For research article

Response to Reviewer 2 Comments

1. Summary

Thank you for taking time to review the R2 version of the paper titled "The Impact of E-Learning Technologies on Entrepreneurship and Sustainability Performance". This study investigates on the impact of E-Learning technologies (ELT) on entrepreneurial education performance (including personal skills, product skills and business skills), and the sustainability efficacy and their impact on sustainability awareness. Based on the data of 101 master students, the authors adopted PLS analysis and found that ELT have significant relationship with entrepreneurial performances and sustainability 17 efficacy. Meanwhile, sustainability efficacy also has significant relationship with sustainability awareness. However, no significant relationship between entrepreneurial skills and sustainability awareness was identified. In the following paragraphs I present some comments to improve the paper.

2. Questions for General Evaluation	**Reviewer's Evaluation**	**Response and Revisions**
Is the content succinctly described and contextualized with respect to previous and present theoretical background and empirical research (if applicable) on the topic?	Can be improved	
Are all the cited references relevant to the research?	Can be improved	I have adjusted the literature for those who are too old.
Are the research design, questions, hypotheses and methods clearly stated?	Must be improved	I have rewritten these sections.
Are the arguments and	Can be improved	I have rewritten this

discussion of findings coherent, balanced and compelling?		section, adding comparison and discussion.
For empirical research, are the results clearly presented?	Can be improved	
Is the article adequately referenced?	Can be improved	
Are the conclusions thoroughly supported by the results presented in the article or referenced in secondary literature?	Must be improved	I have improved the content of the discussion section, where I further discussed and explained the conclusions

3. Point-by-point response to Comments and Suggestions for Authors

Comments 1:

In the last sentence of the abstract, the authors stated, "Implications are explored finally for entrepreneurship and sustainability 20 education". It is a general statement; however, the authors should beriefly and clearlt stated the implications in 1-2 sentences rather than proving a general statement.

Response 1:

Thank you for your advice! I have added 2 sentences:

The results indicate that ELT can improve students' entrepreneurial skills and sustainability awareness, which proves the effectiveness of ELT and provides support for its application in future entrepreneurship education. (line 20 – line 22)

Comments 2:

The authors are recommended to discuss the problems and issues in the local setting where the study was conducted and elaborate the issues that motivated them to conduct such a study rather than just focusing on global and general issues and problems.

Response 2:

Your suggestion has made me aware of my significant shortcomings in discussion section. I have rewritten this section.

5.1. The impact of ELT

This study reveals that ELT do have positive impact on entrepreneurial and sustainability learning performance. This has a very practical implications for entrepreneurial education in the future. The International Labour Organization (ILO) proposes that entrepreneurship training must be a small class with a maximum of 30 to 50 students [131]. (line 467 – line 470)

The impact on personal and business skills is 0.35 and 0.36, respectively, with a significance level of $p<0.001$, while the impact on product skills is about 0.26, $p<0.05$. That means the impact of ELT on physical and visible things are more limited and weaker. the most likely cause of this phenomenon is the lack of experience. In Hong Kong, group assignments are an important component of higher education, where students form teams to complete assignments. Due to the characteristics of ELT, students can organize group activities without time and location constraints [69, 70, 71], which can effectively exercise personal skills and business skills. However, product skills are difficult to obtain directly from text or language but require practice and experience [132]. E-learning, being primarily digital and remote, may not provide the same level of hands-on engagement. In this course, students only have access to text and image knowledge, without practical experience. (line 467 – line 470)

5.2. The impact on sustainability awareness

However, the three kinds of entrepreneurial skills did not significantly affect sustainability awareness, which contradicts previous hypotheses. Previous research suggests that entrepreneurial skills can enhance students' awareness of sustainable development [85]. Previous studies have suggested that entrepreneurial skills can enhance students' awareness of sustainable development, while the results of this study indicate that the teaching of entrepreneurial courses has not been well linked with sustainability awareness at the learning stage. The education system in Hong Kong places greater emphasis on academic performance and traditional subject learning, so students may focus more on improving their entrepreneurial skills by im-proving their test and homework scores. Therefore, entrepreneurial skills are more related to business and innovation rather than environmental sustainability. In addition, in this course, we do not have sufficient time to collect environmental education resources, which may also be one of the reasons why students cannot effectively link entrepreneurial skills with sustainability. (line 500 – line 513)

Comments 3:

Methodology section has major flaws. It lacks an acceptable structure for an original paper. is should have the following headings: design, population, and samples (Participants), instruments, data collection, and data analysis. Moreover, selection and sampling procedures are unclear. The authors did not specify statistically whether parametric or non-parametric tests should be done in this study. It will be identified when normal distribution of the scores is determined. Data collection and data analysis sections are not

informative enough.

Response 3:

I have revised the structure of this chapter according to your suggestion. Please review whether it meets the requirements.

3. Methodology and Data Collection

3.1. Design

Most of the previous studies on teaching methods and technologies have emphasized that single online teaching in an epidemic environment is used as an alternative tool to traditional learning processes, focusing on the exclusive use of E-Learning platforms. This study aims to investigate students' views on ELT as supplementary and complementary tools to offline learning. The study proposed a 49 items questionnaire designed and distributed via Word and Canvas separately, covering six research areas: ELT (9 items), personal skills (6 items), business skills (6 items), product skills (5 items), sustainability efficacy (17 items) and sustainability awareness (6 items), designed based on previous studies as shown in Table 1.

The measure of ELT in this study covers a learning platform called Canvas, ZOOM, e-mail system, social media, internet as well as the latest technologies like chat GPT etc. A questionnaire survey was conducted to collect relevant data.

In addition, this study also designed three control variables, namely gender, GPA, and working experience, to determine whether sustainability awareness is influenced by external variables.

Table 1. The items in the questionnaire and references.

3.2. Sample

Data were collected from a class of technological innovation and entrepreneurship in a Hong Kong university in April 2023 via a questionnaire. The course runs for one semester from January to June 2023. The class size is 101 and all students were invited to fill in the survey as part of the study feedback. To avoid any common method variance, the feedback questionnaire was not marked, and only generic feedback was provided to students afterwards. The profile of the students is shown on Table 2. These group of students are mostly fresh graduates from the previous years and working experience was not relevant to this study.

61.4% of the surveyed students are male and 38.6% are female. The most students have backgrounds in mechanical, EE, and system engineering, accounting for 17.8%, 14.9%, and 11.9% respectively. The other students have undergraduate backgrounds in computer science and engineering (5.9%), energy engineering and related (4.0%), agricultural engineering (6.9%), bio engineering and medical related (4.0%), ocean engineering and water related (5.0%), chemistry related (5.0%), physics related (3.0%), mathematics r statistics related (2.0%) and other fields. Among all students, 44.6%% have working experience, while other 55.4% have never worked before.

Table 2. Demographics of surveyed students.

3.3. Instruments

A 7-point Likert scale was used for the entire research instrument. Research has shown that compared to Likert scales with scores of 5 and below, the 7-point scale has more significant

discrimination and higher reliability [120]. For online environments, a symmetrical 7-point scale interface is considered more suitable for respondents to express their evaluations, which helps alleviate their psychological burden and increase the number of respondents [121].

3.4. Analysis Procedure

Since the model includes factors and mediating effects, this study opts for Partial Least Squares (PLS) as the means to test its hypotheses. PLS can be the preferred solution if the problem has the following characteristics [122, 123, 124]. Small sample size due to limited experimental design or survey subjects.

1. The conditions relating to independence or normal distribution are not met that cannot be applied to SEM.
2. The issues to be investigated are relatively novel and require the development of new measurement models.
3. Prediction is more important than parameter estimation.

Due to our small sample data and relatively new research topic, PLS was chosen as the research tool.

For the three control variables, ANOVA was used to test gender, working experience, and academic performance separately. This is because GPA is not a binary variable. ANOVA can be used to analyze the differences between two or more groups of data [125].

(line 345- line 402)

Comments 4:

There are some language problems in teh manuscript. So, proofreading is required.

Response 4:

Thank you for your advice! I'll do it.

Comments 5:

Some minor flaws were noticed in the reference section. The authors should double check the references to be consistent with the latest reference style recommended by the journal.

Response 5:

I do find some formatting errors in the references. Very thank you for your careful review.