

EMPLOYABILITY SKILLS DEVELOPMENT FOR UNDERGRADUATE ACCOUNTING STUDENTS USING A BUSINESS SIMULATION GAME: A CASE STUDY OF THE USE OF ACCOUNTING BISSIM

by Matt Davies, Aston Business School | Darren Sparkes, Warwick Business School

m.l.davies@aston.ac.uk
darren.sparkes@wbs.ac.uk
Full Paper
Simulations Track

ABSTRACT

This paper provides a case study of the use of the Accounting Bissim business simulation game to develop accounting undergraduate students' employability skills at two UK universities: Aston University and De Montfort University. The authors, who co-developed the Accounting Bissim simulation in 2015, explain how their use of the simulation supports the development of the 11 key skills sought by modern employers (CMI, 2021) within both a second-year course at Aston University, in which employability skills development is the primary focus, and a final year course at De Montfort University, in which employability skills development is a secondary objective. The paper also includes some preliminary evidence of student perceptions of the impact of the simulation on their skills development. The paper responds to a gap in the literature as there is very limited evidence of the use of business simulation games for employability skills development in accounting programs.

INTRODUCTION

Students nowadays prefer active learning approaches rather than traditional lectures (Pitic & Irimias, 2023; Roehl et al., 2013), and are more focused on whether their university course will provide them with improved employment prospects (Cheng et al., 2022). At the same time, employers complain that university graduates do not possess the skills required for the modern workplace. A recent Chartered Management Survey, for example, found that nearly 80% of employers believe graduates start work lacking the skills they require (Chartered Management Institute, 2021). In this context, there have been growing calls in recent years for a transformation of accounting undergraduate programs, which have been criticized for placing too great an emphasis on technical content (e.g., Carnegie et al., 2020), for failing to develop the skills needed by employers (e.g. Behn et al., 2012) and for relying on outdated, teacher-centered methods (e.g. Sava, 2016).

Among the approaches available to educators to address these demands, business simulation games (BSGs) have gained in popularity in recent years as a means of supporting students' employability skills development (Kerridge & Evans, 2023), though there is relatively little evidence of their use on accounting programs (Bhavani et al., 2020). This paper contributes to addressing this gap in the literature.

The authors are co-developers of 'Accounting Bissim,' a BSG that is designed to bring accounting courses to life for both specialist and non-specialist learners. Since its first use in 2015, it has been used by the authors on dozens of courses with hundreds of accounting and finance learners in Undergraduate, Postgraduate, MBA, Executive, and Entrepreneurship programs. An explanation of Accounting Bissim, how it was developed, and how it supports the development of subject-specific accounting knowledge and skills is provided elsewhere (Davies et al., 2021). In this paper, the authors focus on how they have used Accounting Bissim as an experiential learning approach for developing specialist undergraduate accounting students' employability skills at two UK universities: Aston University (Aston) and De Montfort University (DMU). The authors' experiences are supported by preliminary quantitative and qualitative student data.

The remainder of this paper is organized as follows: first, relevant literature is reviewed, focusing on the pedagogical foundations and empirical evidence regarding the use of BSGs for employability skills development; second, the key features of the Accounting Bissim BSG are explained; third, the authors explain how they have used the Accounting Bissim BSG to develop accounting students' employability skills; and finally, the authors offer conclusions whilst acknowledging the limitations of the paper and identifying opportunities for further research.

LITERATURE REVIEW

In recent years BSGs have emerged as powerful pedagogical tools in higher education, providing students with opportunities for experiential and immersive learning which bridge the gap between theory and real-world application. With growing

pressures from students, employers, and governments for students to be 'work-ready', educators continue to seek innovative approaches to develop students' abilities to apply subject knowledge and skills in a practical context and to develop broader employability skills. At the same time, educators are also seeking ways to promote student attendance and engagement. It is widely argued that the use of BSGs provides a potential means of achieving these goals though, despite this, there is surprisingly limited evidence of their use in accounting education.

The remainder of this literature review is organized as follows: first, relevant literature regarding the pedagogical foundations for the use of BSGs is summarized; second, empirical evidence regarding the use of BSGs in business courses is examined; third, empirical evidence regarding the use of BSGs in accounting courses and programs is evaluated.

PEDAGOGICAL FOUNDATIONS FOR THE USE OF BSGs IN BUSINESS AND ACCOUNTING COURSES

The pedagogical foundations for the use of BSGs in business and accounting courses draw on the constructivist learning paradigm and three constructivist-derived learning theories, namely experiential learning, problem-based learning, and active learning.

Constructivism is based on the principle that knowledge is actively constructed by learners through their interactions with the environment and their prior experiences (Honebein, 1996). In business education, constructivism requires the educator to provide learning experiences through which students build their understanding of business concepts. Key to constructivism is the shift of emphasis in learning from teacher to learner. BSGs achieve this by offering learners opportunities to engage with realistic scenarios in which they must make decisions, collaborate with teammates, and solve tasks. Through these experiences, learners actively construct knowledge and connect new knowledge to their existing understanding.

Experiential learning, which draws on the constructivist learning paradigm, is often referred to as 'learning by doing' and involves connecting theories and knowledge to real-world situations. According to the leading proponent of experiential learning, David Kolb, learners learn most effectively through a four-stage cycle: first, they actively engage in concrete experiences; second, they reflect on those experiences; third, they conceptualize their observations and, finally, they apply their understanding to practical situations (Kolb, 1984). BSGs are closely aligned with experiential learning principles as they provide students with hands-on experiences, through which they can reflect on their decisions, receive prompt feedback, and refine their approach, all of which leads to a deeper understanding of concepts and their practical application.

Problem-Based Learning (PBL) involves learners being required to solve complex problems that reflect real-world challenges (Albanese & Mitchell, 1993). PBL is consistent with the constructivist learning paradigm as it focuses on the contextualization of learning within practical problem-solving situations. BSGs are aligned with PBL as they provide learners with realistic business challenges that require them to analyze information, identify problems, and develop solutions. As students are immersed in a dynamic and realistic context, they can apply theoretical knowledge in solving the problems which arise.

As with Experiential Learning and PBL, Active Learning also draws on the constructivist learning paradigm. An Active Learning approach requires that students actively participate in the learning process rather than adopting a more passive learning style. Active Learning can be achieved through a variety of means including debates, quizzes, and games, and of relevance in this context, with BSGs (Bonwell & Eison, 1991).

EMPIRICAL EVIDENCE REGARDING THE USE OF BSGs IN BUSINESS COURSES

BSGs have been used by business educators since the 1950s (Ricciardi & Marting, 1957), with early examples being Markstrat (Larreche & Gatignon, 1977) and the Beer Distribution Game (Kaminsky & Simchi-Levi, 1998). Technology developments in the past 20 years have seen a significant increase in both the number of BSGs available and their popularity among business educators, such that BSGs are now used in many business courses (Faisal et al., 2022).

Several studies provide evidence that the use of BSGs can have a positive effect on the development of a range of employability skills such as business acumen (Abdullah et al., 2013; Kriz & Aughter, 2016), communication (Abdullah et al., 2013; Costin et al., 2019), critical thinking (Huang et al., 2022; Lovelace et al., 2016), decision-making (Abdullah et al., 2013; Costin et al., 2019; Tawil et al., 2015), leadership (Abdullah et al., 2013; Almeida & Buzady, 2019, Huang et al., 2022), problem-solving (Costin et al., 2015; Farashahi & Tajeddin, 2018; Huang et al., 2022), and teamwork (Abdullah et al., 2013; Costin et al., 2015; Huang et al., 2022; Kriz & Aughter, 2016).

EMPIRICAL EVIDENCE REGARDING THE USE OF BSGs IN ACCOUNTING COURSES

Given the significant body of evidence to support the use of BSGs in employability skills development, there is surprisingly limited evidence of their use in specialist accounting programs, particularly at the undergraduate level. One of the few studies in the accounting education literature is provided by Levant et al. (2016). This is based on undergraduate and postgraduate accounting students completing a business simulation course in French and Moroccan universities and business schools, where they found that BSGs helped students develop 11 separate soft skills. In another study, Riley et al. (2013) report the use of a BSG on the development of employability skills for accounting students on a postgraduate course in an American university. The authors of the paper assert that the BSG used, and related activities, “help prepare accounting students to fulfill their important role as future business leaders by refining their decision-making skills” (p. 821).

CONCLUSION

In conclusion, this literature review has summarized the theoretical foundations for the use of BSGs which are drawn from the constructivism learning paradigm and related learning models, namely experiential learning, PBL, and active learning, and has examined the empirical evidence of its use for the development of employability skills in business courses generally and then in accounting education. The literature provides evidence that the use of BSGs in business education leads to enhanced employability skills, including, amongst others, communication, decision-making, and problem-solving skills.

Whilst there is strong evidence of the use and benefits of BSGs in other disciplines, there is a dearth of empirical evidence relating to their use in accounting courses. This paper partially addresses this gap by providing a case study of the use of the Accounting Bissim BSG in courses for specialist accounting students at Aston and DMU.

WHAT IS THE ACCOUNTING BISSIM SIMULATION AND HOW IS IT USED AT ASTON AND DMU?

Accounting Bissim is an adapted version of the Bissim business simulation that was developed by Simulation Training Associates Ltd. It runs as a team-based competition, with each ‘world’ consisting of up to 6 teams of between 6 and 8 students who act as the Board of Directors for a hypothetical manufacturing business set in the future. The simulation requires students to make decisions relating to the following areas of their business:

- Research and development
- Production
- Marketing
- Human Resources
- Finance
- Sustainability

The objective of the simulation is for teams to develop a long-term sustainable business, with the winning team selected by the tutors based on a range of financial and non-financial factors.

Accounting Bissim is a ‘facilitated’ simulation in which the tutor is required to input teams’ decisions into the software program and then share results with students. The tutor takes on a range of roles during the simulation for the purposes of simulating realistic meetings and negotiations between the teams and key stakeholders such as the bank, supplier, and customer.

IMPLEMENTATION OF ACCOUNTING BISSIM AT ASTON IN A SECOND-YEAR UNDERGRADUATE MODULE

At Aston, the Accounting Bissim BSG is used within a 15-credit module ‘Accounting in Practice’ (AIP), which is studied by a cohort of typically 200-250 second-year BSc Accounting and Finance students.

The AIP module aims to develop students’ professional and employability skills and at the same aims to provide opportunities for students to practice the application of their technical accounting skills in a realistic, yet safe, environment. As well as working on the simulation, the AIP module develops students’ technology skills, by incorporating activities that require students to use Excel for data analysis and Sage for practicing the use of cloud accounting software.

The simulation activity within the module provides an opportunity for students to develop broader business awareness beyond the specialist accounting and finance subjects that make up most of their degrees. The module is also one of the few modules in the BSc Accounting and Finance degree in which students are required to work in teams.

The assessment of the module incorporates a portfolio related to the technology aspects of the module worth 50%, a reflection worth 10%, and a group presentation related to the business simulation activity worth the remaining 40%.

IMPLEMENTATION OF ACCOUNTING BISSIM AT DMU IN A FINAL YEAR UNDERGRADUATE MODULE

At DMU, Accounting Bissim is used within an optional final year module called 'Managerial Development and Control' (MDC). The module is available to BA Accounting and Finance (A&F) and BA Accounting and Business Management (ABM) students. This is a 15-credit module that runs over two terms, giving the students 21 weeks of class time. The module is studied by a cohort of approximately 120 students.

The module emphasizes strategic management and related accounting concepts, tools, and techniques. Relevant theories of strategic management are introduced to students in the weekly lectures, whereas the accounting content, on the other hand, is drawn from other modules that students have either previously studied or are currently studying in their final year.

As well as developing strategic management skills, the module aims to develop two key employability skills: first, 'solving typical business problems' and second, the ability to 'work in small groups.'

There are two assessments: first, a business report to shareholders on the financial and external position of the business (completed after the first round of decisions and results), and second, a live online group presentation with students presenting on the final position and performance of their company to an incoming management team (completed after the final round of decisions and results). Each assessment is worth 50% of the module grade.

HOW DOES ACCOUNTING BISSIM SUPPORT EMPLOYABILITY SKILLS DEVELOPMENT?

In this section the authors share their experiences and provide some preliminary evidence of student perceptions of how the Accounting Bissim BSG supports the development of key employability skills in both the AIP module at Aston and the MDC module at DMU. For this purpose, the authors have used the 11 employability skills identified in the Chartered Management Institute report 'Work Ready Graduates: Building Employability for a Hybrid World' (CMI, 2021).

TABLE 1
Employers' Prioritisation of Employability Skills of Higher Education Institution Students

Employability Skills	Percentage of Employers Prioritising Skill
1. Teamworking	58%
2. Critical thinking and problem solving	54%
3. Communication	52%
4. Self-management	47%
5. Flexibility and adaptability	47%
6. Initiative and self-direction	44%
7. Digital skills	44%
8. Resilience	43%
9. Emotional intelligence	41%
10. Innovation and creativity	39%
11. Entrepreneurial skills	31%

Preliminary evidence of students' perceptions of the use of Accounting Bissim for employability skills development is provided from three sources: first through a questionnaire survey of Aston AIP students on completion of the AIP module; second, through the reflections of Aston AIP students on how their studies have enabled them to perform effectively in their work placement; and finally, through anecdotal feedback received from DMU students.

Taking each of these three sources in turn, first, the authors draw on a questionnaire survey which was distributed to Aston AIP students in February 2023, one month after they had completed the module. Whilst the purpose of this questionnaire

was not exclusively to support this paper, which explains why there is not a direct correlation between the list of CMI skills and those included in the survey, nevertheless the authors contend that this survey data provides useful, if partial, evidence to support this study.

Survey responses were received from 72 students which represented a response rate of 33% of the student cohort. In addition, comments were received from 24 students (being 33% of survey respondents and 11% of the student cohort). Students were asked to indicate which of eight key employability skills the Accounting Bissim BSG helped them to develop. The survey responses are summarized in the table below.

TABLE 2
Survey responses of Aston students on which employability skills the use of the Accounting Bissim simulation in the AIP module helped them to develop.

Employability Skills	Number (N = 72)	Percentage of Respondents
1. My ability to work in a team	66	92%
2. My ability to identify my own strengths and weaknesses	48	67%
3. My ability to express myself through speaking	57	79%
4. My ability to express myself through writing	37	51%
5. My ability to make decisions	65	90%
6. My ability to analyse data	65	90%
7. My time management skills	46	64%
8. My presentation skills	66	92%

Second, the authors drew on the reflective portfolios of a previous cohort of AIP students produced at the end of their placement year in May 2022, around 18 months after they had completed the module. All BSc A&F students at Aston are required to undertake either a work-based or study-abroad placement year in the third year of their program. As part of the assessment of this module, students are required to submit a reflective portfolio comprising six aspects of their personal development, the first of which involves a consideration of how their previous studies have enabled them to perform effectively in their placement. Many BSc A&F students draw on their experience of the AIP module for this reflection, which has provided some longitudinal evidence of students’ perceptions of how Accounting Bissim has supported their employability skills development.

Finally, the authors draw on unsolicited comments provided by DMU MDC students, often in the form of emails, in which students express their appreciation of the Accounting Bissim BSG experience and how they believe they have benefited from it.

EXPERIENCES AND PRELIMINARY EVIDENCE OF STUDENT PERCEPTIONS OF HOW THE ACCOUNTING BISSIM BSG SUPPORTS THE DEVELOPMENT OF THE CMI (2021) KEY EMPLOYABILITY SKILLS

1. TEAMWORKING

Student teams in the Accounting Bissim BSG are usually formed at random. This means that, often, students do not know their team members well before they commence the exercise. Their team members could be from different backgrounds, cultures, and countries from theirs. As students progress through the simulation rounds it becomes clear that they are moving through the classic ‘forming, storming, norming and performing’ stages of team development (Tuckman, 1965).

At both Aston and DMU, this pattern of group/team formation and development has been observed by the authors with teams coming together in the early stages of the simulation showing a certain amount of awkwardness as they may not know all of the team members. Often, there is one team member who is prepared to start the conversation and organize the team to review the relevant Accounting Bissim simulation information. As the teams spend increasing amounts of time together during the module, it is evident that team members start to take on roles, as suggested by Belbin (1981). This time is often where tutor involvement is at its highest as there can be discord due to more than one team member trying to play a particular team role, typically this is the role of ‘leader’. However, tutor intervention is more often limited to some guidance on the process and the teams settle into their roles. There have been occasions when the conflict between some team members has needed tutor intervention. However, this is rare. Many teams will, at this stage, start to organize team meetings outside of the formal classroom sessions to work on their simulation decisions. The ‘norming’ phase is clear to see as team members form into their teams voluntarily upon entry to the classroom and their behaviors and habits become repetitive. This leads them to perform

better as a team. This should not, however, be confused with the teams performing better in the simulation as teamwork is only one aspect that helps towards success there.

The highly interactive nature of the Accounting Bissim BSG also helps when it comes to assessing teamwork challenges, as used at both Aston and DMU. Due to the prolonged teamwork, and active student engagement needed throughout the simulation decision rounds, the authors observe that teams experience fewer problems than usual with so-called 'free riders' when faced with group assessments. Accounting Bissim, however, also offers the opportunity for assessments to be individually assessed whilst utilizing teamwork in a developmental manner. For example, at DMU, final presentation assessments were based on the teamwork decisions and performance of their business but were assessed individually from the perspective of each student in their functional role.

Development of teamwork skills was the number one skill development area in the Aston survey with 92% of respondents saying that, due to working with the Accounting Bissim BSG, they had developed their ability to work effectively in a team. Improved teamwork skills are often referred to by students in their module feedback. For example, one DMU student has commented as follows: "...it helped me personally build up my communication and teamwork skills whilst also getting to interact with other students...", whilst another reported:

"... it allowed us to work in teams and shows what real-life work would be like. It also allowed us to speak to people as [in] other modules it is a lot more difficult as some people don't want to talk, whereas here you have to as you are in a team".

2. CRITICAL THINKING AND PROBLEM-SOLVING

A combination of complex problems and ambiguous data in the Accounting Bissim simulation requires critical analysis and thinking from students in order to make sense of the information available and come to workable and sustainable decisions. For example, students can be asked to predict future sales for their business based on market demand forecasts.

There are other built-in issues in Accounting Bissim for students to deal with that need critical and innovative thinking to get to strategically sound and sustainable decisions, for example, non-compliance with environmental and pollution legislative requirements and a product with potential safety issues. The experience of the authors is that in the early part of the simulation exercise students struggle to analyze and assimilate all the information and data around these potential problems in order to get to a decision. Therefore, little critical thinking takes place, and, as a result, many teams face fines in the simulation for not complying with environmental and pollution legislative requirements. However, as this happens early in the simulation, it acts as a 'wake-up call' for students, and, from that point onwards, attention to the detail of problems in the simulation increases, and critical thinking, often on a group basis, starts. From this point, the teams become more confident in making business decisions.

Some of the business accounting aspects of the simulation in themselves require high-level thinking and problem-solving skills, such as managing working capital to be able to fulfill demand whilst conserving cash at the same time. In particular, the authors have observed that teams find the management of inventory levels, in conjunction with predicting sales and production levels, difficult in the early rounds of the simulation. As in the real-world business environment, this is a difficult balance in an ever-changing marketplace, but many students develop their critical thinking skills through the simulation rounds to achieve better forecasting and decision-making skills in this area.

In the Aston survey, 90% of respondents thought that their ability to analyze data had been improved by working with the Accounting Bissim BSG. One Aston student commented that the simulation "helped me interpret data...". Another reported that "I have been able to develop complex problem-solving skills and in turn independence and initiative".

The Aston survey also revealed that 90% of respondents felt that the simulation had improved their ability to make decisions, whilst a DMU student reported that using the simulation on the MDC module gave them, "insight more than any other [module] on the internal decision making that takes place in a business."

3. COMMUNICATION

Student development of oral communication skills is vital for teams to work successfully in the Accounting Bissim BSG. When making decisions in each round, the ability to discuss points articulately and listen to others actively is essential to make persuasive arguments. The authors spend some time with teams in the early decision rounds to help students navigate these team discussions. It is at this time that the authors also recognize the Belbin (1981) team roles starting to emerge.

At both Aston and DMU, the module assessments include a student presentation to provide an opportunity for students to work on their oral, physical, and written communication skills. In addition, a written report at DMU, and a coursework portfolio at Aston, require students to use appropriate written styles and formats for a professional audience.

In the Aston survey, 79% of students felt that the simulation improved their ability to express themselves through speaking, 51% through writing, and 92% responded that the Accounting Bissim BSG had developed their presentation skills. Student comments on improvements in oral communication because of using the simulation included: “I improved my skills on speaking and presenting to the audience”, and “[I] gained presentation skills and learned how to communicate effectively”.

With regards to improvements in written communications, one student reported: “The presentation improved my presenting skills and the writing of reports”. Another stated that they “... gained hands-on experience of writing emails”.

4. SELF-MANAGEMENT

Throughout the simulation, students are encouraged to critically reflect on the development of their own work-ready skills. In the DMU MDC module, students carry out an ‘Initial Skills Assessment’. This is centered upon the DMU Works Skills Matrix (Dattani-Demirci & Bowden, 2021) that fits closely with the 2021 CMI Report (see Figure 1 below). After each decision round, the tutor asks students to revisit this self-assessment and make a judgment on whether they have improved in any skill areas because of the simulation activities. This exercise takes on a high level of significance at the end of the module when the tutor and students discuss it in relation to potential employment.

FIGURE 1
The DMU Works Skills Matrix



Source: The DMU Works Skills Matrix (Dattani-Demirci and Bowden, 2021), © DMU, 2021

Students found this reflective exercise useful, with one commenting that the simulation incorporated “... extremely useful materials such as self-skill assessments that help with personal growth”.

Another important area of development for students’ self-management, as identified on the DMU Skills Matrix (2021), is task/time management. This is critical in the Accounting Bissim BSG as each decision round has a set deadline. The authors have often observed teams panic in the early rounds of the simulation as they struggle to finalize their business decisions by the set deadline. This can often be down to one student in the team not making a critical decision in time for the other team members to accommodate the related impacts of that decision in the other areas of the business. Task/time management, therefore, becomes a crucial area of development for many students.

As with other modules, task/time management is also an important aspect of self-management in relation to module assessments. It could be argued that the nature of the assessments used on the Aston and DMU modules heightens the importance of this skill area due to the reliance of team members on each other to complete individual elements of final assessment presentations on time to bring the whole presentation together and present a cohesive and coherent presentation package. The development of task/time management skills by students during the Accounting Bissim BSG can help students manage themselves to complete their assessment tasks on time.

In the Aston survey, 64% of respondents said that taking part in the Accounting Bissim BSG had developed their time management skills. An Aston student commented that "...communication, problem-solving, and time management are... skills I developed from... the Accounting in Practice module."

5. FLEXIBILITY AND ADAPTABILITY

As part of a management team in the Accounting Bissim BSG, students must be flexible in the way that they work with their team members, accepting that their way will not always be the most popular nor the only right way. The ability to accept others' input and be open to change is vital in building a successful business in the simulation.

With any team's results, for any given round, being not only dependant on their own decisions but also the decisions of their competitors and changes in market conditions in the simulation, students must adapt quickly to their situation to reflect on previous actions and adapt future decisions, and perhaps, their strategy to the new environment.

The authors have observed these skills in the simulation during student discussions and debates about the analysis of team results, future team business decisions, and preparation of presentations. An Aston student reflected on how the team adapted to the difficulties caused by two team members not being fully engaged in the activity:

"...to overcome the wide number of challenges we faced...me and my colleagues negotiated between ourselves the amount of additional workload that was going to be divided and coordinated with each other in order to make more coherent decisions, undertaking this additional workload with the fast approaching deadline helped me further develop my time management skills and to stay calm and calculated under pressure."

6. INITIATIVE AND SELF-DIRECTION

As outlined earlier, each business in the Accounting Bissim BSG requires several Director roles to be fulfilled as part of the management team. This allows each student to get to know their own business area and take the initiative in developments and decisions for that function. For example, the research and development opportunities offered to the teams in the Accounting Bissim BSG include projects to improve the product according to customer needs, thereby of interest to the Sales and Marketing Director, projects to reduce wastage and production cost, of interest to the Production Director, and projects to make the product more sustainable that are of particular interest to the Sustainability Director. The simulation, therefore, promotes an arena in which each of the team members can use their own initiative to suggest what they believe to be in the best interests of the business. Their ideas can then be fed into the team meetings to ensure that they are congruent with the strategic plan.

The authors have observed team discussions where individuals in the group challenged the ideas and wishes of the other group members and, through their developed communication skills, managed to persuade the group to their way of thinking. This is, of course, a delicate balance within the team dynamics and suggests that no one skill area will work particularly well in isolation from development in other skill areas. The authors have also witnessed dysfunctional team meetings, particularly in the early rounds of the simulation, when teamwork development is immature, due to individuals deciding that they 'know the way to do this.'

Whilst the simulation is a team-based exercise, the assessment strategies at both Aston and DMU allow for a significant element of self-direction and self-determination, with the inclusion of individual portfolios and individual presentation elements, all based upon the work carried out in the simulation.

In the Aston survey, 67% of respondents felt that the Accounting Bissim BSG developed their ability to identify their own strengths and weaknesses. This could be seen as a vital step in a student learning how to become self-directed.

Certainly, the authors have seen the confidence of many students to take the initiative and self-direct grow as the Accounting Bissim BSG progresses. This growth in confidence for students can change their view of both themselves and the opportunities open to them. To hear a DMU student say that the Accounting Bissim BSG, "... helped me envision myself in a professional

role in the future,” given the university’s mission around social mobility, is a very strong endorsement of its ability to help students develop self-direction.

7. DIGITAL SKILLS

In both modules, students use, and are encouraged to use, a range of professional digital tools to help them in the management of their business and the completion of related learning tasks. For example, a range of Microsoft applications are used as follows:

- Data analysis for decision-making using Excel.
- Development of a Balanced Scorecard using Excel.
- Communication with team members and tutors using Teams.
- Communication with a variety of business stakeholders (played by the tutor) using Outlook.
- Input to decision forms using OneDrive or OneNote.
- Presentations using PowerPoint.
- Portfolios and reports using Word.

In addition, informal communication is made by many of the teams using WhatsApp.

At DMU, the author has experienced students asking how they can further develop their Excel skills whilst working on Excel spreadsheets for the Accounting Bissim simulation. This would suggest that, whilst using the simulation does not necessarily significantly improve Excel spreadsheet skills itself, it at least gives students exposure to the business tools required in the real business environment. Students can then seek out opportunities to develop their skills further by working towards, for example, the suite of Microsoft Certifications, as happened at DMU.

8. RESILIENCE

The authors have found that students typically progress through four stages of experience during the Accounting Bissim BSG, as shown in Figure 2 below.

FIGURE 2
The Accounting Bissim Simulation: How it Feels for Students



For undergraduate students at both Aston and DMU, most will be unfamiliar with the working environment and will not have previous experience using business simulations. They are, therefore, faced with a new method of learning, working in a team with new people, on a new type of exercise. On top of this, they are faced with what can be a quite daunting amount of data and information. For many, this can be frightening.

Once underway, whilst developing new relationships, unfamiliar roles, and getting to grips with the simulation manual, teams often struggle in the first couple of rounds of the simulation which results in poor business performance and a weakening financial position. This can prove to be very frustrating for them as, particularly in accounting education, they are not used to working with imperfect information and other factors, in this case through market forces, having an impact on their performance. In accounting education, getting things wrong and 'failure' are not the norm. The simulation, however, provides a safe environment for this to happen, and most students demonstrate resilience in the face of this adversity as they continue to develop their relationships and decision-making capabilities. This allows the learning benefits of the simulation to be appreciated.

As students move through the decision rounds, the authors have seen their sense of ownership of the business and process grow as a team and a sense of 'fun' is displayed as they reconnect with their teammates in class and wait in anticipation of their business results being released.

As an example of this resilience, one DMU student explained:

"I must admit at first I wondered if I was capable of making the right decisions to run a business sustainably. However, ...I was able to do just that and more. Learning new management skills and using models in practice and applying them to the Bissim simulation gave an excellent representation of making real-life business decisions."

9. EMOTIONAL INTELLIGENCE

In the authors' experience, much of accounting education at universities is an individual pursuit. Students may have group assignments set but this is rarely completed as a team, it is more often done as a collection of individual tasks that are bolted together before submission. The Accounting Bissim BSG involves, and requires, students to work as a group, or team, towards a common objective.

As in the workplace, students do not get to pick who they work with. When moving from several individuals placed together randomly to a functioning, and then effective, team, the students need to get to know each other well. As an Aston student put it, 'The group meetings allowed me to speak to colleagues I wouldn't have spoken to.' This can be on a personal level but, for the purposes of running a simulated business, also develops into a professional understanding. On the MDC module at DMU for example, students would complete a 'team roles' exercise, based on the idea of Belbin's team roles (1981), early in the process to help them understand that they are not all the same and will work in different ways. Perhaps more importantly, the exercise shows that all the team roles are needed if they are to be successful as a team.

Over time and decision rounds, and sometimes with the intervention of the tutor as a facilitator, a better understanding between team members can be observed. As one student reported: "Teamwork involves other factors, such as trust and empathy."

The authors have observed that acceptance of different personalities, team role preferences, and skills tend to increase as the teams face an increasing number and complexity of decisions as they move through the rounds of the simulation, and a realization that 'not everyone is good at everything' starts to emerge. An Aston student states that "Working with people I didn't know improved teamwork and communication skills", whilst another states:

"...we had two [teammates who] had a more laid-back approach [so] me and my other colleagues held meetings to discuss the unfolding situation and tried various communication techniques, in order to make other managers undertake a more active approach."

Students must also work with the tutor in several different role plays, through which the tutor acts as a range of stakeholders, including, for example, customers, suppliers, legal representatives, and health and safety executives. This requires students to adapt their personal approach to the requirements of the situation and the stakeholders involved.

10. INNOVATION AND CREATIVITY

The Accounting Bissim BSG puts students at the helm of their own company. They must develop a strategy to compete against other teams in the market and put that strategy into action through their decisions. However, many simulations are bound by the 'rules of the game' and the capabilities of the software to accommodate non-standard decisions and actions.

The Accounting Bissim BSG can handle non-standard decisions and actions in a way that many more automated 'online' simulations are unable to. This is done through a set of 'controls' that a tutor can use to adjust a team's performance, for example, by giving them additional unit sales or reducing their cost of materials. This gives students the license to be

innovative and creative in their business management decisions as the possible outcomes of this can be discussed with the tutor, in the role of a relevant stakeholder, and then adjustments made in the software to reflect those outcomes. For example, an ethical commitment to customers that no child or slave labor will be used in the making of the product could be rewarded with a boost in sales, whilst a long-term commitment to order a particular quantity from a supplier could be rewarded with a reduced materials cost. With the tutor acting as a range of stakeholders, students can discuss and negotiate innovative and creative ideas with the relevant parties to determine the possible outcomes, and tutors can make this happen through the software controls.

The authors are constantly surprised by some of the innovative ideas that students propose. For example, purchasing one of the other businesses in the simulation, introducing after-sales servicing and repairs for the product, or complex deals to improve payment terms with suppliers.

11. ENTREPRENEURIAL SKILLS

At the start of the simulation, student teams take over the management of businesses in identical financial and commercial positions. The businesses need growth to survive and prosper and, therefore, need entrepreneurial skills and ideas from the management team to achieve this. The balance between short-term and long-term plans, actions, and results is a key entrepreneurial skill that students are exposed to. The authors have seen that teams will often start their management of the business in a desperate rush to achieve the highest sales volume for the year. As the decision rounds continue, this often gives way to a more balanced approach considering revenue, profit, cash flows, and the financial, and non-financial, health of the business over the longer term.

The Accounting Bissim BSG can help students understand and appreciate the basics of how businesses make money, survive, and prosper. This may sound rather simplistic. However, in the authors' experience, undergraduate accounting students, despite taking many classes that allude to it, often forget some simple financial principles, for example, sales revenue must be greater than total costs to make a profit, and businesses cannot operate without cash. The evidence for this is provided by teams rushing to drop sales price in the first round to generate sales without checking whether they will cover costs, and teams failing to consider their inventory levels when setting production quantities. Other commercial realities also come as a surprise to many accounting students. For example, if you do not spend adequate amounts of money on advertising, then your potential customers are unaware of your product offering. It is by making mistakes in these areas and then witnessing the outcomes of those decisions that students learn these fundamentals.

Additional entrepreneurial skill decision areas for students include, amongst others, building market share, product development, ethical trading principles, and raising finance. However, the authors also see the Accounting Bissim BSG developing drive, persistence, and resilience in students as key entrepreneurial characteristics.

Through the combination of the competitive market forces and additional exercises that students complete in the Accounting Bissim BSG, students are exposed to many of the commercial realities of trying to grow a business and learn from the mistakes and successes along the way, as an entrepreneur would. In the authors' view, this, ultimately, identifies a student's personal risk appetite, which is something that they may need to learn about themselves to determine their future career direction.

CONCLUSIONS

In this paper, the authors contribute valuable insights into the use of BSGs for employability skills development for specialist undergraduate accounting students, a subject that has received relatively little attention in prior literature. The authors' experiences are potentially of interest to other educators seeking to use BSGs for employability skills development, particularly in accounting undergraduate programs.

Within the paper, the authors have explained how they have used the Accounting Bissim BSG at Aston and DMU as an experiential learning activity that supports the development of all 11 of the key employability skills required of students by today's employers, as identified by the CMI (CMI, 2021), namely:

1. Teamworking
2. Critical thinking and problem-solving
3. Communication
4. Self-management
5. Flexibility and adaptability
6. Initiative and self-direction
7. Digital skills

8. Resilience
9. Emotional intelligence
10. Innovation and creativity
11. Entrepreneurial skills

The study draws on quantitative and qualitative data obtained from students at Aston and DMU which provides some positive support for the authors' experiences, with survey data from Aston suggesting that students perceive the Accounting Bissim BSG supports the development of the following employability skills in particular: team-working, presentation skills, data analysis and decision-making.

This paper represents a preliminary investigation into the use of the Accounting Bissim BSG for employability skills development and the authors acknowledge there are several limitations to this study. First, being directly involved in the development of the Accounting Bissim BSG means that the authors may be biased in their selection, presentation, and interpretation of the data available and the outcomes. Second, the study is based on only two institutions and one specific simulation which may limit the generalizability of the findings to other settings and other simulations. Third, the response rate for the survey was relatively low (33%) which means the responses may not reflect the views of the student population as a whole and this is compounded by the risk of response bias as the survey was administered during seminars which means the responses were drawn from a sample of students who might be expected to be more positive about their university experiences than those who did not attend. The same potential response bias also applies to the unsolicited comments provided by DMU students, which, whilst providing some qualitative depth, could be biased towards those of the most engaged students. Fourth, there is also the risk that the survey data which relies on students' self-reported perceptions may not provide a reliable measure of actual skill gains. Finally, the case study design used in this study means that it is not possible to establish causal relationships. Students' self-reported improvements in employability skills cannot be conclusively linked to the use of the Accounting Bissim simulation as other external factors and educational experiences have not been considered.

There are several opportunities for further research. First, future studies could include a larger student population, for example by including a survey of DMU MDC students to increase the potential applicability of the findings. Second, more extensive longitudinal research could provide insights into the longer-term benefits of the simulation on employability skills development. Third, a pre-and-post study design in which students' skills are assessed before and after participating in the simulation could offer more compelling evidence of the impact of the simulation on employability skills. Fourth, incorporating more objective assessments of performance could validate or replace self-reported data and thereby provide a more reliable measure of students' employability skills. Fifth, further studies could incorporate bias mitigation methods, for example, by the inclusion of a researcher who has not been directly involved in the development of the simulation. Finally, implementing a controlled experimental design including a control group would provide stronger evidence of the simulation's impact, though such a study would create potential ethical concerns.

REFERENCES

- Abdullah, N. L., Hanafiah, M. H., & Hashim, N. A. (2013). Developing Creative Teaching Module: Business Simulation in Teaching Strategic Management. *International Education Studies*, 6, 95-107.
- Albanese, M. A., & Mitchell, S. (1993). Problem-based learning: a review of literature on its outcomes and implementation issues, *Academic Medicine: Journal of the Association of Medical Colleges*, 68(1), 52-81.
- Almeida, F., & Buzady, Z. (2019). Assessment of entrepreneurship competencies through the use of FLIGBY, *Digital Education Review*, 35, 151-169.
- Behn, B. K., Ezzell, W. F., Murphy, L. A., Rayburn, J. D., Stith, M. T., & Strawser, J. R. (2012). The Pathways Commission on Accounting Higher Education: Charting a National Strategy for the Next Generation of Accountants, *Issues in Accounting Education*, 27(3), 595-600.
- Belbin, R. M. (1981). *Management Teams. Why They Succeed or Fail*, Heinemann, London.
- Bhavani, G., Mehta, A., & Dubey, A. (2020). Literature Review: Game-Based Pedagogy in Accounting Education. *International Journal of Financial Research*, 11(6), 163-176.
- Bonwell, C. C., & Eison, J. A. (1991). *Active learning: Creating excitement in the classroom*. 1991 ASHE-ERIC higher education reports. ERIC Clearinghouse on Higher Education, The George Washington University, One Dupont Circle, Suite 630, Washington, DC 20036-1183.
- Carnegie, G., Parker, L., & Tsahuridu, E. (2020). It's 2020: What is Accounting Today? *Australian Accounting Review*, 31(1), 65-73.
- Chartered Management Institute. (2021). *Work Ready Graduates: Building employability for a hybrid world*, London, United Kingdom.
- Cheng, M., Adekola, O., Albia, J., & Cai, S. (2022). Employability in higher education: a review of key stakeholders' perspectives, *Higher Education Evaluation and Development*, 16(1), 16-31.
- Costin, Y., O'Brien, M. P., & Hynes, B. (2019). Developing cognitive and non-cognitive entrepreneurial competencies through business simulation games, *Journal of Enterprising Culture*, 27(4), 471-498.

- Davies, M., Yates, D., & Potts, M. (2021). Bringing Accounting Courses to Life using Simulation Based Learning (SBL): The Case of Accounting Bissim. In Elliott, C., Guest, J. & E. Vettraino (eds.) *Games, Simulations and Playful Learning in Business Education*, Cheltenham: Edward Elgar.
- Dattani-Demirci, L., & Bowden R. (2021). *DMU Works Skills Matrix*, Faculty of Business and Law, De Montfort University, Unpublished.
- Faisal, N., Chadhar, M., Goriss-Hunter, A., & Stranieri, A. (2022). *Business Simulation Games in Higher Education: A Systematic Review of Empirical Research*, *Human Behavior and Emerging Technologies*, 2022(1), pp. 1- 28.
- Farashahi, M., & Tajeddin, M. (2018). Effectiveness of teaching methods in business education: a comparison study on the learning outcomes of lectures, case studies, and simulations, *The International Journal of Management Education*, 16 (1), 131–142.
- Honebein, P. C. (1996). Seven goals for the design of constructivist learning environments. In *Constructivist learning environments: Case studies in instructional design*, 11-24, Englewood Cliffs, NJ: Educational Technology Publications.
- Huang, Y-M., Silitonga, L. M., & Wu, T-T. (2022). Applying a business simulation game in a flipped classroom to enhance engagement, learning achievement, and higher-order thinking skills, *Computers and Education*, 183(2022), 104494.
- Kaminsky. P., & Simchi-Levi, D. (1998). A new computerized beer game: a tool for teaching the value of integrated supply chain management, *Global Supply Chain Technology Management*, 1(1), pp. 216–225.
- Kerridge, C., & Evans, J. (2023) *Employment Skills Development in a Simulation Activity: An investigation of postgraduate student perceptions*. *Developments in Business Simulation and Experiential Learning, Proceedings of the Annual ABSEL conference*, 50(2023), 397-399.
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice-Hall.
- Kriz, W. C., & Auchter, E. (2016). 10 years of evaluation research into gaming simulation for German entrepreneurship and a new study on its long-term effects, *Simulation Gaming*, 47(2), 179–205.
- Larreche, J.-C., & Gatignon, H. (1977). *MARKSTRAT: a marketing simulation game*, Palo Alto, CA: Scientific.
- Levant, Y., Coulmont, M., & Sandu, R. (2016). Business simulation as an active learning activity for developing soft skills, *Accounting Education*, 25(4), 368–395.
- Lovelace, K. J., Eggers, F., & Dyck, L. R. (2016). I do and I understand: Assessing the utility of web-based management simulations to develop critical thinking skills, *Academy of Management Learning & Education*, 15(1), 100–121.
- Pitic, D. & Irimiaş, T. (2023). Enhancing students' engagement through a business simulation game: A qualitative study within a higher education management course, *The International Journal of Management Education*, 21(3), 100839.
- Ricciardi, F. M. and Marting, E. (1957). *Top management decision simulation: The AMA approach*, American Management Association.
- Riley, R. A., Cadotte, E. R., Bonney, L., & MacGuire, C. (2013). Using a Business Simulation to Enhance Accounting Education. *Issues in Accounting Education*, 28(4), 801 - 822.
- Roehl, A., Reddy, S. L. & Shannon, G. J. (2013). The Flipped Classroom: An Opportunity To Engage Millennial Students Through Active Learning, *Journal of Family and Consumer Sciences*, 105(2), 44 – 49.
- Sava, R. (2016). Using Interactive Methods in Teaching Accounting, *Studies in Business and Economics*, 11 (2), 130-139.
- Tawil, N., Hassan, R., Ramlee, S., & K-Batcha, Z. (2015). Enhancing entrepreneurship skill among university's students by online business simulation, *Journal of Engineering Science and Technology*, 6, 71–80.
- Tuckman, B. W. (1965). Developmental sequence in small groups, *Psychological Bulletin*, 63(6), 384–399.