Enhancing students' understanding and performance in a distance-learning setting: evidence from an audit simulation at a GCC university

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Abstract

Purpose – Drawing on experiential learning theory (ELT), this study aims to examine students' performance and perceptions after performing an experiential learning activity (ELA) by completing a mini-audit simulation (AS) on the purchase and cash disbursement processes in a distance-learning environment at a Gulf Cooperation Council (GCC) university.

Design/methodology/approach – Adopting a mixed-methods approach, we collected quantitative and qualitative data from 176 students using the grade centre on Blackboard and their responses to a semi-structured questionnaire.

Findings – The pre-and post-simulation tests indicate significant improvement in students' understanding and performance after performing the mini-AS. The students' responses also provide robust evidence of student engagement, active participation and positive recognition of the AS's value.

Practical implications – This study has several implications: for the accounting education literature, how AS strengthens in-depth learning through the lens of ELT; for professional accounting bodies, informing the need to maximise the awareness and benefits of adopting simulations in accounting education and examination; and for educators, considering simulations in their ELAs to enhance student learning.

Originality/value – This study introduces a new authentic mini-AS instrument that can be adapted to a distance-learning setting, adds to the very limited studies in AS using ELT, uses a mixed-methods approach and explores students who learn in an Arabic-speaking country.

Keywords Audit simulation, Distance learning, Experiential learning, Student performance, Mixed-methods, GCC region

Paper type Research paper

1. Introduction

Accounting education has been called upon to foster a practice-oriented learning environment to improve the quality of accounting graduates entering the profession

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(Nehme *et al.*, 2022; Gittings *et al.*, 2020). Many accounting educators have thus used experiential learning activities (ELAs) over the past two decades to enhance students' learning (Chiang *et al.*, 2021; Butler *et al.*, 2019; Fadol *et al.*, 2018). However, while simulations are among the most effective types of ELAs, a recent systematic review study about ELAs by Gittings *et al.* (2020) highlights that only 11 of 50 studies involving ELAs in accounting education over the past 25 years have used a simulation, and only four of those were in auditing. These four studies are De Villiers (2016), Tate and Grein (2009), Siegel *et al.* (1997) and Pillsbury (1993). In addition, other audit simulation (AS) studies that do not explicitly state their learning framework (Saadullah and Elsayed, 2020; Edmonds *et al.*, 2019; Van der Merwe, 2013; Clikeman, 2012; Zelin, 2010) also facilitate experiential learning through simulations.

Higher education accreditation provisions such as the standards of the Association to Advance Collegiate Schools of Business (AACSB) call to provide students with more real-world experience, encourage students to become active learners and incorporate technology within the curriculum (AACSB, 2020). In response to these calls, an ELA in the form of a mini-AS is constructed and used by this study drawing on the experiential learning theory (ELT) (Kolb, 1984). ELAs bring theory into practice by providing students with experiential learning opportunities like case studies, live cases, simulations, field trips, work placements, role plays and educational games (Stanley, 2017; Taplin *et al.*, 2017) to facilitate their learning and performance. However, while student academic performance measures learning improvement, Gittings *et al.* (2020) highlight that only 18% of the ELAs studies in accounting education use this measure. In addition, they find that only 34% of these studies use mixed methods, whereas the vast majority adopt either quantitative (40%) or qualitative (26%) methods. In this study, we examine students' performance by comparing their academic performance outcomes using pre- and post-simulation tests and conducting quantitative and qualitative analyses of their perceptions to capture how students perceived the benefits of performing a mini-AS instrument.

AS creates a virtual reality that facilitates deep experiential learning and adequately helps in preparing future auditors for their profession (De Villiers, 2016; Levant *et al.*, 2016). Past simulation studies have covered many areas in auditing, including audit planning (Schatzel, 2011; Zelin, 2010); revenue process (Saadullah and Elsayed, 2020; Miller and Savage, 2009); internal control testing (Schatzel, 2011); inventory (Clikeman, 2012; Zelin, 2010); accounts receivable (Edmonds *et al.*, 2019; Zelin, 2010); fixed assets (Zelin, 2010); corporate assets, liabilities and equity (Massey *et al.*, 2002); tending to client queries (Van der Merwe, 2013); and the entire audit process (Chiang *et al.*, 2021; Swanger and Jones, 2012; Worrell, 2010; Steenkamp and Rudman, 2007). However, we did not find a simulation study that focuses on the purchase and cash disbursement processes.

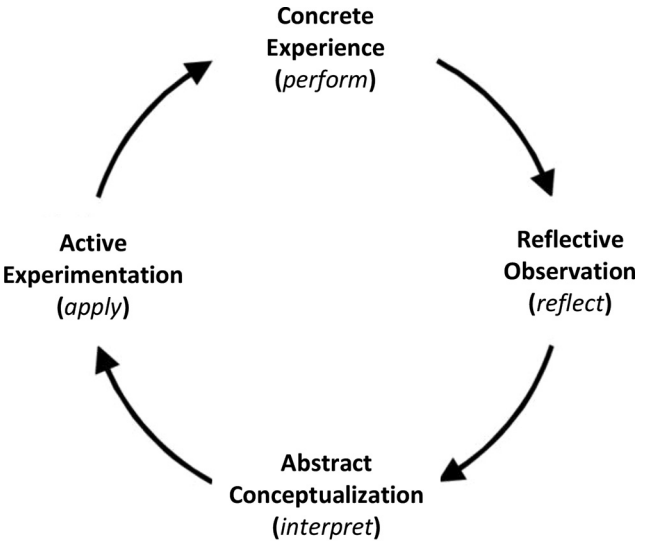
Our study contributes to the literature on AS in several ways. Firstly, we construct a new authentic mini-AS instrument for the purchase and cash disbursement processes that can be adapted to a distance-learning setting, especially after the spread of the COVID pandemic in 2020 (Ng and Harrison, 2021; Sangster *et al.*, 2020). This AS involves vouching and tracing documents, testing management assertions and resembling real audit work, which fosters lifelong learning as encapsulated in the ELT. Secondly, this study adds to the only four AS studies using ELT in auditing (Gittings *et al.*, 2020). Thirdly, this study adopts a mixed-methods approach to capture the impact of the AS in enhancing students' understanding and performance outcomes and how students perceive the benefits of performing an AS. This approach is widely used in social science research (Johnson *et al.*, 2007) and

acknowledged in accounting education research (Lamprecht and Guetterman, 2019) in providing better quality research outcomes. Finally, we explore the emerging themes that reflect students' perceived benefits from an AS at a Gulf Cooperation Council (GCC) university; this offers a new perspective since most AS studies have been carried out in the Anglo–American or common-law universities, whose accounting systems have characterised by flexibility and professionalism (Sangster *et al.*, 2020). Therefore, we contribute to exploring whether students' perceived benefits from an AS in English-speaking universities also apply to GCC universities. GCC includes Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates (Secretariat General of GCC News, 2021). The native language in these countries is Arabic, while English is the dominant second language.

The remainder of this paper is organised as follows. Section 2 highlights the theoretical perspective of experiential learning, literature review and hypotheses development. Section 3 presents the data collection methods and analyses, along with a description of the mini-AS instrument and its implementation process. Sections 4 and 5 present and discuss the findings, while Sections 6 and 7 provide the concluding remarks, implications, limitations and areas of future research.

2. Theoretical perspective, literature review and hypotheses development

This study uses ELT to examine students' performance and perceptions from performing a mini-AS instrument. ELT places a central emphasis on learning by doing (Kolb and Kolb, 2005). Kolb (1984) envisions the focal point of learning to be an immediate and concrete personal experience that gives life, texture and subjective personal meaning to abstract concepts. This theoretical perspective involves a learning cycle that includes concrete experience, reflective observation, abstract conceptualisation and active experimentation (Kolb, 2014, 1984). A simplified form of these four components is illustrated in Figure 1 and involves performing, reflecting, interpreting and applying (Butler *et al.*, 2019). Kolb (1984, p. 38)



Source: Kolb (1984)

Figure 1. Experiential learning cycle

defines experiential learning as "[. . .] the process whereby knowledge is created through the transformation of experience". Kolb further explains that learning is a process and not an outcome and that knowledge is a transformation process that is created and re-created continuously.

Consistent with Butler *et al.* (2019), ELAs within the ELT framework enable learners to participate in a concrete experience (i.e. performing an experience), perceive and reflect on that experience (what was done or observed), interpret the experience (what was learnt) and apply knowledge (what decisions are formed). In addition, the review study of Gittings *et al.* (2020) articulates that studies in accounting education over the past two decades have demonstrated two primary benefits of using ELAs:

(1) enhancement of student competency through the ELAs; and

(2) student satisfaction while engaging with the ELAs.

The enhancements in students' competencies would include technical knowledge and comprehension (Castro *et al.*, 2021; Siegel *et al.*, 1997), precise application of theory (Stanley, 2017; Gujarathi and McQuade, 2002) and transferable skills (Ng and Harrison, 2021; Holmes and Sullivan, 2018). The aspects of students' satisfaction with the ELAs would include attitude and satisfaction (Taplin *et al.*, 2017; Marriott, 2004), perceptions of skills and knowledge importance (Adler *et al.*, 2021; Bautista-Mesa *et al.*, 2018) and engagement (Castro *et al.*, 2021; Krom, 2012).

Several prior studies have discussed the enhancement of technical knowledge and comprehension. For instance, Nehme *et al.* (2022) find that work-integrated learning is perceived as a catalyst of functional audit behaviour from an educational perspective. In another example, Castro *et al.* (2021) reveal that implementing advanced learning activities (e.g. vodcasting and discussion forums) enhances students' knowledge construction, engagement and performance outcomes. Stanley (2017) also reports findings from interviews with employers with whom accounting students held internships doing real accounting work, highlighting the benefits of real-world application of accounting standards and tax laws. Moreover, Gujarathi and McQuade (2002) require students to provide voluntary service to different organisations followed by a report on their experience; they illustrate the benefits of applying knowledge learnt in the intermediate accounting course through serving clients. Furthermore, Ng and Harrison (2021) and Holmes and Sullivan (2018) observe improvements in transferrable skills in students, including professional demeanour, leadership, communication, project management, problem-solving and decision-making. Since the AS enhances learning by doing, we expect that student performance outcomes in the post-simulation test are significantly better than in the pre-simulation test. Stated in the form of a substantive hypothesis:

H1. Students' post-simulation performance outcomes are significantly higher than their pre-simulation performance outcomes.

Studies in accounting education involving ELAs provide evidence of student satisfaction, engagement and positive attitude towards ELAs (Adler *et al.*, 2021; Saadullah and Elsayed, 2020; Marriott, 2004). Adler *et al.* (2021) examined the learning satisfaction factors of business students and revealed that they perceived high importance to lecturer-based factors (e.g. communication, management of classroom experience and provision of learning activities) than the institutional factors (such as textbook support and physical learning environment). Saadullah and Elsayed (2020) also documented high student satisfaction and enjoyment and increased students' interest in the discipline. Similarly, Marriott (2004) reported several student comments demonstrating that the students enjoyed the experience

despite the challenge they faced during the activity. Accounting ELA studies (Gittings *et al.*, 2020; Bautista-Mesa *et al.*, 2018) also reported positive and significant changes in students' perceptions of technical accounting knowledge and soft skills like communication once they have undergone the ELA. However, all the previous studies have been conducted using face-to-face teaching; none has been undertaken in a distance-learning setting. Based on the students' satisfaction and engagement expected while performing a mini-AS instrument, we expect students to have higher satisfaction levels and perceived value of the simulation-based experience in enhancing their understanding and performance in a distance-learning environment. Stated in the form of a testable hypothesis:

H2. Students are satisfied with the mini-AS experience in the distance-learning setting and perceive its value-added in enhancing their understanding and performance.

Since AS is an ELA that narrows the gap between audit theory and practice, ELT seems an appropriate theoretical lens to examine students' performance and perceptions from performing a mini-AS at a GCC university in a distance-learning setting.

3. Methodology

3.1 Data collection methods and analyses

Johnson *et al.* (2007, p. 120) articulate mixed methods research as:

> [. . .] the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study or set of related studies.

This research design guided our study's data collection to examine students' performance and perceptions from implementing a mini-AS assignment, followed by testing the research hypotheses. This study uses two data collection methods:

(1) students' grade centre on the Blackboard e-learning platform to test the improvement in their performance outcomes as hypothesised in *H1*; and

(2) an anonymous semi-structured online questionnaire to examine students' satisfaction and perceptions of the AS experience as hypothesised in *H2*.

This study uses the most appropriate quantitative measure, pre- and post-test scores, consistent with Gittings *et al.* (2020), to test the improvement in students' performance outcomes resulting from their participation in the mini-AS experience. The students were tested on the content of purchase and cash disbursement processes before performing a mini-AS instrument through the pre-test. Once the students completed the mini-AS, they were given another test on the same content with a similar weight (post-test). We, therefore, use the grades of these two tests to compare students' performance outcomes before and after the mini-AS to test *H1*.

This study also adopts a questionnaire to collect students' perceptions about the mini-AS as it has been used by the vast majority of the accounting education literature (Saadullah and Elsayed, 2020; Edmonds *et al.*, 2019; Clikeman, 2012; Worrell, 2010). Our questionnaire includes:

- students' demographic information [e.g. gender, year of study, grade point average (GPA) and age];
- eight statements to measure students' perceptions of the mini-AS experience and its added-value [adapted from surveys used by Saadullah and Elsayed (2020) and Clikeman (2012)]; and
- an open-ended question for eliciting more in-depth perceptions and additional comments about the mini-AS experience.

Students' responses to the eight statements are based on a five-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). The questionnaire was anonymous and completed online by students via the Blackboard e-learning platform. The questionnaire was pre-approved by the university Institutional Review Board where the study was conducted, as mandated by the university research code. This semi-structured online questionnaire is presented in the Appendix.

For qualitative analysis purposes, this study uses thematic analysis. It is " [. . .] one of a cluster of analytic approaches that researchers can use to identify patterns of meaning across a qualitative dataset" (Braun *et al.*, 2016, p. 191). It offers flexibility and accessibility in clarifying how the qualitative data was examined (Braun *et al.*, 2016; Braun and Clarke, 2006). This study adopts this data analysis method to explore students' perceptions from performing a mini-AS. In doing so, the following six steps of thematic analysis proposed by Braun and Clarke (2006) are followed.

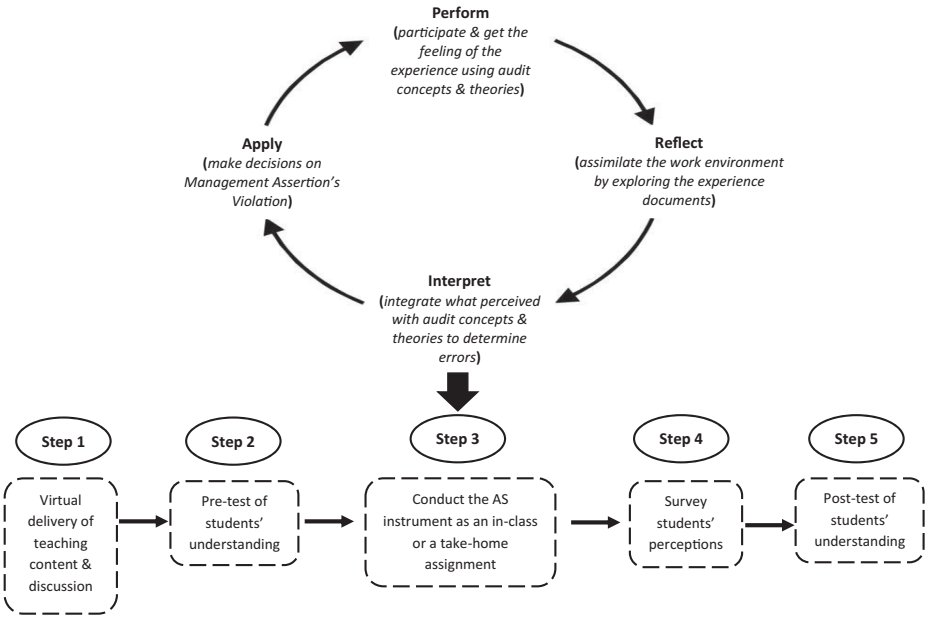
After collecting students' responses (Step 1), we separated and sorted these responses by participants using open coding (Step 2). Open coding was used to select the appropriate theoretical perspective to support the discussions. Besides the students' demographic information, we coded their responses to the questionnaire items. After that, we analysed and categorised the list of these codes and created consistent patterns (i.e. themes) based on the eight statements adapted from Saadullah and Elsayed (2020) and Clikeman (2012) (Step 3) to summarise their responses. In addition, we noted the appearance and frequency of these codes to form generalisations about the outcomes (Step 4). Then, we conducted the processes of theme naming (Step 5) and interpretation for writing up the results (Step 6) by referring to the relevant literature and the adopted theoretical perspective and consulting with colleagues. Finally, we selected a sample of the participants' responses to each question that we considered representative of the assigned theme (Braun and Clarke, 2012) to facilitate presenting their responses.

3.2 Audit simulation description and implementation

A new authentic mini-AS instrument was constructed to give students hands-on experience in performing parts of the substantive procedures related to transactions and balances in the purchase and cash disbursement processes of a fictional ice cream company. This mini-AS experience was implemented for students taking an undergraduate auditing course at a large public university accredited by the AACSB in the GCC region. The instructors used the textbook materials of Messier *et al.* (2012) to teach students the auditing of the purchase and cash disbursement processes.

Students independently undergo the mini-AS that contains messy issues and incorporate the four components of the ELT framework, as illustrated in Figure 2. Firstly, the students participate and get the feeling of experience using audit concepts and theories (i.e. perform a task). Secondly, they assimilate the work environment by exploring the documentation set of the mini-AS (i.e. what was perceived). Thirdly, they integrate what is perceived with audit concepts and theories to determine the embedded errors from the vouching and tracing of the mini-AS documents (i.e. what was learnt). Fourthly, they document the errors and the corresponding violated management assertions to decide whether the accounts are fairly stated or not (i.e. what decisions are formed).

We conducted the study in five steps. Firstly, we taught the content of purchase and cash disbursement processes to the students through online lectures after the spring 2020 shift to a distance education environment because of the COVID pandemic. Secondly, we tested the students' understanding of the lecture content with a test administered online. Thirdly, we conducted the mini-AS using the Blackboard e-learning platform. Fourthly, we surveyed the



Source: Constructed by the authors

Figure 2.
Audit simulation implementation process

students to gather their perceptions about the mini-AS experience. Finally, we re-tested the students' understanding of the same content under conditions identical to the second step. Figure 2 also depicts these steps of implementing our study.

3.2.1 Step 1: delivery of content. We delivered content on the purchase and cash disbursement processes via online lectures while encouraging student participation through asking questions and making comments. The spring 2020 semester started with face-to-face classes, but these were suspended immediately after the mid-semester break due to the COVID pandemic. The topic of the purchase and cash disbursement processes was thus taught using live online classes that were also recorded and made available to students.

3.2.2 Step 2: testing of students' understanding. We conducted a short online test to assess the students' understanding of the purchase and cash disbursement processes. This test included multiple-choice, true/false and matching questions. The questions were presented to the students randomly and one at a time. The students, therefore, were only allowed to move to the next question upon answering the question at hand, and backtracking to the previous question was prohibited.

3.2.3 Step 3: conducting the mini-audit simulation instrument. We initiated the mini-AS instrument in step three. We used two different virtual methods of conducting the mini-AS experience. In the first method, the mini-AS with instructions was made available to students on the Blackboard e-learning platform. They were then given two hours to complete the simulation; we refer to this method as the in-class mini-AS assignment. During those 2 h, the instructor was present online to answer students' inquiries and provide support for any technical difficulties. In the second method, the students were allowed two days to work on the mini-AS at home; we refer to this method as the take-home mini-AS assignment. During

this period, instructors were also available to answer students' questions via email and help with any issues students faced during the mini-AS assessment. In both methods, the students worked on the mini-AS instrument individually and documented their findings in the error documentation worksheet (*contact the authors for the teaching materials*).

The students then completed a test via the Blackboard related to their findings from examining the mini-AS documents at the end of the allocated time. This test included ten pairs of true/false questions randomly given to each student to complete within a specific time. The questions were presented to the students separately, and students were prohibited from backtracking to the previous question once they had answered and moved to the next question. The mini-AS test and the suggested solutions can be requested from the authors.

3.2.4 Step 4: survey to gather students' perceptions. Immediately following their experience with the mini-AS, the students completed a voluntary and anonymous questionnaire via the Blackboard to provide their perceptions and comments on the mini-AS experience.

3.2.5 Step 5: re-testing of students' understanding. Once the mini-AS experience had been completed and graded, the students were re-tested, under conditions similar to step two, on the content materials of purchase and cash disbursement processes to assess whether their understanding and performance had improved after performing the mini-AS instrument.

In spring 2020, three instructors offered the mini-AS instrument to 176 students in both the Arabic and English tracks, divided into six sections. All students participated in the mini-AS experience and completed the questionnaire, with a few missing items. Table 1 shows the demographic information and descriptive statistics of the participants in the mini-AS instrument, which included 51 males, 125 females, 29 juniors and 147 seniors. The average GPA of the participants was 2.87, and the average age of the students who reported their age was 21.56. Two sections with a total of 40 students performed the mini-AS within two hours, which we consider an in-class assignment, while the remaining four sections with 136 students were allowed two days, which we consider a take-home assignment.

4. Findings

This section presents the outcomes of examining students' performance and perceptions from performing the mini-AS instrument. It starts with the empirical results, followed by the qualitative outcomes.

Table 1. Demographic information and descriptive statistics for students conducted the mini-AS and completed the questionnaire ($N = 176$)

Panel A: Demographic information

	N	(%)
Gender		
Male	51	29
Female	125	71
Total	176	100
Year of study		
Year 3 (Junior)	29	16
Year 4 (Senior)	147	84
Total	176	100

Panel B: Descriptive statistics

	Mean	Median	Mode	SD	Min	Max
GPA	2.87	2.89	2	0.624	1.8	4
Age	21.56	21	21	1.647	20	29

4.1 Empirical results

Table 2 shows the results of performing a paired *t*-test analysis to determine whether the mini-AS experience made a significant difference in the students' performance outcomes based on their test grades. Although the total registered students in the course (176 students) completed the mini-AS instrument and its questionnaire, eight students missed either the pre-simulation test or the post-simulation test resulting in 168 students who took both tests. The results articulate a higher mean score for the post-test (87.21) compared to the pre-test (79.10). The mean difference between the two tests (M = 8.11, SD = 15.48, N = 168) is significantly greater than zero (*t*-stat = −6.79, two-tail p = 0.0000), providing evidence that the mini-AS instrument was effective in improving students' grades.

We also analyse student performance for the two virtual methods of the mini-AS: in-class (n = 40) and take-home (n = 136). Table 3 shows that both methods improved students' performance outcomes in the post-test. The mean score in the post-test is significantly higher than the pre-test score (p-value < 0.01) with around 8%. These results of Tables 2 and 3 are consistent with prior literature (such as Holmes and Sullivan, 2018; Stanley, 2017; Marriott, 2004), indicating improvements in students' knowledge and performance due to

Statistics	Pre-test		Post-test
Mean	79.10		87.21
Variance	146.76		194.46
Observations	168		168
Pearson correlation		0.3000	
Mean difference		8.11	
Hypothesised mean difference		0	
df		167	
t Stat		−6.7852	
P(T <= *t*) one-tail		0.0000	
t Critical one-tail		1.6540	
P(T <= *t*) two-tail		0.0000	
t Critical two-tail		1.9743	

Note: *Eight of 176 registered students missed the pre-test or post-test

Table 2. Paired *t*-test: students' performance in pre- and post-simulation tests (N = 168)*

	In-class		Take-home	
Statistics	Pre-test	Post-test	Pre-test	Post-test
Mean	87.17	95.16	76.58	84.73
Variance	72.68	45.05	143.79	215.77
Observations	40	40	128	128
Pearson correlation	0.4523		0.1828	
Mean difference	7.99		8.15	
Hypothesised mean difference	0		0	
df	39		127	
t Stat	−6.2217		−5.3635	
P(T <= *t*) one-tail	0.0000		0.0000	
t Critical one-tail	1.6849		1.6569	
P(T <= *t*) two-tail	0.0000		0.0000	
t Critical two-tail	2.0227		1.9788	

Table 3. Paired *t*-test: comparison of pre- and post-simulation tests by AS instrument

applying a real-world AS experience. Participating in, reflecting on, thinking about and applying audit concepts and theories can effectively construct audit knowledge (Butler *et al.*, 2019; Kolb and Kolb, 2005) and maintain it as lifelong learning (Gittings *et al.*, 2020).

Table 4 demonstrates the results obtained from the anonymous online questionnaire that was designed to collect students' perceptions of the mini-AS experience. All 176 students completed the eight perception statements related to the AS (except one or two students who missed a few statements), and 63 students provided additional comments by answering the open-ended question. Results outline that the mean score for each statement is above 4.4 (on a five-point Likert scale), indicating that students were satisfied and recognised the value-added by the mini-AS to their understanding and performance. The *t*-test is used to compare the difference between the participants' mean responses for each statement and the neutral value of 3 to confirm our *H2*. We find that the participants' mean responses for all statements are significantly above 3 (*t*-test *p*-value < 0.01), supporting students' positive perceptions about the added value of the AS experience. These findings align with the prior studies of Saadullah and Elsayed (2020) and Krom (2012), emphasising an increase in student engagement, enjoyment and satisfaction while performing ELAs. Linking these ELAs with a real workplace environment would increase students' awareness of the profession (Kolb, 2014) and their satisfaction in becoming competent members of that profession (De Villiers, 2016).

Additionally, comparison analyses of students' perceptions are conducted between the two virtual methods of the mini-AS instrument: in-class students (n = 40) and take-home students (n = 136). Although the mean responses for both groups are higher than 4, Table 5 indicates that the mean scores on the eight statements for the in-class assignment are consistently higher than those who took home the assignment. However, the *t*-test for the difference in means between the two groups shows that the in-class students have significantly higher means at 1% level for Statements 1, 7 and 8 while having a marginally significant difference at 10% for Statements 3 and 4. These results generally provide evidence that the in-class students' perceptions of the value added by the mini-AS are substantially better than those of the take-home students. The in-class students place more value on the AS in improving their audit knowledge, understanding of error detections and level of enjoyment. Furthermore, they significantly recommend using the instrument in the future.

Statements related to the AS	*N*	Mean*	SD	Var.	Min	Max
Improved my understanding of the procedures auditors use to detect errors in the cash disbursement process	175	4.66	0.51	0.26	3	5
Made me familiar with the documents related to the cash disbursement process	175	4.65	0.51	0.26	3	5
Helped me understand some of the errors that might occur in the cash disbursement process	174	4.64	0.53	0.28	3	5
The time allowed was appropriate	176	4.59	0.82	0.68	1	5
The instructions given were clear	176	4.69	0.61	0.37	2	5
The 10% course weight assigned was appropriate	175	4.43	0.97	0.95	1	5
The learning experience was enjoyable	176	4.57	0.75	0.56	1	5
Should be used in the future	176	4.68	0.66	0.44	1	5

Table 4.
Students' perceptions of AS experience

Note: *All means are significantly above the neutral value (3) as the *t*-test *p*-value for each statement is less than 0.01

Statement related to the simulation	In-class *N*	In-class Mean	Take-home *N*	Take-home Mean	*t*-test for equality of means: Mean difference	*t*-test for equality of means: two-tail *p*-value
Improved my understanding of the procedures auditors use to detect errors in the cash disbursement process	40	4.85	135	4.61	0.24	*0.001***
Made me familiar with the documents related to the cash disbursement process	40	4.65	135	4.64	0.01	0.954
Helped me understand some of the errors that might occur in the cash disbursement process	40	4.75	134	4.60	0.15	*0.087**
The time allowed was appropriate	40	4.75	136	4.54	0.21	*0.075**
The instructions given were clear	40	4.75	136	4.68	0.07	0.444
The 10% course weight assigned was appropriate	40	4.60	135	4.38	0.22	0.135
The learning experience was enjoyable	40	4.88	136	4.48	0.40	*0.001****
Should be used in the future	40	4.88	136	4.63	0.25	*0.003****

Note: *Reflects significance level at the 10%, while *** reflects significance level at the 1%

Table 5. Comparison of students' perceptions – "in-class method versus take-home method"

Table 6 also compares the mean scores of the present study's statements with those of Saadullah and Elsayed (2020) and Clikeman (2012), as both AS studies used a similar questionnaire related to the revenue process and inventory taking, respectively. The comparisons generally show a relatively higher mean score on each statement of the current study except for Statement 7, which is very close to the study of Saadullah and Elsayed (2020).

4.2 Qualitative outcomes

Furthermore, 63 students provided 85 comments on their experiences with the mini-AS instrument through the open-ended question. Eighty-two comments are linked to one of the eight statements, with three being general comments. We discuss these comments for each of the eight statements in alignment with prior literature.

Statement related to the simulation	Present study *N* = 176	Saadullah and Elsayed (2020) *N* = 82	Clikeman (2012) *N* = 71
Improved my understanding of the procedures auditors use to detect errors in the cash disbursement process	4.66	4.52	4.41
Made me familiar with the documents related to the cash disbursement process	4.65	4.53	4.48
Helped me understand some of the errors that might occur in the cash disbursement process	4.64	4.54	4.27
The time allowed was appropriate	4.59	4.25	–
The instructions given were clear	4.69	4.60	–
The 10% course weight assigned was appropriate	4.43	4.21	–
The learning experience was enjoyable	4.57	4.60	4.31
Should be used in the future	4.68	4.65	4.39

Table 6. Comparison of students' perceptions with prior literature

4.2.1 Statement 1: improved students' understanding of the procedures auditors perform. Twenty-one students provided comments on this statement and appreciated the positive role of the mini-simulation in enhancing their understanding of audit concepts and procedures.

One student commented, "Able to apply content taught to real work example which improved my understanding". The students also indicated that they prefer increasing the number of simulation assessments to cover all business processes, as this will help them learn the audit topics better. A student stated that "It was a good experience for us. I think if we could have an audit simulation after each chapter because we can understand the audit process". Another student also said, "I think the simulation would be even more beneficial if it included all the business cycle processes". Both the quantitative and qualitative results indicate that the mini-AS fosters in-depth learning and assists students in recalling audit information (Kolb, 2014).

4.2.2 Statement 2: increased students' familiarity with accounting documents and reports. Eight students' comments were attributed to this statement. The students felt like they were working on a real audit case; as one student stated, "We become more familiar with what auditor's work is". Another student commented, "I think the simulation is really helpful and can benefit me in the near future if I choose to work as an auditor". Thus, such comments indicate that the AS increases students' awareness of the accounting reports and documents and, therefore, improves their ability to effectively stratify what they have learnt (Kolb, 1984).

4.2.3 Statement 3: enhanced students' knowledge of how errors could be detected. Eight students commented on this statement, indicating an improvement in their ability to detect errors after conducting the mini-AS. One student said, "[. . .] it enhanced my ability to detect errors [. . .]". Another student commented, "The assignment is interesting and working on it was a practical and useful experience that explains the mistakes where it might happen [. . .]". A further student added, "I had enough time to look in different errors and relate them to the management assertions. It was more fun and obvious when I tried to find the errors". While performing the mini-AS instrument, students' critical thinking and analytical techniques are enhanced (McCarthy, 2016), which helps shape their abstract conceptualisation through planning the audit workload and analysing the audit evidence (Kolb and Kolb, 2005).

4.2.4 Statement 4: the appropriate amount of time allowed. Three students commented that they needed more time. However, the majority of students in this study agreed they had enough time to complete the mini-AS, and the overall score regarding the sufficiency of time (4.59 as in Table 6) is higher than what was reported in previous studies such by Saadullah and Elsayed (2020). These results support the appropriateness of time allocated for completing the AS assignment. It is worth noting that auditors normally have a limited time to accomplish their work responsibilities.

4.2.5 Statement 5: the clarity of instructions provided. Nine students provided positive comments regarding the instructions they received, similar to one student who said, "It was very clear and easy". While all comments indicated that the instructions were clear, one student stated that "the instructions could have been clearer if the simulation was conducted face-to-face". Generally, however, there was no real issue with the clarity of the instructions provided to the students.

4.2.6 Statement 6: the appropriateness of the 10% course weight assigned. Six students' comments indicate a preference for a higher weight than 10% for the mini-AS assignment. For example, one student said, "In my opinion, the audit simulation must weigh more than 10%", while another said, "[. . .] the degree of the assignment should be more than 10 [. . .]

because it deserves that and if the degree was doubled, it would be suitable for everyone [. . .]". Student preferences to increase the weight of the assignment could be resolved by providing more such active learning instruments for different audit topics.

4.2.7 Statement 7: the enjoyment of the learning experience. Twenty-five students expressed their enjoyment of working on the mini-AS instrument. One student commented, "I enjoyed the audit simulation as it was different from everything we were doing in class". The students also highlighted that they had an authentic case compared with other assignments; as one student said, "This assignment was the best assessment for me during my university career". Another student stated, "The simulation assignment was fun by living in the auditor's atmosphere". Because of the active mode of learning through the mini-AS, some students' comments articulate that they had a clear understanding of the audit process. One of the students said, "The simulation made me love the audit process more than before, and I enjoyed working on it to the point that I hoped that audit is my job after I graduate". Performing ELAs would increase student engagement, enjoyment and satisfaction, consistent with Saadullah and Elsayed (2020) and Krom (2012).

4.2.8 Statement 8: the adoption of such learning activities in the future. Two students provided comments on this statement. One student stated, "The audit simulation should become part of every audit course taught as it evaluates the students' basic understanding of the course and further improves on it". Another student said, "I hope that it will also be applied to other Audit courses". These positive comments imply that similar ELAs are recommended to be implemented in other accounting courses to enhance student learning.

5. Discussion

While ELT propounds a learning cycle that includes four continuous components: concrete experience, reflective observation, abstract conceptualisation and active experimentation (Kolb, 1984, 2014), prior studies demonstrate enhancement of students' understanding, knowledge construction, performance and transferrable skills (Castro *et al.*, 2021; Holmes and Sullivan, 2018; Marriott, 2004) when they undergo learning activities designed within the ELT framework. Moreover, ELAs improve students' satisfaction, engagement, attitudes towards learning and enjoyment (Adler *et al.*, 2021; Bautista-Mesa *et al.*, 2018; Gittings *et al.*, 2020; Saadullah and Elsayed, 2020). In the present study, we quantitatively examine the students' performance pre-and post-simulation and qualitatively analyse the students' comments to observe the students' perceptions after undergoing an ELA. The discussions of quantitative and qualitative findings are separately articulated in the subsequent sections in light of the ELT framework and prior literature.

5.1 Discussion of empirical results

Findings reveal that students' performance is significantly enhanced in the post-ELA assessment compared to the pre-ELA one. Student engagement, enjoyment and satisfaction while performing a real workplace experience are also increased. These results imply that when the students undergo the four components in the ELT cycle, their understanding of the audit contents will be improved (Saadullah and Elsayed, 2020; Marriott, 2004). This is because, during the experience, they construct and apply knowledge (Castro *et al.*, 2021; Stanley, 2017) and enhance their problem-solving and decision-making skills (Holmes and Sullivan, 2018). These outcomes, in turn, resulted in enhancing students' performance and satisfaction, consistent with prior studies (Saadullah and Elsayed, 2020; Stanley, 2017; Krom, 2012), as well as increasing the extent of students' awareness of the profession (Kolb, 2014).

5.2 Discussion of qualitative outcomes

Students' perceptions revealed a higher level of student satisfaction with the ability of AS to:

- improve their understanding of the audit procedures;
- increase their familiarity with accounting documents and reports;
- enhance their knowledge of how errors could be detected; and
- increase the enjoyment of the learning experience.

In this section, we discuss our qualitative findings in light of the four components of the ELT framework (Butler *et al.*, 2019; Kolb, 1984), which were articulated and simplified in Figure 2 as performing, reflecting, interpreting and applying.

Firstly, by enabling the students to take the source documents and instructions provided to perform the vouching and tracing procedures for detecting errors, the students will resemble the real audit work under clear and specific guidelines. The benefits of this stage are evident from the student comments when one of them stated, "We become more familiar with what auditor's work is". This performing stage was not only enhancing learning but also facilitated the learning process, as one student said, "I enjoyed the audit simulation as it was different than everything we were doing in class". The enhanced learning, engagement and enjoyment while performing the ELA tasks confirm the benefits of ELT, consistent with Adler *et al.* (2021), Gittings *et al.* (2020), Saadullah and Elsayed (2020) and Bautista-Mesa *et al.* (2018).

Secondly, as the students are vouching and tracing to find errors in the mini-AS, they reflect on the audit knowledge and theories they have learnt in the class about the business cycles' documents and errors. Therefore, AS helps students link theory to practice and makes the learning process more enjoyable. The benefits of this stage for the learning process are evident from the student comments, as one of them stated, "I had enough time to look in different errors and relate them to the management assertions. It was more fun and obvious when I tried to find the errors". This reflecting process also enhanced the learning and the enjoyment while learning, as stated by a student that "The simulation assignment was fun in terms of living the auditor's atmosphere". Past literature indicates that due to the resemblance of simulations to the real-life environment, the students' transferable skills are improved (Ng and Harrison, 2021; Holmes and Sullivan, 2018).

Thirdly, as the students are reflecting on the audit knowledge and theories, they think about how the management assertions could apply to genuine documents. At the interpreting stage, students materialise the connection between knowledge from the textbook and practice from auditing the documents to increase their awareness and understanding of the audit process and digest the real meaning of management assertions and their application for documents and records. This process enhances their understanding, as evident by one student who commented:

> It was a good experience for us. I think if we could have an audit simulation after each chapter is better than the quiz because we can understand the audit process more.

This is consistent with prior literature (Castro *et al.*, 2021; Marriott, 2004; Siegel *et al.*, 1997) in highlighting the enhancement of students' technical knowledge and comprehension.

Finally, students can generally apply the AS cycle to detect the errors in the documents and records related to any audit cycle by applying the auditing knowledge and theory into practice. At the application stage, students benefit from the knowledge gained through the three previous stages to make decisions on management assertions' violations, as stated by a couple of students: "[. . .] it enhanced my ability to detect errors [. . .]" and "able to apply

content taught to real work example which improved my understanding". We also noticed that this ability to apply theory into practice made the process enjoyable by driving the students to choose auditing as a career profession, as commented by a student:

> [. . .] the simulation assignment made me love the audit process more than before, and I enjoyed working on it to the point that I hoped that audit is my job after I graduate.

Prior findings indicate that the application of theory and the creation of transferrable skills are genuine benefits of performing ELAs (Stanley, 2017; Gujarathi and McQuade, 2002), which would breed in students' positive attitudes and satisfaction (Taplin *et al.*, 2017; Marriott, 2004).

6. Conclusions

Motivated by providing audit students with more real-world experience and the need for more active distance education tools consistent with the AACSB, 2020 provisions, this study applied and investigated the use of a new virtual mini-AS instrument that focuses on the purchase and cash disbursement processes. This study aimed to assess the value of this mini-AS and its impact on enhancing students' understanding and performance. In total, 176 students participated in this mini-AS that was carried out with two different methods: in-class (i.e. completing the mini-AS during a 2-h online class and then immediately taking the related online test) and take-home (i.e. completing the mini-AS at home in two days and then taking the related online test).

The findings reveal a significant improvement in students' performance outcomes after conducting the mini-AS. Students' grades in the post-simulation test are significantly higher than in the pre-simulation test in the overall sample under both mini-AS methods. This result is consistent with prior studies (Saadullah and Elsayed, 2020; Marriott, 2004; Siegel *et al.*, 1997), suggesting the value of the mini-AS in improving students' understanding and performance. Our findings also indicate positive students' perceptions concerning the suitability and the value of the virtual mini-AS instrument. The vast majority of students (with mean scores close to five) indicated that the mini-AS:

- increased their understanding of the audit procedures;
- improved their familiarity with the documents used in the purchase and cash disbursement processes; and
- increased their understanding of the errors that might occur in the purchase and cash disbursement processes.

In addition, they revealed that the mini-AS learning experience was enjoyable and should be used in the future. Although the means of students' perception are high (above four and close to five) in both mini-AS methods, the in-class students have relatively higher positive perceptions of the mini-AS instrument than the take-home students. This result might suggest that the in-class method might be more appropriate to use with students in conducting such virtual simulations.

7. Implications and suggestions for future research

Our study findings provide several implications for the accounting education literature, professional accounting bodies and educators, along with recommendations for future research. This study contributes to the current accounting education literature by providing a genuine mini-AS instrument focusing on new business processes: the purchase and cash disbursement processes. This authentic ELA supports lifelong learning as encapsulated in the ELT by improving the understanding and performance of students as they become active

learners while at the same time developing skills and capabilities necessary for their employability and professional career. Our study adds to insights obtained from survey studies because it reveals the benefits students perceived from AS using a mixed-methods approach. Therefore, this study has implications for professional accounting bodies, educators and researchers. Professional accounting bodies can inform the need to maximise the awareness and benefits of adopting simulations in accounting education and examination. Educators can use this mini-AS as an effective ELA instrument to enhance student learning. Researchers can examine the AS implementation in other educational contexts and settings.

This study has some limitations, which are considered areas for future research. Firstly, it is naively simplistic to assume that no other variables affect students' performance or perceptions. We acknowledge this limitation as it leads to less precise estimates of the effect of any learning activity, as correctly identified by Gittings *et al.* (2020). What mitigates this limitation is the contribution of conducting an authentic mini-AS instrument within the distance-learning environment to align audit theory with practice in purchase and cash disbursement processes, which has received no attention so far. Secondly, the sample in this study might be considered small. Therefore, using a larger sample of students by other future researchers in other education contexts might robust the findings of this study. Thirdly, the mini-AS instrument developed in this study might be considered a short case to aid students' understanding; however, they were provided with concise documents and accounts that are sufficient to examine their understanding of the purchase and cash disbursement processes. Therefore, future research might use more advanced and complicated ASs to validate the results of this study, given significant advances in the use of technology for data analysis. It would also be useful to conduct a follow-up study with the same respondents after their graduation and after one year of working in the field of auditing to determine whether their perceived benefits from AS have been realised in practice. Having an experimental research design that compares the learning outcomes of AS students with that of non-AS students is another potential research endeavour.

References

Adler, R., Roberts, H., Crombie, N. and Dixon, K. (2021), "Determinants of accounting students' undergraduate learning satisfaction", *Accounting and Finance*, Vol. 61 No. 4, pp. 5231-5254.

Association to Advance Collegiate Schools of Business (AACSB) (2020), "Guiding principles and standards for business accreditation", available at: 2020-aacsb-business-accreditation-standards-july-2021.pdf

Bautista-Mesa, R., Molina Sánchez, H. and Ramírez Sobrino, J. (2018), "Audit workplace simulations as a methodology to increase undergraduates' awareness of competences", *Accounting Education*, Vol. 27 No. 3, pp. 234-258.

Braun, V. and Clarke, V. (2006), "Using thematic analysis in psychology", *Qualitative Research in Psychology*, Vol. 3 No. 2, pp. 77-101.

Braun, V. and Clarke, V. (2012), "Thematic analysis", in Cooper, H., Camic, P., Long, D., Panter, A., Rindskopf, D. and Sher, K. (Eds), *APA Handbook of Research Methods in Psychology, Research Designs: Quantitative, Qualitative, Neuropsychological, and Biological*, American Psychological Association, Washington, DC, pp. 57-71.

Braun, V., Clarke, V. and Weate, P. (2016), "Using thematic analysis in sport and exercise research", in Smith, B. and Sparkes, A. (Eds), *Routledge Handbook of Qualitative Research in Sport and Exercise*, Routledge, London, pp. 191-205.

Butler, M., Church, K. and Spencer, A. (2019), "Do, reflect, think, apply: experiential education in accounting", *Journal of Accounting Education*, Vol. 48, pp. 12-21.

Castro, V.B., Sridharan, B., Watty, K. and Safari, M. (2021), "The impact of learner engagement on performance outcomes: a longitudinal study in accounting education", *Accounting and Finance*, Vol. 61 No. S1, pp. 1639-1664.

Chiang, C., Wells, P. and Xu, G. (2021), "How does experiential learning encourage active learning in auditing education?", *Journal of Accounting Education*, Vol. 54, p. 100713.

Clikeman, P. (2012), "J&K fitness supply company: auditing inventory", *Accounting Education*, Vol. 21 No. 2, pp. 161-170.

De Villiers, R. (2016), "Emphasising the usefulness of simulations in audit education: student perceptions at a SAICA-accredited South African university", *Journal of Economic and Financial Sciences*, Vol. 9 No. 2, pp. 485-502.

Edmonds, M., Miller, T. and Savage, A. (2019), "Accounts receivable: an audit simulation", *Journal of Accounting Education*, Vol. 47, pp. 75-92.

Fadol, Y., Aldamen, H. and Saadullah, S. (2018), "A comparative analysis of flipped, online and traditional teaching: a case of female Middle Eastern management students", *The International Journal of Management Education*, Vol. 16 No. 2, pp. 266-280.

Gittings, L., Taplin, R. and Kerr, R. (2020), "Experiential learning activities in university accounting education: a systematic literature review", *Journal of Accounting Education*, Vol. 52, p. 100680.

Gujarathi, M. and McQuade, R. (2002), "Service-learning in business schools: a case study in an intermediate accounting course", *Journal of Education for Business*, Vol. 77 No. 3, pp. 144-150.

Holmes, N. and Sullivan, C. (2018), "Using internal audit service projects for experiential learning", *Journal of Business and Educational Leadership*, Vol. 7 No. 1, pp. 86-93.

Johnson, R., Onwuegbuzie, A. and Turner, L. (2007), "Toward a definition of mixed methods research", *Journal of Mixed Methods Research*, Vol. 1 No. 2, pp. 112-133.

Kolb, D. (1984), *Experiential Learning: Experience as the Source of Learning and Development*, Prentice Hall, Englewood Cliffs.

Kolb, D. (2014), *Experiential Learning: Experience as the Source of Learning and Development*, Pearson Education, Upper Saddle River.

Kolb, A. and Kolb, D. (2005), "Learning styles and learning spaces: enhancing experiential learning in higher education", *Academy of Management Learning and Education*, Vol. 4 No. 2, pp. 193-212.

Krom, C. (2012), "Using FarmVille in an introductory managerial accounting course to engage students, enhance comprehension, and develop social networking skills", *Journal of Management Education*, Vol. 36 No. 6, pp. 848-865.

Lamprecht, C. and Guetterman, T.C. (2019), "Mixed methods in accounting: a field-based analysis", *Meditari Accountancy Research*, Vol. 27 No. 6, pp. 921-938.

Levant, Y., Coulmont, M. and Sandu, R. (2016), "Business simulation as an active learning activity for developing soft skills", *Accounting Education*, Vol. 25 No. 4, pp. 368-395.

McCarthy, M. (2016), "Experiential learning theory: from theory to practice", *Journal of Business and Economics Research (JBER)*, Vol. 14 No. 3, pp. 91-100.

Marriott, N. (2004), "Using computerised business simulations and spreadsheet models in accounting education: a case study", *Accounting Education*, Vol. 13, pp. 55-70.

Massey, D., Poli, P. and Proctor, R. (2002), "The development and evaluation of a team-based audit simulation in the introductory auditing course", Paper presented at The American Accounting Association's Northeast Regional Meeting, Providence, available at: https://digitalcommons.fairfield.edu/business-facultypubs/100

Messier, W., Glover, S. and Prawitt, D. (2012), *Auditing and Assurance Services: A Systematic Approach*, McGraw-Hill: New York, NY.

Miller, C. and Savage, A. (2009), "Vouch and trace: a revenue recognition audit simulation", *Issues in Accounting Education*, Vol. 24 No. 1, pp. 93-103.

Nehme, R., AlKhoury, C. and Alharbi, A. (2022), "Stimulants of behavioural change: accounting education schism and gender", *Accounting Research Journal*, Vol. 35 No. 5, doi: 10.1108/ARJ-05-2021-0145.

Ng, F. and Harrison, J. (2021), "Preserving transferable skills in the accounting curriculum during the COVID-19 pandemic", *Accounting Research Journal*, Vol. 34 No. 3, pp. 290-303.

Pillsbury, C. (1993), "Systems softball: an interactive, group game for teaching internal control evaluation", *Issues in Accounting Education*, Vol. 8 No. 1, pp. 128-138.

Saadullah, S. and Elsayed, N. (2020), "An audit simulation of the substantive procedures in the revenue process – a teaching case incorporating bloom's taxonomy", *Journal of Accounting Education*, Vol. 52, p. 100678.

Sangster, A., Stoner, G. and Flood, B. (2020), "Insights into accounting education in a COVID- 19 world", *Accounting Education*, Vol. 29 No. 5, pp. 431-562.

Schatzel, J. (2011), "A SOX 404 simulation for auditing and accounting systems courses", *The BRC Journal of Advances in Education*, Vol. 1 No. 2, pp. 101-118.

Secretariat General of GCC News (2021), available at: www.gcc-sg.org/en-us/Pages/default.aspx

Siegel, P., Omer, K. and Agrawal, S. (1997), "Video simulation of an audit: an experiment in experiential learning theory", *Accounting Education*, Vol. 6 No. 3, pp. 217-230.

Stanley, T. (2017), "Situated learning in accountancy: an employer perspective", *Accounting Research Journal*, Vol. 30 No. 3, pp. 265-282.

Steenkamp, L. and Rudman, R. (2007), "South African students' perceptions of the usefulness of an audit simulation", *Meditari Accountancy Research*, Vol. 15 No. 2, pp. 23-41.

Swanger, S. and Jones, B. (2012), "Auditing the systems understanding aid project: an integrative assignment for accounting students", *AIS Educator Journal*, Vol. 7 No. 1, pp. 27-51.

Taplin, R., Kerr, R. and Brown, A. (2017), "Monetary valuations of university course delivery: the case for face-to-face learning activities in accounting education", *Accounting Education*, Vol. 26 No. 2, pp. 144-165.

Tate, S. and Grein, B. (2009), "That's the way the cookie crumbles: an attribute sampling application", *Accounting Education*, Vol. 18 No. 2, pp. 159-181.

Van der Merwe, N. (2013), "An evaluation of an integrated case study and business simulation to develop professional skills in South African accountancy students", *International Business and Economics Research Journal (IBER)*, Vol. 12 No. 10, pp. 1137-1156.

Worrell, J. (2010), "Blazer communications: a procurement audit simulation", *Issues in Accounting Education*, Vol. 25 No. 3, pp. 527-546.

Zelin, R. (2010), "An exploration of the effectiveness of an audit simulation tool in a classroom setting", *American Journal of Business Education*, Vol. 3 No. 9, pp. 7-12.

Further reading

Kolb, D. (1981), "Experiential learning theory and the learning style inventory: a reply to freedman and stumpf", *The Academy of Management Review*, Vol. 6 No. 2, pp. 289-296.

Appendix

Consent Form

Following is a set of questionnaire's questions, which is developed to conduct a research study. This study seeks to explore the perceptions of auditing students regarding the practicality of adopting an audit simulation and to analyse the role of this simulation in enhancing students' performances, at one of the MENA region universities.

Your participation is completely voluntary. You can withdraw at any time and your refusal to participate will not result in any penalty. Your participation will take about 10 minutes of your time and is likely to improve our understanding of some issues important to the accounting education without any possible risks or harms. Your responses are anonymous and confidential. By checking the box below, you agree that you have read and understood the above terms and conditions and voluntarily choose to participate in this study.

☐ ***I agree to voluntarily participate in this study***

Please Fill-in the Following Information (circle the appropriate item):

Gender: Male Female

Year: Freshman Sophomore Junior Senior

Your GPA: _____

Your Age: _____

Your Grade in the Auditing II Midterm Exam: _____

Rate the following statements related to the Audit Simulation assignment	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Improved my understanding of the procedures auditors use to detect errors in the Cash Disbursement Process	1	2	3	4	5
Made me familiar with the documents related to the Cash Disbursement Process	1	2	3	4	5
Helped me understand some of the errors that might occur in the Cash Disbursement Process	1	2	3	4	5
The time allowed was appropriate	1	2	3	4	5
The instructions given were clear	1	2	3	4	5
The 10% course weight assigned was appropriate	1	2	3	4	5
The learning experience was enjoyable	1	2	3	4	5
Should be used in the future	1	2	3	4	5

(*continued*)

Do you have any other notes you would like to add regarding the simulation instrument?

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