




# The Roles of Entrepreneurship Education to the Student's Employability Skill Moderated by E-Learning Variable

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**Abstract.** This study aimed to analyze the role of entrepreneurship education in student employability skills moderated by e-learning variables. The number of labour figures the industry can absorb in Indonesia has not been optimized for the adult age group. This condition will remain if entrepreneurship education does not follow the context of e-learning needs. A good entrepreneurship education applies entrepreneurial knowledge and skills to individuals to enhance economic development. To obtain the data on students' employability skills in Indonesia, researchers used descriptive quantitative methods on the 60 respondents observed face-to-face and virtually. The data collection process for this study used a cross-sectional survey approach. The data collected was analyzed with the path analysis method using SmartPLS software. Based on the analysis result, there was a direct effect of entrepreneurship education on the student's employability skills. Moreover, there was a direct influence of entrepreneurship education on e-learning. Furthermore, e-learning directly affected students' employability skills. Finally, entrepreneurship education had no effect on the student's employability skills through e-learning. After being analyzed, the direct impact of e-learning on the students' work skills showed a more significant influence than the effect of entrepreneurship education on e-learning. The weakness of this study was the limited sample. Therefore, the study recommended more extensive sample research in various industrial sectors.

**Keywords:** E-Learning, Entrepreneurship Education, Student's Employability Skills.

## 1 INTRODUCTION

In August 2022, Indonesia's working-age population was around 143 million, with 3.47% engaged in entrepreneurship<sup>1</sup>. Despite being a developing country heavily reliant on natural resources for foreign exchange income, Indonesia is experiencing a demographic bonus, with a growing human resource base boosting foreign exchange

earnings. According to Pasal 2, ayat (1) Concerning the Minimum Age for Admission to Employment in Indonesia, individuals can start working at age 15. Unfortunately, Table 1. indicates a 9.35% unemployment rate among the adult labour force<sup>2</sup>.

**Table 1.** The number of the labour force

No	Age Group	Employee's Ability
1	60 years old +	17.060.418
2	35 – 39 years old	16.588.880
3	30 – 34 years old	16.457.136
4	25 – 29 years old	16.366.138
5	40 – 44 years old	16.295.193
6	45 – 49 years old	15.295.739
7	20 – 24 years old	14.925.016
8	50 – 54 years old	13.637.514
9	55 – 59 years old	10.712.814
10	15 – 19 years old	6.383.796
Total		143.722.644

The labour force of the 15-39 age group is currently the highest in number (Table 1.). Generally, this age group is expected to acquire work skill quality. The skills are specific to particular knowledge to perform tasks in different work environments. Particular knowledge is a personal quality that helps employees build effective relationships and carry out tasks in the workplace<sup>3</sup>. Work skills can be developed through diverse media in today's information-rich environment. Entrepreneurship education focuses on experiential learning, acquiring essential entrepreneurial knowledge to boost students' employability skills<sup>4</sup>. Besides entrepreneurship education, e-learning can enhance employability skills in students and employees<sup>5</sup>. Indonesia, with its sizable labour force, has development potential. However, this demographic is threatened if their employability skills do not improve. A large workforce with inadequate skills can lead to financial unproductivity, impacting living standards. This drove the research.

### **1.1 Student's Employability Skills and Entrepreneurship Education**

Employability skills are recognized as soft or generic skills and might involve teamwork<sup>6</sup>. Students' employability skills are transferable skills such as speaking, technology and adapting skills to new environments. Educational institutions must ensure that students have employability and technical skills to achieve employability<sup>7</sup>. Thus, students' employability skills can be formed through entrepreneurship education<sup>8</sup>. Based on previous research, the proposed research hypothesis was *H1: Entrepreneurship education affects students' employability skills.*

As the variable, the student's employability skills in this study were determined using indicators of interpersonal communication, basic numerical skills, time management,

presentation skills, information communication and technology skills, and project assignments. Basic numerical skills involve arithmetic with numbers. Time management aids employability through effective planning. Presentation skills convey ideas effectively. ICT skills process information and project assignments promote independent problem-solving. The studies on entrepreneurial behavior and entrepreneurship education are characterized by a teaching process that involves interaction and connection with business initiatives and the community<sup>4</sup>. It shapes the characters and spirit of entrepreneurship and instils entrepreneurial competencies and values<sup>9</sup>. As a variable, entrepreneurship education in this study was measured using indicators of willingness to bear uncertainty, understanding entrepreneurship, exploring opportunities, making collaborations, and generating and creating organizations<sup>10</sup>.

### **1.2 Student's Employability Skills, Entrepreneurship Education, and E-Learning**

Besides being influenced by entrepreneurship education, students' employability skills might be affected by other factors, such as e-learning<sup>8</sup>. E-learning is an emerging ICT model to deliver learning content and information for education and training<sup>11</sup> systematically. As information and communication technology develops, e-learning has become a paradigm of modern education. However, few studies have been conducted on users' attitudes toward e-learning and the impact of e-learning on the teaching and learning of speaking skills<sup>12</sup>. Based on previous research, the hypothesis proposed was *H2: E-learning affects students' employability skills*. This study assessed e-learning using indicators like skill transfer, knowledge transfer, solution diversity, work assessment, and employability skills<sup>13</sup>. As prior research had not simultaneously examined predictors of student employability skills, the study proposed these hypotheses *H3: Entrepreneurship education and e-learning affect students' employability skills*. If we adapt education systems to meet technology demands, online learning could be the new normal in entrepreneurial education. Replicating technology trends can help improve student skills, curriculum performance, and academic outcomes. Machine learning and algorithms may quantify students' progress<sup>14</sup>. Therefore, it was necessary to test the indirect effect through the following hypothesis:

*H4: Entrepreneurship education affects e-learning.*

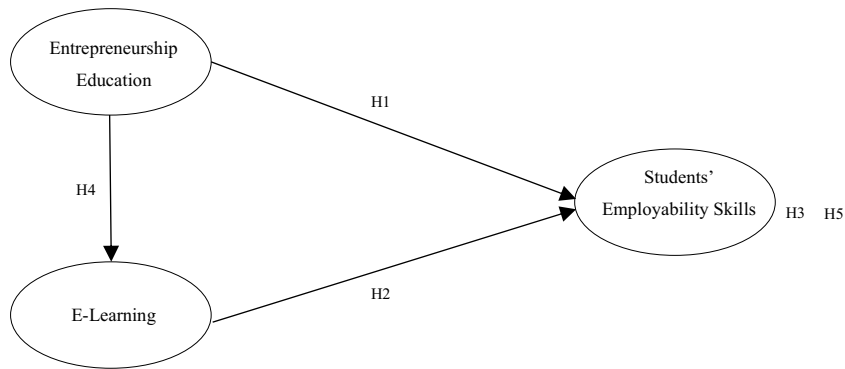
*H5: Entrepreneurship education indirectly affects students' employability skills through e-learning.*

## **2 METHODS**

### **2.1 Hypothesis**

The research design employed was causal and aimed at addressing research problems related to the underutilized labour force in Indonesia. This design was chosen to collect data and establish a framework that enables researchers to understand cause-and-effect relationships among the research variables<sup>15</sup>. The objectives of causal research were: 1) Understanding the independent and dependent variables related to entrepreneurship, 2) Determining the cause-effect relationships between these variables, and 3) Testing hypotheses regarding causal variable relationships.

The study was conducted based on the grand theory of entrepreneurship, students' employability skills, entrepreneurship education, and e-learning,<sup>8</sup> as depicted in Fig. 1. according to the literature review.



**Fig. 1.** Relationship between entrepreneurship education, e-learning, and students' employability skills.

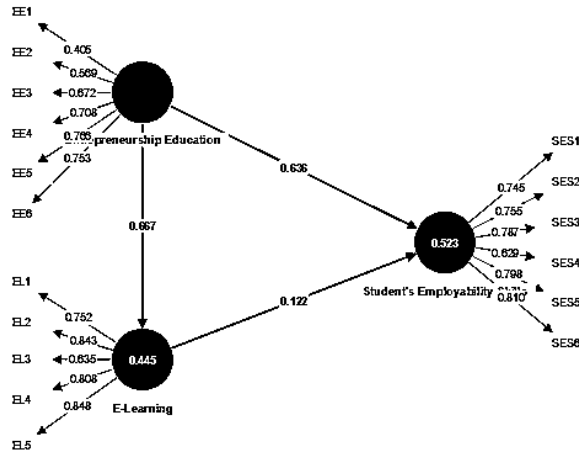
## 2.2 Sample and Data Collection

The study surveyed 200 Indonesian individuals with at least secondary education, aiming for equal representation. After a 30% response rate, 64 respondents remained from secondary and higher education. With 6.4% giving identical ratings for all items, the final diverse sample size was 60. In this quantitative study, data analysis followed these steps: 1) Confirmatory factor analysis for construct verification, and 2) Hypothesis testing through structural equation modelling (SEM) using Smart PLS software. The measurement scale employed was an interval, allowing arithmetic calculations on respondent data, although it lacked a true zero value. The Likert scale, a common tool in business research, gauged respondent agreement or disagreement regarding perceived objects.

## 3 RESULTS AND DISCUSSION

### 3.1 Outer Model testing

Hypotheses are derived from latent variable relationships, determined by measuring completed indicators. Indicator data variations represent construct variations. The strength of indicator-construct relationships is indicated by loading factor values. The SmartPLS output provides the  $\lambda$  parameter estimation, which equals the standardized regression parameter or path coefficient. This value reveals the direct, indirect, and total influence of the predictor variable on itself. These coefficient values result from parameter estimations for X and  $\lambda$  describing Y on outer loading.



**Fig. 2.** Outer Loadings

Initial measurement identified incomplete indicators in entrepreneurship education, e-learning, and students' employability skills. For employability skills, interpersonal communication, basic numerical skills, and time management were unsuitable indicators. Creating collaboration did not match entrepreneurship education, and solution diversity did not fit as an e-learning indicator in this study.

**Table 2.** Outer Loadings

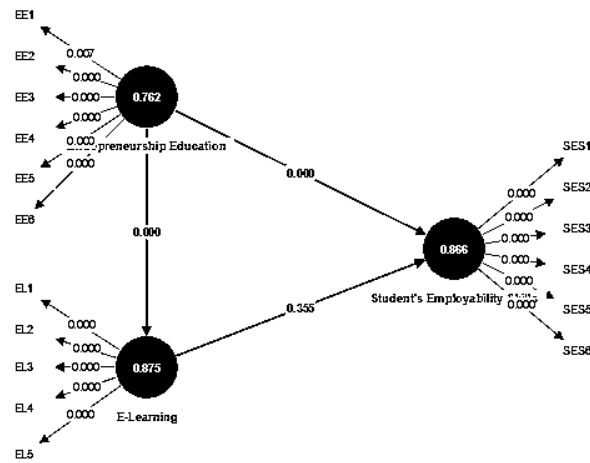
Exogenous Variable	$\lambda$	Endogenous Variable	$\lambda$	Intervening Variable	$\lambda$
Entrepreneurship Education		Student's Employability Skills		E-Learning	
EE1- Being open to uncertainty	<b>0.405</b>	SES1-Interpersonal Communication	0.745	EL1-Transfer Skill	0.752
EE2-Entrepreneurship Understanding	<b>0.569</b>	SES2-Basic Numeric Skill	0.755	EL2-Knowledge Transfer	0.843
EE3- Opportunity Exploration	<b>0.672</b>	SES3-Time Management	0.787	EL3-Various Solution	<b>0.635</b>
EE4-Collaboration	0.708	SES4-Presentation Skill	<b>0.629</b>	EL4-Work Assessment	0.808
EE5- Generating Organization	0.766	SES5- Information Communication and Technology Skill	0.798	EL5-Work Skill	0.848
EE6-Creating Organization	0.753	SES6-Project Task	0.810		

In this study, the outer testing results indicated that 1) Interpersonal communication, essential numerical skills, time management, ICT skills, and project assignments contributed to students' employability skills, 2) Creating and presenting an organization contributed to entrepreneurship education, and 3) Skill transfer, knowledge transfer, assessment, and employability skills contributed to e-learning. The  $\lambda$  parameter values for indicators of exogenous, endogenous, and intervening variables were all above 0.7 and statistically significant at  $\alpha = 0.05$ , confirming the validity and reliability of each

indicator for its respective latent variable or construct. The outer testing results in this study indicated that 1) Interpersonal communication, basic numerical skills, time management, ICT skills, and project assignments contributed to the construct of students' employability skills, 2) Creating and presenting an organization contributed to the construct of entrepreneurship education, and 3) Skill transfer, knowledge transfer, assessment, and employability skills contributed to the construct of e-learning. The  $\lambda$  parameter estimates for indicators of variables exceeded 0.7 and were statistically significant at  $\alpha = 0.05$ , affirming their validity and reliability for respective constructs.

**3.2 Inner Model Testing**

Inner model testing relies on validated outer model testing (via  $R^2$  loading values). The structural model, evaluated using the Goodness of Fit Model, indicates the variance between observed and model-estimated values. Table 2 shows that "students' employability skills" in the inner model hold a middle position.



**Fig. 3.** Bootstrapping (P-Value)

The AVE's square root checks discriminant validity in the research model.  $AVE > 0.6$ , Cronbach Alpha  $> 0.7$ , and Rho  $> 0.7$  suggest consistent and accurate measurement for three variables, except perceived interactivity. In Fig.3. all three variables have P-values  $< 0.05$ , except perceived interactivity, confirming their validity.

**Table 3.** Structural Model Testing

Latent Variables	AVE	Cronbach Alpha	Rho	R-Square
Student's Employability Skills	<b>0.572</b>	0.850	0.866	<b>0.523</b>
Entrepreneurship Education	<b>0.432</b>	0.732	0.762	-
E-Learning	0.610	0.844	0.875	<b>0.445</b>

**3.3 Hypothesis Testing of H1**

The first analysis focused on latent variable correlations in the outer model test. In the second analysis, entrepreneurship education had a 64.3% impact ( $R^2$ ) on students'

employability skills. The third analysis examined this effect further. Hypothesis H1, tested in this study, was supported with a P-value of  $0.001 < 0.05$  in Table 4. aligning with previous research <sup>16</sup>.

**Table 4.** Hypothesis Testing of H1

		$\lambda$	STDEV	T-values	P-values	R-square
H1	Entrepreneurship Education → Student's Employability Skills	0.459	0.135	3.391	0.001	0.643

### 3.4 Hypothesis Testing of H2

The first analysis examined latent variable correlations in the outer model. The second analysis assessed e-learning's impact on students' employability skills ( $R^2 = 0.582$  or 58.2%). The third analysis determined whether e-learning influenced students' employability skills, confirming hypothesis H2 with a significant P-value of 0.045 ( $< 0.05$ ). These results align with previous research <sup>16</sup>.

**Table 5.** Hypothesis Testing of H2

		$\lambda$	STDEV	T-values	P-values	R-square
H2	E-Learning → Student's Employability Skills	0.293	0.146	2.005	0.045	0.582

### 3.5 Hypothesis Testing of H3

The first analysis examined latent variable correlations in the outer model testing. The second analysis measured the impact of entrepreneurship education and e-learning on students' employability skills ( $R^2 = 0.425$  or 42.5%) <sup>17</sup>. The third analysis tested hypothesis H3, which was accepted due to a significant P-value of 0.000 ( $< 0.05$ ). These findings align with previous research<sup>8</sup>.

### 3.6 Hypothesis Testing of H4

The first analysis examined latent variable correlations in the outer model. The second analysis measured entrepreneurship education's impact on e-learning ( $R^2 = 0.630$  or 63.0%). The third analysis assessed if entrepreneurship education affected e-learning, confirming hypothesis H4 with a significant P-value of 0.000 ( $< 0.05$ ). These results are consistent with prior research<sup>8</sup>.

**Table 6.** Hypothesis Testing of H4

		$\lambda$	STDEV	T-values	P-values	R-square
H4	Entrepreneurship Education → E-Learning	0.630	0.084	7.424	0.000	0.630

### 3.7 Hypothesis Testing of H5

The first analysis explored latent variable correlations. The second analysis assessed the indirect impact of entrepreneurship education on employability skills through e-learning  $R^2$  value of 0.367. This study found mutual influences between employability skills, entrepreneurship education, and e-learning. The third analysis examined the effect of entrepreneurship education on e-learning, focusing on hypothesis H5.

However, H5 was rejected (P-value = 0.062 > 0.05 in Table 7.), different from previous research<sup>8</sup>.

**Table 7.** Hypothesis Testing of H5

		$\lambda$	STDEV	T-values	P-values	R-square
H5	Entrepreneurship Education → E-Learning → Student's Employability Skills	0.185	0.099	1.869	0.062	0.405 (0.630*0.643)

#### 4 CONCLUSION

The study revealed that entrepreneurship education positively influences e-learning, which, in turn, enhances students' employability skills. Participants included students from different educational levels who had received entrepreneurship education. Hypothesis rejection may be attributed to unclear data. Limitations of the study include a small participant pool, suggesting the need for careful participant selection and improved instrument construction in future research. Increasing the number of indicators used in variable measurement may improve hypothesis acceptance.

#### 5 REFERENCES

1. Feri Agus Setyawan. Teten Sebut Rasio Wirausaha RI Kalah dari Thailand-Singapura. *CNN Indonesia* (2021).
2. BPS. Penduduk Berumur 15 Tahun Ke Atas Menurut Golongan Umur dan Jenis Kegiatan Selama Seminggu yang Lalu, 2008 - 2022. *Badan Pusat Statistik* 1–4 (2023).
3. Tyson, W. Introduction: Employability Skills in the Twenty-First Century Workforce. *Teach. Learn. Employab. Ski. Career Tech. Educ.* 1–21 (2020) doi:10.1007/978-3-030-58744-4\_1.
4. Ratten, V. & Usmanij, P. Entrepreneurship education: Time for a change in research direction? *Int. J. Manag. Educ.* 1–8 (2020) doi:10.1016/j.ijme.2020.100367.
5. Riah F. Elcullada Encarnacion, Annjeannette Alain D. Galang & Byron Joseph A. Hallar. The Impact and Effectiveness of E-Learning on Teaching and Learning. *Int. J. Comput. Sci. Res.* **5**, 1–15 (2021).
6. Twyford, E. & Dean, B. A. Inviting students to talk the talk: developing employability skills in accounting education through industry-led experiences. *Account. Educ.* 1–24 (2023) doi:10.1080/09639284.2023.2191288.
7. Fajaryati, N., Budiyono, Akhyar, M. & Wiranto. The Employability Skills Needed To Face the Demands of Work in the Future: Systematic Literature Reviews. *Open Eng.* **10**, 1–9 (2020).
8. Mittal, P. & Raghuvaram, S. Entrepreneurship education and employability skills: the mediating role of e-learning courses. *Entrep. Educ.* (2021) doi:10.1007/s41959-021-00048-6.
9. Porda Nugroho Putro, H. *et al.* Social Capital of Micro, Small and Medium Enterprises in Kampung Purun for Improving Entrepreneurship Education. *J. Pendidik.* **14**, 1–12 (2022).



10. Lv, Y. *et al.* How Entrepreneurship Education at Universities Influences Entrepreneurial Intention: Mediating Effect Based on Entrepreneurial Competence. *Front. Psychol.* **12**, 1–12 (2021).
11. Nikou, S. & Maslov, I. Finnish university students' satisfaction with e-learning outcomes during the COVID-19 pandemic. *Int. J. Educ. Manag.* **37**, 1–21 (2023).
12. Lim Ker Shin, J. & Md Yunus, M. A Systematic Review of E-Learning in Teaching And Learning of Speaking Skills. *Int. J. Acad. Res. Bus. Soc. Sci.* **11**, 1–16 (2021).
13. Krzyszkowska, K. & Mavrommati, M. Applying the Community of Inquiry e-Learning Model to Improve the Learning Design of an Online Course for In-Service Teachers in Norway. *Electron. J. E-learning* (2020).
14. Akpan, U. I. & Akpan, N. *New Technology Needs for Teaching Business Education in Tertiary Institutions in Nigeria. Ph.D INTERNATIONAL JOURNAL OF RESEARCH IN EDUCATION* vol. 5 (2022).
15. Saunders, M. N. K., Lewis, P. & Thornhill, A. *2023 Research Methods for Business Students Preface and Chapter 4.* (2023).

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