

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 ata 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. 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 bene fits 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 approachand explores students who learn in an Arabic-speaking country.

, 2022 ;Gittings 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. 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.

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.

(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). (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. , 2018 ) and engagement (Castro et al., 2021 ;Krom, 2012 ). (2022) find that work-integrated learning is perceived as a catalyst of functional audit behaviour from an educational perspective. (2021) reveal that implementing advanced learning activities (e.g. 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.

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. 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. 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. 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. (2020) , to test the improvement in students' performance outcomes resulting from their participation in the mini-AS experience. 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).

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.

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 taught using live online classes that were also recorded and made available to students.

3.2.2 Step 2: testing of students' understanding.

This test included ten pairs of true/false questions randomly given to each student to complete within a specific time. 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. 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.

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 ( $t\text{-stat} = 6.79$ , 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 ( $n = 136$ ).

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). 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 ( $t\text{-test } p\text{-value} < 0.01$ ), 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 ).

Comparison of

students 'perceptions –

“in-class method

versus take-home

method ”Statement related to the simulationIn-class Take-homet-test for equality of means

N Mean N MeanMean

difference 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 6. 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.

One student commented, "Able to apply content taught to real work example which improved my understanding". A student stated that "It was a good experience for us. Another student also said, "I think the simulation would be even more beneficial if it included all the business cycle processes". 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". 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. 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". 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 [...]" ARJ

12 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.

because it deserves that and if the degree was doubled, it would be suitable for everyone

[...]”. 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). 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”. 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.

In this section, we discuss our qualitative findings in light of the four components of the

ELT framework ( Butler et al. ,2 0 1 9 ;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) andBautista-Mesa

et al. 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.

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.

Therefore, this study has implications for professional accounting bodies, educators and researchers. 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. 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. References

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Gender: Male Female

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Rate the following statements related to the Audit

Simulation assignmentStrongly

DisagreeDisagre

eNeutral AgreeStrongly

Agree

Improved my understanding of the procedures auditors use

to detect errors in the Cash Disbursement Process1 2 3 4 5

Made me familiar with the documents related to the Cash

Disbursement Process1 2 3 4 5

Helped me understand some of the errors that might occur

in the Cash Disbursement Process1 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 )Students ’

understanding

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19 Your par/g415cipa/g415on will take about 10 minutes of your

/g415me and is likely to improve our understanding of some issues important to the

accoun/g415ngeduca/g415on without any possible risks or harms. You can withdraw at

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20