with other employees"* (S2).

The detailed reflections on affective learning by students with extensive prior work-experience differed substantially from those of students with limited prior work-experience. Differences arose because the reflections of students with limited experience were focused on general perceptions about the simulation's intentions, rather than the simulation's impact. A representative example for this group of comments is: *"it was very much that ... getting you ready for the work place type of atmosphere"* (S7). Some students also reported a general improvement in their subjective preparedness for the workplace. However, none of the students with limited prior work-experience discussed why they had developed these perceptions. As a result, it is unclear if these students merely recognised the simulation's intention, which was not explicitly shared with students undertaking the simulation, and their perceptions are a function of this recognition and their trust in the learning experience, or if students were able to draw a meaningful connection between the simulation and a real-world work environment.

Another important affective learning outcome relates to students' perceptions about the accounting profession. Here, students with limited prior work-experience reported a substantial impact on their understanding of accounting practice. Evidence is provided by statements such as:

> [Before participating in the simulation]*"I wasn't really thinking about small firms or tax firms, I was thinking about big companies and like internal control, and making huge decisions like that. That's what I thought it would ... be like I'd be working at a huge company, trying to manage all their inventory and making huge decisions like that. But, [the simulation} really wasn't what I thought it was going*

> *to be, like it was a more realistic view of what working as an accountant, especially a graduate, would be"* (S3), and
>
> The simulation *"was very honest about what accounting was like. It also helped me make my decision that I don't want to be an accountant*" (S4). Although it was only a *"*semi-realistic model *of what it would be like to be in practice. Doing [those] things, I was able to answer my question, saying, "No, I don't want be an accountant…"."* (S4 – emphasis added).

Students with extensive prior work-experience did not typically report a strong change in their understanding of the accounting profession. Instead, such students reported that they already possessed a good understanding of the profession (S2 and S5). However, one student with extensive experience also stated that the analysed simulation "*does introduce people to what it **may be like** in the workforce*" (S6 – emphasis added). This statement highlights that although experienced students did not report an impact of the simulation on their own perceptions, they recognise that less experienced students may have obtained more extensive benefits.

Bayerlein and Jeske (2018b) argue that affective learning outcomes, including students' perception about their future profession, are likely to be strongly dependent on the peer-learning activities within a simulation. The current research is able to support this argument for students with limited prior work-experience, although none of the interviewed students drew a direct link between peer-learning activities and their understanding of the profession. Students with limited prior work-experience reported substantial changes in their perceptions of the profession, as well as a strong impact of peer-learning activities on their overall learning within the analysed simulation. Students with extensive prior work-experience, on the other hand, did not report substantial changes in their perceptions of the professions, and reported a relatively low impact of peer-learning on their overall experience and success.

The ability of students to develop an understanding of their chosen workplace (Wilton 2012), and to reflect on their own suitability for their chosen career (Jackson 2015; Rothman & Sisman 2016) represent important learning outcomes of traditional internship activities. Prior literature argues that well-designed simulations enable students to make such evaluations, and that students' evaluations in such contexts are based on a reflection of their chosen career, rather than a particular employer organisation (Bayerlein & Jeske 2018b). The evidence presented in this paper, and in particular the above comment provided by S4, highlights that the analysed simulation enabled at least students with limited prior work-experience to evaluate their own suitability for an accounting career. In the particular case of S4, the simulation assisted the student in avoiding an unsuitable career pathway, which in itself represents a valuable outcome of the experience (Templeton et al. 2012). In addition, it appears unlikely that S4 would have made a different evaluation in a face to face WIL setting. This conclusion is reached because the student referenced the work tasks, rather than the working environment, as the basis for their decision.

Given the presented evidence, the paper's third expectation, which predicted the simulation to be only moderately successful in supporting the development of affective learning outcomes, can be supported for students with extensive prior work-experience. Additional benefits, in the form of more substantial changes to students' perceptions about the accounting profession, arose for students with limited prior work-experience. As a result, the current paper concludes that the simulation was effective in developing affective learning outcomes for this student group.

Limitations of simulated internships

Students also provided comments that highlighted the limitations of the simulation. The majority of these comments were well aligned with the theoretical limitations of simulations discussed in prior research (for example, see: Bayerlein & Jeske 2018b). In general, students' comments related to the simulations inability to encompass all environmental factors that surround a real-world placement. Differences between the simulation and face to face WIL arise because real-world work-experience teaches students what is expected of them at their chosen employer, which enables them to understand how they need to apply their theoretical knowledge to maximise their, and their organisation's benefits (Jackson 2015). Whilst simulations can be highly successful in preparing students for their work activities, the subsequent comments demonstrate that some environmental aspects of the work environment fall beyond the confines of a simulation.

> *"[The simulation] and my degree barely really skim over things that I do in the workplace, we learned the basics though which did help me. But, some things, like things that actually happen in the workplace, that would be good to be, to do more in detail"* (S3)

> *"And, there's the hours as well. The 9 to 5 hours, never done anything like that in my life, so I am a bit worried about that as well. Especially coming out of uni where I do, I wake up in the morning or in the afternoon, when I want and I can sit down and do an hour of class here and nothing for the rest of the day, whereas a full time job is, you wake up, go to work, finish work, go home, go to bed. Do it again the next day. So, it's a bit of a worry, but I'm sure I'll get there in the end"* (S1).

Students with extensive prior work-experience also expressed concerns about the transferability of their simulated experience into a real-world environment. Despite having had the benefit of a simulated work environment and a real-world experience, some students reported a feeling of uncertainty. This is underscored by comments such as *"... I am still a bit worried because I don't know what it's going to be like* [*in the workplace]"* (S6). However, the uncertainty of stepping from higher education into the world of work may also be related to students' general circumstances. For example, participant S7 remarked, *"maybe [the uncertainty about the requirements as a graduate] was just the worry of you know, going out there and taking the next step in your life"* (S7).

The students' concerns around the uncertainty of an employer's expectations beyond the work activities that graduates may encounter reflects findings in prior literature. For example, Hiltebeitel et al. (2000) highlight that working conditions are a substantial source of dissatisfaction for entry level accountants, whilst they are neither strongly satisfied nor dissatisfied with their work tasks. The evidence presented in the current paper suggests that the analysed simulation was, due to its focus on work activities, only partially able to address this issue. Whilst the simulation attempted to provide a "semi realistic" (S4) replication of a workplace, only one student (S2) provided comments that specifically linked the simulation to the development of skills that had a substantial direct impact on their engagement with their working conditions. However, another student (S3) reported an improved understanding of the possible challenges and requirements that are likely to occur within the workplace, demonstrating that the simulation was, at a minimum, successful in showcasing some of the challenges that may occur in graduate work environments.

Conclusion

This research utilised qualitative data to provide an empirical evaluation of the extent to which the analysed simulation was able to effectively develop students' learning outcomes. The paper extends prior theoretically based contributions to the literature, in particular Bayerlein and Jeske (2018b), by evaluating the impact of a specific simulated internship on the lived experiences of undergraduate accounting students.

Evidence of the impact of the analysed simulation on students' learning outcomes is provided through a series of semi-structured interviews with students that had completed a compulsory simulated internship experience as part of their undergraduate accounting studies at an Australian university. Based on the learning outcome framework proposed by Kraiger et al. (1993) the evaluations developed in this paper focused on the simulation's success in developing cognitive, skill based and affective learning outcomes in students.

The research shows that the analysed simulation was able to develop learning outcomes across all three areas for all students. The simulation achieved this outcome, by shifting the students' frame of reference away from unrealistic classroom activities that are insufficiently structured to develop and apply critical workplace skills (Bayerlein 2015; Jackson 2015), and towards the replication of a complex and immersive workplace environment. However, the lived experiences of individual student groups within the simulation differed substantially, with differences being predominantly related to students' prior work-experience.

Differences in relation to students' prior work-experience were identified across all learning outcome areas. Specifically, students with limited prior work-experience were more likely to successfully develop cognitive and skill-based learning outcomes than students with extensive prior work-experience. However, students with limited prior work-experience may not have been able to recognise and access such benefits until after they have gained experience in real-world environments. The analysed simulation was also successful in developing affective learning outcomes for students with limited prior work-experience. Affective learning outcomes for this group of students were largely related to students' improved understanding of the profession, as well as professional practice.

Students with extensive prior work-experience generally reported substantially lower outcomes across all three learning outcome areas of Kraiger et al. (1993). Whilst the learning outcomes of this group of students did not reach the level of students with limited prior work-experience, it is important to note: (1) that the simulations impact was consistently positive; and (2) that peer-interactions between students with extensive prior work-experience and students with limited prior work-experience were identified as a key integrative theme within the simulation.

In this paper, the author provides empirical support for the value of the analysed simulation in undergraduate accounting education. Whilst the author intended to develop evidence supporting the expectations outlined in Bayerlein and Jeske (2018b), a much more nuanced picture of the impact of the analysed simulation on students emerged. A key difference between the current study and prior, theoretically based contributions to the literature is the emergence of a clear value proposition of the analysed simulation for students with limited prior work-experience, as well as a lesser value proposition for students with extensive prior work-experience. For students with limited experience, the simulation represented a well-suited environment in which to develop the skills and knowledge required to successfully transition into traditional face-to-face WIL experiences. Prior literature (for

example, see: Bayerlein 2015; Bayerlein & Jeske (2018b)) implicitly recognises this focus of simulated environments by arguing that simulated environments should not be seen as "wholesale replacements" of traditional face-to-face WIL experiences.

The findings outlined in this paper are relevant for higher education providers and students because it provides an empirical evaluation of the benefits that arose from the analysed simulated internship, as well as the types of learning outcomes that were achieved by different students. Such information is highly valuable because it supports providers in developing simulated WIL experiences that are most appropriate for the needs of particular types of students. Benefits for students arise because a more detailed understanding of the analysed simulation's impact on students in different circumstances supports them in selecting WIL opportunities that best meet their own developmental needs and expectations.

Although the findings in this paper support providers and students in making decisions about simulated internships by assessing the impact of a particular simulation on different types of students, the transferability of the outlined results is limited due to the study's small sample size. Further, large-scale research regarding the learning outcomes and learning processes of students in simulated internships (as well as non-placement WIL in general) is required to develop transferable findings. An important question arising from the current research relates to the process through which different students develop learning outcomes in different types of internships. A detailed evaluation of this issue would provide a more comprehensive understanding of the reasons underpinning the learning outcome differences identified in the current paper and inform the development of future simulated internship environments by interested higher education providers.

References

Allan, J 1996, 'Learning outcomes in higher education', *Studies in Higher Education*, vol. 21, no. 1, pp. 93-108.

Andon, P, Chong Kar Ming & Roebuck, P 2010, 'Personality preferences of accounting and non-accounting graduates seeking to enter the accounting profession', *Critical Perspectives on Accounting*, vol. 21, no. 4, pp. 253-65.

Bayerlein, L 2015, 'Curriculum innovation in undergraduate accounting degree programmes through "virtual internships"', *Education + Training*, vol. 57, no. 6, pp. 673-84.

Bayerlein, L, Dean, B, Perkiss, S & Jeske, D 2020, 'Technology platforms for WIL', in S Ferns, A Rowe & K Zegwaard (eds), *Advances in Reserach, Theory and Practice in Work-Integrated Learning: Enhancing Employability for a Sustainable Future*, Routledge, New York.

Bayerlein, L & Jeske, D 2018a, 'The potential of computer-mediated internships for higher education', *International Journal of Educational Management*, vol. 32, no. 4, pp. 526-37.

Bayerlein, L & Jeske, D 2018b, 'Student learning opportunities in traditional and computer-mediated internships', *Education + Training*, vol. 60, no. 1, pp. 27-38.

Bayerlein, L & Timpson, M 2017, 'Do accredited undergraduate accounting programmes in Australia meet the needs and expectations of the accounting profession?', *Education + Training*, vol. 59, no. 3, pp. 305-22.

Boyce, G, Greer, S, Blair, B & Davids, C 2012, 'Expanding the horizons of accounting education: Incorporating social and critical perspectives', *Accounting Education: An International Journal*, vol. 21, no. 1, pp. 47-74.

Bressler, L & Pence, D 2019, 'Skills needed by new accounting graduates in a rapidly changing technological environment', *Journal of Organizational Psychology*, vol. 19, no. 2, pp. 50-9.

Burritt, R, Evans, E & Guthrie, J 2010, 'Challenges for accounting education at a crossroads in 2010', in E Evans, R Burritt & J Guthrie (eds), *Challenges for accounting education at a crossroads in 2010*, The Institute of Chartered Accountants in Australia, Sydney.

Business Industry and Higher Education Collaboration Council 2007, *Graduate employability skills*, Business Industry and Higher Education Collaboration Council, Canberra.

Candy, PC & Crebert, RG 1991, 'Ivory tower to concrete jungle: The difficult transition from the academy to the workplace as learning environments', *The Journal of Higher Education*, vol. 62, no. 5, pp. 570-92.

Chomsky, N 2000, *Chomsky on miseducation*, Rowman & Littlefield, New York.

Coll, R & Zegwaard, K 2006, 'Perceptions of desirable graduate competencies for science and technology new graduates', *Research in Science and Technologies Education*, vol. 24, no. 1, pp. 29-58.

Cunningham, J & Hillier, E 2013, 'Informal learning in the workplace: key activities and processes', *Education + Training*, vol. 55, no. 1, pp. 37-55.

De Lang, P & Watty, K 2011, 'Accounting education at a crossroad in 2010 and challenges facing accounting education in Australia', *Accounting Education: An International Journal*, vol. 20, no. 6, pp. 625-30.

2015, *Labour Market Research - Accountants Australia*, by Employment, Do, Australian Government, Department of Employment, Labour Market Research and Analysis Branch.

Evans, E 2010, 'Jurisdictional disputes in accounting: Education or Training?', in E Evans, R Burritt & J Guthrie (eds), *Challenges for accounting education at a crossroads in 2010*, The Institute of Chartered Accountants in Australia, Sydney.

Evans, E, Burritt, R & Guthrie, J (eds) 2010, *Challenges for accounting education at a crossroads in 2010*, The Institute of Chartered Accountants in Australia, Sydney.

Eyler, J & Giles, DEJ 1999, *Where's the learning in service-learning*, Jossey-Bass, San Francisco.

Fleming, DL 2008, 'Building bridges to connect the disconnects: An analysis of business program design processes', *American Journal of Business Education*, vol. 1, no. 2, pp. 21-49.

Gray, R & Collison, D 2002, 'Can't see the wood for the trees, can't see the trees for the numbers? Accounting education, sustainability and the public interest', *Critical Perspectives on Accounting*, vol. 12, no. 5-6, pp. 797-836.

Guile, D & Griffiths, T 2001, 'Learning through work experience', *Journal of Education and Work*, vol. 14, no. 1, pp. 113-31.

Hancock, P, Howieson, B, Kavanagh, M, Kent, J, Tempone, I & Segal, N 2009, *Accounting for the future: more than numbers*, Australian Learning & Teaching Council, Sydney.

Hergert, M 2009, 'Student Perceptions of the value of internships in business education', *American Journal of Business Education*, vol. 2, no. 8, pp. 9-14.

Heron, J 1999, *The facilitator's handbook*, Kogan Page, London.

Hiltebeitel, KM, Leauby, BA & Larkin, JM 2000, 'Job satisfaction amon entry-level accountants', *CPA Journal*, vol. 70, no. 5, pp. 76-9.

Hoyle, J & Deschaine, ME 2016, 'An interdisciplinary exploration of collegiate internships', *Education + Training*, vol. 58, no. 4, pp. 372-89.

Jackson, D 2015, 'Employability skill development in work-integrated learning: Barriers and best practice', *Studies in Higher Education*, vol. 40, no. 2, pp. 350-67.

Jackson, D 2016, 'Modelling graduate skill transfer from university to the workplace', *Journal of Education and Work*, vol. 29, no. 2, pp. 199-231.

Jackson, D, Rowbottom, D, Ferns, S & McLaren, D 2017, 'Employer understanding of Work-Integrated Learning and the challenges of engaging in work placement opportunities', *Studies in Continuing Education*, vol. 39, no. 1, pp. 35-51.

Jackson, D, Sibson, R & Riebe, L 2013, 'Delivering work-ready business graduates - keeping our promises and evaluating our performance', *Journal of Teaching and Learning for Graduate Employability*, vol. 4, no. 1, pp. 2-22.

Jackson, D, Sibson, R & Riebe, 2014, 'Undergraduate perceptions of the development of team-working skills', *Education + Training*, vol. 56, no. 1, pp. 7-20.

Kavanagh, MH & Drennan, L 2008, 'What skills and attributes does an accounting graduate need? Evidence from student perceptions and employer perceptions', *Accounting and Finance*, vol. 48, no. 2, pp. 279-300.

Kay, J, Ferns, S, Russell, L, Smith, J & Winchester-Seeto, T 2019, 'The emerging future: Innovative models of work-integrated learning', *International Journal of Work-Integrated Learning*, vol. 20, no. 4, pp. 401-13.

Knouse, SB & Fontenot, G 2008, 'Benefits of the business college internship: A research review', *Journal of Employment Counseling*, vol. 45, no. 2, pp. 61-6.

Kraiger, K, Ford, J & Salas, E 1993, 'Application of cognitive, skill-based and affective theories of learning outcomes to new methods of training evaluation', *Journal of Applied Psychology*, vol. 78, no. 2, pp. 311-28.

Langdridge, D 2004, *Introduction to Research Methods and Data Analysis in Psychology*, Pearson: Prentice Hall, London.

Maertz, CP, Stoeberl, PA & Marks, J 2014, 'Building successful internships: lessons from the research for interns, schools, and employers', *Career Development International*, vol. 19, no. 1, pp. 123-42.

Marsick, VJ 2009, 'Toward a unifying framework to support informal learning theory, research and practice', *Journal of Workplace Learning*, vol. 21, no. 4, pp. 265-75.

Miles, MB & Huberman, MA 1994, *Qualitative Analysis: An Expanded Sourcebook*, 2nd edn, Sage, Thousand Oaks.

Rabasso, CA & Rabasso, J 2010, 'A Chomskyan approach to responsible critical management education', *Journal of Global Responsibility*, vol. 1, no. 1, pp. 66-84.

Rosenberg, S, Heimler, R & Morote, ES 2012, 'Basic employability skills: A triangular design approach', *Education + Training*, vol. 54, no. 1, pp. 7-20.

Rothman, M & Sisman, R 2016, 'Internship impact on career consideration among business students', *Education + Training*, vol. 58, no. 9, pp. 1003-13.

Smith, C & Worsfold, K 2015, 'Unpacking the learning-work nexus: 'priming' as lever for high-quality learning outcomes in work-integrated learning curricula"', *Studies in Higher Education*, vol. 40, no. 1, pp. 22-42.

Sondergaart, L & Murthi, M 2012, *Skills, not just diplomas: Managing education for results in Eastern Europe and Central Asia*, World Bank, Washington, D.C.

Stanley, T & Xu, J 2019, 'Work-Integrated Learning in accountancy at Australian universities - forms, future role and challenges', *Accounting Education*, vol. 28, no. 1, pp. 1-24.

Templeton, W, Updyke, K & Bennet, RB 2012, 'Internships and the assessment of student learning', *Business Education & Accreditation*, vol. 6, no. 2, pp. 27-38.

Universities Australia 2019, *Career Ready Graduates*, https://www.universitiesaustralia.edu.au/Media-and-Events/submissions-and-reports/Career-Ready-Graduates

Watson, WR, Woori, K & Watson, SL 2016, 'Learning outcomes of a MOOC designed for attitudinal change: A case study of an Animal Behaviour and Welfare MOOC', *Computers & Education*, vol. 96, pp. 83-93.

Wilton, M 2012, 'The impact of work placements on skills development and labour market outcomes for business and management graduates', *Studies in Higher Education*, vol. 37, no. 5, pp. 603-20.

Zegwaard, KE & Rowe, AD 2019, 'Research-informed curriculum and advancing innovative practices in work-integrated learning', *International Journal of Work-Integrated Learning*, vol. 20, no. 4, pp. 323-34.