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An Evaluation of a Simulation Learning Task in Finance Education

Abstract

A classroom-based simulation activity is conducted in a third year Finance subject, involving teams of students negotiating a business sale and/or purchase. A case study approach provides a basis for interpretation. Interviews with students, along with statistical information and relevant policy documents, were analysed and interpreted to generate the findings. The effectiveness of the simulation activity is evaluated and showed that it enhanced learning and involved students to draw on a range of graduate capabilities in meeting a negotiated outcome, as reported in another publication. This paper follows up on these findings and further reports that the effectiveness of the activity as gauged from the perspective of the students, is also supported.

Keywords

Classroom-based simulation, evaluation, finance education, graduate capabilities

Background

Since the late 1980s there has been a call by employers for universities to develop graduates with not only well-developed discipline knowledge and skills but also with graduate capabilities such as problem solving, communication and teamwork skills (AACSB International, 2013; CPA, 2012; Australian Qualification Framework, 2013; Litchfield, Frawley & Nettleton, 2010; BIHEC, 2007). To compete effectively in a global economy, Australia requires a highly skilled workforce (Parliament of Australia, 2001) that can support innovation and therefore increase the competitiveness of Australia's economy. The government drew on universities to develop graduates with not only discipline knowledge but also graduate capabilities that would allow graduates to work on tasks that presented novelty, unpredictability and complexity.

These graduate capabilities, are defined by Australian universities as: "… interdisciplinary skills, knowledge and attitudes that equip students to live and work in a rapidly changing and complex world" (Macquarie University, 2016).

Examples include critical thinking, teamwork, problem solving, and communication. The focus on graduate capabilities continues today. Since the early 2000s, there has been a

rapid advancement of digital tools and platforms that require workers to continually adapt to new ways of working. This has created a renewed push by employers for embedding graduate capabilities into the curriculum.

The Business Industry and Higher Education Collaboration Council reports that the graduates' employability skills are under-developed and that universities are providing students with a *'strong knowledge base but without the ability to intelligently apply that knowledge in the work setting'* (BIHEC, 2007, p. 2; Tempone, Kavanagh, Hancock, Howieson, Segal & Kent, 2010). Similarly, in 2013, The Business Council of Australia (2013, p.81) recommended action for an *'increased focus in tertiary education on employability skills'.* Bajada & Trayler (2013) reiterate these concerns by stating that there is a strong emphasis within the business curriculum on developing the technical expertise at the expense of more meaningful experiences.

In response, there has been a call for real-world experiences or authentic learning tasks to be embedded in the curriculum to enable students, for example those enrolled in finance education, to draw connections between finance concepts and how they are applied in the real-world (Bailey, van Acker & Fyffe , 2012). Cho, Caleon & Kapure (2015) describe authentic tasks as learning activities where learners collaborate to solve problems that practitioners encounter in the workplace. Authentic learning environments can be designed based on simulation models of authenticity (Cho et al., 2015). Hertel & Mills (2002, p. 15) define simulations as: "Sequential decision-making classroom events in which students fulfil assigned roles to manage discipline specific tasks within an environment that models reality according to guidelines provided by the instructor."

Many studies describe the benefits of learning through simulations. The reported benefits include that simulations maximise student engagement (Bell & Loon, 2015; Hertel & Mills, 2002; Neely & Tucker, 2013; Nygard, Courtney & Leigh , 2012) because students perceive that the learning has value and that their effort will realise the expected value. Another benefit described is that the students' already acquired knowledge is activated and extended and built upon as they acquire new learning and that students therefore see the relevance of the new learning (Chadwick & Raver, 2015). Gehris(1982) in his synthesis of simulation literature in Business education reports that simulation students are more receptive of support, have high motivations to succeed and are more likely to perform well at their work places. Chapman & Sorge (1999) compared a simulation activity with other instructional tools like topic papers and text book and found that students ranked simulation

as the highest on several learning related measures and simulation activity had the strongest associations with a set of measures designed to assess course learning outcomes. Finally, effectively constructed simulations immerse students in a deep level of understanding, which is not only long lasting but also transferable to other subjects or the workplace (Hertel & Mills, 2002).

Despite the widespread reported benefits of simulations, Hopwood, Rooney, Boud & Kelly, (2016) assert that limited theoretical work in simulation pedagogy has been undertaken concerning why and how simulations work (Tan & Nie, 2015). There is also little robust evidence for best practice and the effectiveness of simulations in improving learning outcomes or graduate capabilities (Rudd, 2013, Rutherford-Hemming, 2012). Further, Blackford & Shi (2015) assert that many studies that measure the outcomes of simulations do not use a pre-test/post-test methodology or sufficient measures of outcomes to support their claims.

These varying perspectives show that there is a need for more evidence-based research to validate whether simulations are effective learning tasks that deliver the desired learning outcomes. Hui & Koplin (2011) claim that, although much research into authentic learning has been conducted in a range of disciplines in the past 10 years, this has not been the case in the finance discipline. Therefore, investigating the effectiveness of a simulation in the finance discipline is especially relevant.

In response to the need for more evidence-based research, an investigative study was designed to evaluate the effectiveness of a simulation task in a final year undergraduate finance subject. The simulation replicated a real-to-life, team-oriented, negotiation exercise based around a business acquisition framework. The aim of the study was to establish whether the simulation activity would bring about:

- enhanced student learning as shown by the Structure of Observed Learning Outcomes Taxonomy (Biggs & Tang, 2007)
- the development of particular graduate capabilities
- the effective features of the simulation as perceived by the students

The study therefore adds to the evidence-based literature on simulations and advances the literature about authentic learning in the field of finance education in higher education.

The Effectiveness of a Simulation Task in Enhancing Learning

The extent that learning is enhanced through the simulation is investigated in this study by assessing student interview responses pre- and post-simulation against the structure of observed learning outcomes (SOLO) Levels 1-5. The SOLO Taxonomy is based on the constructivist theory of learning.

Biggs & Tang (2007) describe that the SOLO taxonomy is structured along five levels of cognitive complexity. Each level shows growth in understanding of the concepts to be discerned. The first level is termed pre-structural where there is no understanding and the work is classified as having missed the point. Once learning occurs, a student first acquires one or few aspects of the concept which are named and listed. Learning at this level (Level 2) is classified as unistructural. Then several more aspects are acquired which may be described or combined but still unrelated or discrete and, therefore, classified as multi-structural (Level 3). As the learning becomes more sophisticated the discrete aspects show conceptual restructuring or integration and the student begins to compare, analyse or relate the information to the whole system or to familiar problems. The work at this stage shows not only a quantitative dimension but also a qualitative dimension and is classified as relational. (Level 4). At the final level, named the extended abstract level (Level 5), the understanding is used to generalise to a new or untaught area and the learning is extended to a higher level of abstraction to that which has been presented in class. At this level, the learner may hypothesise, reflect, create and extend the learning to other situations.

The Effectiveness of a Simulation Task in Developing Graduate Capabilities

Biggs & Tang (2007) and Huba & Freed (2000) assert that when students are immersed in authentic learning experiences, they not only develop discipline specific knowledge and skills but also graduate capabilities. Few existing studies also demonstrate the development of specific graduate capabilities like critical and analytical thinking skills through classroom-based simulations (Hamzeh, Theokaris, Rouhana & Abbas ,2017; Shellman & Turan 2006). This study investigates whether the current simulation promotes the development of graduate capabilities in a finance subject.

Effective Features of Simulation as Perceived by Students

Apart from enhancing learning and developing graduate capabilities, the literature also reports on several useful features of simulation activities as perceived by students. These include, but not limited to, increased understanding of global issues, conflict resolutions (Churchill &

Liebowitz 1990) and historical events (Pellegrino, Lee & d'Erizans,2012); development of broader outlook (Takahashi & Saito 2011); building confidence among students (Phillips & Graeff 2014) and learning through roleplay and fun (Shellman & Turan (2006); Engelhardt (2015)). This study explores what features of classroom-based simulation activity students perceive most effective in an acquisition and negotiation scenario.

Research Objectives of the Study

The effectiveness of the simulation task is investigated in terms of three research questions. These address whether, and in what ways, the simulation activity:

1. enhances learning as described by the SOLO Taxonomy levels.
2. promotes the development of graduate capabilities and develop work-ready students
3. is effective to assist learning as perceived by the students

Should the findings be positive, then the simulation activity is validated as a useful pedagogical tool for the teaching of the topic 'Mergers and Acquisitions' in finance education.

Methodology

The Simulation Task Design

Students enrolled in a subject titled Mergers and Acquisitions, a final-year, third-year elective subject, took part in a three-hour acquisition negotiation scenario. Students were allocated into multidisciplinary teams of six students per team to plan and execute the negotiated sale of a business. Teams either represented the Buyer or Seller party.

The aim of the scenario was to simulate a real-world authentic work task. It was based around the Australian Federal Government (the Seller) deciding to sell the National Broadband Network (NBN) project to a private operator to ease its Budget pressures, with the identified potential buyer being a consortium group comprising a listed Australian construction company (at the time Leighton Holdings Limited, now CIMIC Group Limited) and a private equity firm. The team was given authentic background information about the project, sets of key buyer and seller requirements, valuation parameters reflecting their respective roll-out and operational expectations of the NBN Project and a spreadsheet valuation model that they could manipulate as part of their planning and decision-making.

Following an initial planning session, the teams came together for three separate negotiation rounds, with intermediate planning sessions including injections of new information along the way, to see if they could negotiate a deal based on terms and conditions suitable for both parties. The simulation activity was planned for three hours.

Each group was given a set of specified requirements to be negotiated, as well as non-negotiable requirements unless financial compensation or additional financial incentives were to be offered in return. Each group was provided with a Corporate Plan for the NBN Project with assumptions and targets which each group could manipulate for managerial decision-making. During the planning and negotiation mode, two news alerts were announced. These were a class action law suit on behalf of the NBN installation contractors and a media release relating to potential reputational effects associated with Leighton Holdings Limited. These news alerts caused each group to reconsider their strategy and negotiation price.

In the end, negotiated deal outcomes were reached across all four of the scenarios undertaken, with the price and sale conditions negotiated proving to be surprisingly similar. At the conclusion of the simulation activity, a debriefing session was built into the activity and students were asked to reflect on and evaluate the consequences of their decisions.

The final aspect was for the teams to write a report to their respective Buyer or Seller agent outlining the outcomes of the negotiation exercise and key elements of the negotiation process, major decisions made and challenges faced. This was designed as a reflective assessment element associated with involvement in the simulation activity.

Case Study Design

The strategy of inquiry used in collecting data and its interpretation was a case study design. Yin (2003) & Sturman (1999, p. 103) state that a case is ‘analogous to a single experiment’. It investigates an individual group or phenomenon and in this case a simulation task in a finance subject is evaluated. The case study also extends the theory of the effectiveness of the simulation tasks in bringing about learning, developing graduate capabilities and whether these are extended to the graduates’ workplace. Qualitative and quantitative data are used where appropriate to present the findings.

Sample Selection and Interview Schedule

The respondents interviewed for the study included students enrolled in the subject. All enrolled students were invited to participate (60 students). Ten students self-selected to be

interviewed and participated in both the pre- and post-simulation interviews. The pre-simulation interviews were held one week before the simulation and the post-simulation interviews were held within a week of the conclusion of the simulation.

All interviews, their audio recordings, transcriptions and coding were conducted by the same two researchers not involved in teaching the subject. This avoided a teacher-learner power relationship that could exist and which could potentially influence the outcomes of the study. Both interviewers set up the same interview conditions and asked the same questions in the same sequence.

Coding of Interview Responses

The NVivo software was used to import the interview transcriptions for coding. The coding procedure is outlined next.

1. *Coding of graduate capabilities*

At the time of this study, the Business School embedded eight graduate capabilities into its subjects (see Appendix 1 for the graduate capabilities definitions).

Each respondent's statement per interview question was analysed sentence by sentence, and the textual segments compared to the definitions of the graduate capabilities. Selective coding was applied to identify the graduate capabilities in the text data (Cohen, Manion & Morrison , 2011). Each code category referred to a separate graduate capability definition.

Reliability of the coding process

Two researchers worked together when coding to ensure consistency in their interpretation of the text and its alignment with the graduate capability definition. At the conclusion of coding, the residual data not highlighted by the coding was examined to ensure that it did not contain additional text for coding.

Following the coding, a second level of analysis was conducted. This involved examining the frequency of the responses for each graduate capability at the pre- and post-simulation stages. In this way a body of evidence was extracted, both qualitative and quantitative, and relationships and patterns in the data were examined, analysed and findings generated.

2. *Coding of learning against the SOLO Taxonomy*

The subject expert in Finance designed an assessment rubric based on the SOLO Taxonomy Levels 1-5 (Biggs & Collis, 1982). The subject expert assessed each respondent's transcribed interview responses against this rubric.

First the pre-simulation responses were assessed, followed by the post-simulation responses. Each participant's whole response per interview question was allocated a SOLO Level from 1 to 5. When all responses had been assessed against the rubric, an average cohort Level grading per interview question and an overall average mark per cohort for each interview question were determined.

Table 1. Summary results for SOLO Taxonomy Analysis for participants

Interview questions	Pre-simulation Average SOLO Level for cohort	Post-Simulation Average SOLO Level for cohort
1. What challenges might you face in an acquisition?	2.10	3.00
2. What are the key strategies to achieve acquisition success?	2.00	3.20
3. What skills and attributes do you think are important in a negotiation process? From an overall perspective? From a buyer's perspective? From a seller's perspective?	2.30	2.70
Overall average	2.13	2.97

To establish reliability in the SOLO coding, two other researchers were also asked to rate student responses using the same procedure as adopted by the subject expert. Fleiss' Kappa (an extension of Cohen's Kappa) was calculated to measure inter rater reliability (IRR) between the three raters (Fleiss & Cohen, 1973). Table 2 shows the results of Fleiss' kappa using SPSS. The Kappa value obtained is 0.61 which represents a substantial agreement between the three raters, as suggested by Landis & Koch (1977).

Table 2: Fleiss' Kappa

	Kappa	Asymptotic Standard Error	Z	P Value	Lower 95% Asymptotic CI Bound	Upper 95% Asymptotic CI Bound
Overall	.610	.075	7.951	.000	.450	.745

Further analysis is performed to check the reliability of raters, using intraclass correlation coefficient (ICC) in SPSS. "Two-way random" method was used in SPSS because same raters were used for each case. Table 3 shows Average Measures value of .928, which means that approx. 93% consistency was observed among the judgements. The table also shows Single Measure value of .811, which means that reliability of ratings would only be 81% if it was done by a single rater. These results suggest that the judgement of the three raters was quite efficient. These results are statistically significant at $p<0.001$.

Table 3: Intraclass Correlation Coefficient

		95% Confidence Interval		F Test with True Value 0			
	Intraclass Correlation	Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.811	.687	.898	13.894	29	58	.000
Average Measures	.928	.868	.963	13.894	29	58	.000

Findings and Discussion

Research Question 1: In what ways does the simulation activity enhance learning as described by Biggs and Tang's SOLO Taxonomy?

In Table 1, the cohort average SOLO Level of the interview responses are shown for pre- and post- simulation. An overall average is also shown.

For the first question, the average SOLO level increased by approximately one dimension from 2.10 (Level 2) to 3.00 (Level 3) when comparing their pre- and post-simulation activity involvement.

For Question 2 which was relating to appreciation of the key strategies important to acquisition success, the average student SOLO competency level increased by 1.20 to 3.20 (Level 2 to Level 3) following simulation activity involvement. The comparison of post-

simulation and pre-simulation level scores for the majority of students have showed enhanced levels of learning from the simulation activity.

For Question 3 regarding what skills and attributes do you think are important in a negotiation process, the average SOLO competency level increased by 0.40 to 2.70. A common theme coming out of the pre- and post-simulation interviews is subjects focusing on and identifying common stand-alone acquisitions aspects in the pre-simulation interviews but exhibiting substantial extensions in the perceived breadth and importance of elements to the acquisition process in the post-simulation interviews, and particularly relating these previous stand-alone aspects with negotiation or behavioural dimensions.

For instance, Subject 1 in the pre-simulation interview emphasised on quantitative-based determination of 'value' and 'price' as the key challenge associated with acquisitions (Question 1), which is reflected in comments such as "… getting the value right" and "… calculating the synergy", and in Question 2 relating to the key strategies associated with takeover success referred to non-strategic elements such as 'regulation', 'industry membership' and 'acquisition mood (friendly or hostile bid types)'. Whereas, in the post-simulation interview, Subject 1 linked identified valuation as only one source of information within a wider decision-making and negotiation framework. This is reflected in comments such as "it's about negotiating the right price because there is always a willingness to sell and a willingness to pay. And as a result, it's not always easy to get into consensus." and behavioural aspects such as "all the calculations to actually try to negotiate a deal out of it because there is always a human factor involved in it and … also it's all about working with ambiguity with information". Similarly, the post-simulation responses to Question 2 focus on the processing of information and negotiation strategies, rather than just acquisition components, such as "you allow room for the negotiation … so I think one of the key strategies that we initiated as a team is that we always asked for something back.", and "So whenever they wanted something we would try to attach a term or condition to it. And it's also very difficult because … both players know that to give information is the key here."

Similar demonstration of learning beyond basic acquisition-related principles can be seen in the differing responses to Question 2 from Subject 2, where the key aspects to achieving acquisition success were initially suggested to be the acquisition mood ("… ensure that the bid is not a hostile bid."), bid premium level (acquisition pricing) and marketing ("… successfully promote and advertise the bid to the target firm."). This can be contrasted with emphasis placed on planning ("taking into account all the information that you have and

specific deal requirements that they want to achieve … and also working out or predicting how the other party might respond to those conditions when you propose them to the other party.") and negotiation skills ("because often the way you present the information can be determinative of whether it is accepted or not. So if it is presented in a way that it is persuasive and appealing then it is more likely to be accepted.") in the post-simulation interview.

Another excellent example of student learning from the simulation activity comes from the responses of Subject 7, who pre-simulation discussed acquisition challenges more in terms of target selection than the acquisition process ("… is going to be applicable to our company, so finding one that's going to be successful … a lot of complex workings to work out the synergies and work out whether that is going to be something that will be successful.") and key aspects to acquisition success with reference to wider organizational strategy and planning ("You also need to have a forward looking/thinking plan for the business, so you need to have a good business strategy and management needs to know exactly what direction they're going to head.") In the post-simulation interview, however, Subject 7 exhibited much greater grasp of potential acquisition expectations and challenges ("… you need to understand what both parties are trying to come to terms with and agree to … and then it is just coming to that understanding where you know what they need and what we wanted to get from the acquisition.") and made direct reference to potential direct regulatory roadblocks in the form of the ACC and FIRB. Similarly, they more clearly demonstrated appreciation of acquisition success determinants (Question 2), such as negotiation skills ("… definitely negotiation skills"), communication skills ("You need to be able to communicate effectively where you are coming from.") and strategy planning ("And also maybe keeping things a bit to yourself and not letting everyone know the whole pitch.")

Overall, the SOLO Taxonomy analysis results indicated that involvement in the simulation activity has resulted in enhanced comprehension and learning of information relating to the business acquisition and negotiation process, with SOLO Taxonomy Levels increasing by marginally less than one level of competency, on average. Much of this enhanced learning is in the form of greater quantitative comprehension, however, there is also evidence of greater qualitative competency, particularly at the relational level.

The findings first presented by the Authors (2016) show that from the perspective of student learning, the simulation task enhances student understanding and the simulation is

therefore determined to be a useful tool to integrate in finance education to further learning that is potentially long lasting or representative of deep learning.

Research Question 2: In what ways does the simulation activity enhance graduate capabilities and thereby develop work ready students?

The results of the graduate capabilities which were important to the negotiation process are outlined in Table 4.

Table 4. Graduate capabilities which are seen as important in the negotiation process by students

Graduate Capability	Pre-Simulation Frequency of the graduate capability	Post-Simulation Frequency of the graduate capability
Problem solving	63 or 38.4%	75 or 30.24%
Teamwork	52 or 31.7%	76 or 30.64%
Speaking	26 or 15.85%	56 or 22.58%
Enquiry or research	18 or 10.97%	18 or 7.25%
Critical Thinking	5 or 3.04%	20 or 8.06%
Ethical awareness	0	2 or 0.80%
Information Literacy	0	0
Writing	0	1 or 0.40%
Frequency of overall comments	164 or 100%	248 or 100%

Pre-simulation responses

The pre-simulation responses show that the respondents perceived that problem solving (38.4%) and teamwork (31.7%) are most important to achieve a successful negotiation. This was followed by speaking (15.85%), enquiry/research (10.97%) and critical thinking (3.04%).

Post-simulation responses

Post-simulation responses indicate that the students thought that teamwork (30.64%) and problem solving (30.24%) to be of almost equal importance in achieving acquisition success. This differed to the pre-simulation responses where problem solving was perceived to be more important than teamwork by approximately 7%. Therefore, the simulation required students to engage in a high level of teamwork in achieving the outcomes.

In respect to the problem-solving demands of the simulation, students were required to construct convincing and novel recommendations based on the purchase/sale of a business. As stated by Wilson (1996), problems in authentic activities are complex and rarely have one solution. The current simulation required students to engage in evaluating alternative solutions to problems and test these out during the negotiation phase with the opposing party.

Speaking ranked third (22.58%) as it did in the pre-simulation interview, but was now perceived as having a greater impact on the simulation outcome by approximately 7%. During the simulation students offered opinions which contributed to the outcomes of the negotiation. In a team, they integrated the different points of view into the team's strategy plan. They also delivered three negotiation sessions with clear objectives discussed and decided upon by the team.

Critical thinking was perceived as having a bigger impact on the simulation outcome by approximately 5% post-simulation to pre-simulation. Therefore, the simulation engaged students to 'consider assumptions, classify and explore perspectives and formulate an integrated and insightful responses'.

Enquiry or research was perceived to have less of an impact post-simulation to pre-simulation by approximately 4%.

Ethical awareness was not mentioned during the pre-simulation activity but was mentioned twice during the post-simulation interview or approximately 1% of all responses, indicating that the simulation had involved at least some students identifying and/or discussing an ethical issue during the simulation.

Information Literacy was not mentioned during the pre-simulation interview and only once in the post-simulation interview (0.40%). Writing was also not mentioned pre-simulation and with very low frequency post-simulation (0.40%). These findings are understandable given that the simulation did not require students to write or use information literacy.

The perceived impact of the importance of each graduate capability on reaching an effective outcome shifted somewhat from pre- to post-simulation. The biggest shift occurred in students perceiving teamwork and problem solving to be almost of equal importance post-simulation.

The findings first presented by Authors (2016) suggest that the concerns described by BIHEC (2007), relating to graduate capabilities not being effectively integrated in university courses, could potentially be overcome by integrating effectively designed classroom-based simulations, especially in final year business-related subjects, to better prepare work-ready students.

Research Question 3: The effective features of the simulation activity and how it could be improved to assist further in their learning as perceived by the students

All participants were asked the following questions after undertaking the simulation.

- What were the effective features about the simulation activity that assisted you in your learning?
- What about the simulation activity could be enhanced to have assisted you further in your learning

The student responses are summarised in Tables 5 and 6.

Table 5. Effective features of the task as perceived by students

Positive features of the activity	Frequency
Structure of the activity	18 or 36%
Authenticity of the task	11 or 22%
Group/teamwork	7 or 14%
Skills acquired	7 or 14%
Level of satisfaction	4 or 8%
Level of challenge	3 or 6%
Total responses	50

Table 6. Areas for task improvement as perceived by the students.

Areas for improvement	Frequency
Structure	10 or 47.62%
Assessment	4 or 19.05%
Level of challenge/difficulty	4 or 19.05%
Additional resources and training	2 or 9.52%
Timeline and duration of task	1 or 4.78%
Total responses	21

More than twice as many comments about the effective features of the activity were made by the respondents (50 comments) compared to 21 comments for enhancements of the activity were received.

Positive features about the structure

The respondents expressed that the structure of the simulation activity was the most effective feature of this exercise. This supports the claims by Hertel & Mills (2002) that a teacher's knowledge and skill in setting up a simulation task is important, especially in relation to including an authentic problem or an issue to be addressed relevant to the profession. The respondents commented on the skills they learnt whilst trying to achieve an outcome and that the built-in group and teamwork aspects were effective features of the task. The level of satisfaction and challenge of the activity were also mentioned as a positive feature in bringing about student engagement. As one student indicated:

"I think naturally participating in a negotiation act itself, it gathered up a lot of skills that were already taught during the course. So, it helped to transfer a lot of the theoretical facts or theoretical topics into an actual activity that you can do and test yourself and see how much understanding you have already gathered during the course of the semester."

How the structure of the simulation be enhanced?

The ten comments received about how the structure could be enhanced related around more time being provided before the simulation to read the material and resources handed out at the time of the simulation activity. Some participants also wanted to engage in their own research about the value of the company and therefore create ambiguity in the valuation. A few respondents wanted more time than the three hours allocated for the simulation. One of the respondents stated:

"I think …information should have been given out probably a week in advance and simply so that we have time to actually think about the issues and think about how we are going to go about approaching the issues. Probably release it a couple of days before the simulation so that everyone is ready to go and to just negotiate. And I think what else would be great is that if there is more incorporation of your own valuation or your own research and create a bit more ambiguity in that sense."

The respondents also commented about the authenticity of the task and skills acquired. The features they liked best about the task were that in making the deal, there is a clear process involved which they learnt in doing the task. The respondents felt that this type of experience would be valuable when seeking employment because they would be able to talk about being involved in this simulated real-life activity. One respondent stated:

"I've always had the impression that mergers and acquisitions were all about modelling and … projecting figures but there is actually another component that I just didn't know actually existed. That other component is making the deal. Because talking about the terms of the deal, how to affect that deal, what the process of going through that deal is. I mean it's very valuable to have that experience simply when I go to interviews for these kinds of jobs at least I have something to talk about."

Teamwork

The students were generally satisfied with the teamwork and members in the team. The academic allocated the members per team before the activity. Each team consisted of students from different disciplines as well as international and local students.

"We had a mixed team, a really fantastic team of people and we were all encouraged just to get in there and do it and it was just a positive environment for learning this stuff."

Level of satisfaction and the level of challenge

The students enjoyed the level of challenge and commented that this made it interesting and a fun activity.

"I think it was quite challenging the fact that the buyer had 14 million we had 14 million. So, 14 million was the limit for both teams. Which made it interesting and fun".

Some students who wanted the activity to be more challenging also felt that more time should be allocated than the three allocated hours.

"I feel like there wasn't enough time for the whole process to take place. Maybe lengthen the time"

Additional resources to make the activity more challenging

A few students would have also liked the provision of "additional resources" such as access to live stock market data that would assist in the negotiation process and that it would make the activity a little more challenging. One student mentioned that the activity of a negotiation scenario was completely unfamiliar and that a brief video clip could be shown before the simulation to ease students into their roles.

Assessment

Some students felt that if the task were to be assessed formally or of the teamwork component could be assessed some of the students would be more involved in the activity.

"We are not really okay with all of the team members. Some of them wanted too relaxed. I think a future evaluation of teamwork as well as the activity being assessed would probably force students to work closer together with each other, to have a better negotiation process."

Limitations

This study was based on a single experiment and, therefore, not necessarily transferable to other discipline contexts. Further, the nature of the non-random sample, as well as the small sample size, may have skewed the results. However, Denzin & Lincoln (2000, p.452) explain that it is often common in research that the budget or time does not allow a high number of observations. The primary criterion is opportunity to learn.

Conclusions

This research has contributed to evidence-based research around classroom simulations in the finance discipline where few research studies have been conducted into authentic learning.

The first research question was focused on how the simulation activity enhanced learning? The SOLO Taxonomy analysis results confirmed that simulation activity resulted in enhanced comprehension and learning of information relating to the business acquisition and negotiation process. It also resulted in enhanced quantitative comprehension and qualitative competency.

The second research question was focused on how the simulation activity enhanced graduate capabilities? The responses of pre- and post-simulation interviews showed that simulation activity was effective in developing graduate capabilities such as teamwork, problem solving, speaking and critical thinking. These capabilities are described as important by employers. They are also important in bringing about innovation and would help better prepare work-ready students.

The third research question was aimed at highlighting effective features of simulation activity and findings ways of improving it. The post-simulation interview responses revealed that structure and authenticity of the task along with teamwork were considered as the most important features, as perceived by the students. The respondents also made some suggestions about improving the task structure, linking the activity to a formal assessment task and increasing the difficulty level of the task. We aim to incorporate these suggestions in our future offerings. Government, industry and professional associations are requiring that the university curricula include authentic experiences and graduate capabilities that ultimately facilitate the work readiness of students upon graduation. The simulation activity described and evaluated in this study has been validated as a particularly useful tool to better prepare work-ready students. The findings are important for the university in which the study was conducted, as its reputation partly depends on its graduates being work-ready. The inclusion of simulation tasks at the final year level should be encouraged as one of the ways to enhance the employability of its students.

In future, we would like to extend this study with a larger sample size and cross-discipline case studies to further investigate the impact of developing generic skills and the extent to which these are transferred to the workplace.

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Appendix 1

Graduate Capability	**Definition at final undergraduate year level**
Writing	Write developed, focused and sustained arguments appropriate for professional and academic contexts.
Speaking	Effectively offer opinions which account for the outcomes of the discussion and the ability to deliver informative presentations with clear objectives that demonstrate the emergence of a professional voice.
Inquiry/research	Reflect critically upon research processes for the discipline.
Critical Thinking	Consider assumptions, classify and explore perspectives and formulate an integrated and insightful response.
Problem solving	Construct convincing and novel recommendations based on the identification of the elements of a problem and the application and evaluation of problem solving approaches.
Teamwork	Participate responsively in diverse teams to complete complex team projects in academic and professional contexts.
Ethical Awareness	Formulate a considered position in relation to the diversity and complexity of values, norms and behaviours in professional, societal or global contexts.
Information Literacy	Use applications to meet outcome requirements and integrate information to develop insights for disciplinary contexts.