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Feasibility of Kolb's Experiential Learning Model in Entrepreneurship Education at Universities in Indonesia

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ABSTRACT

Purpose: Unemployment among university graduates has been the main trigger for entrepreneurship research, as this issue highlights the need for a suitable formula to strengthen students' entrepreneurial mindset, particularly their innovation and entrepreneurial behaviour. Consequently, the application of Kolb's Experiential Learning (EL) model has emerged as a potential alternative. This study aims to assess the feasibility of Kolb's EL model in entrepreneurship education, focusing on its impact on students' innovation in creating entrepreneurial opportunities and their entrepreneurial achievements, with cumulative Grade Point Average (GPA) serving as the intervening variable. **Methodology**: This study employs the Design-Based Research (DBR) development model, specifically the interactive cycle of testing and refining EL Theory in a participatory manner. To achieve that, a quasi-experimental design was implemented. The sample of this research comprised active students who were enrolled in Entrepreneurship Course across seven universities, selected through stratified random sampling. The research instrument included project-based assessments based on innovation indicators and questionnaires for measuring entrepreneurial behaviour achievement, all of which met validity and reliability standards. The data were analyzed statistically using descriptive statistics and comparative analysis. **Findings:** The results indicate that Kolb's EL model is effective in enhancing students' innovation in creating entrepreneurial opportunities, as well as in fostering their entrepreneurial achievement. There was no direct effect of GPA on the achievement of these two variables, but an interaction effect was found. In conclusion, the EL model in the experimental group was able to modify or strengthen the effect of GPA on students' innovation in creating entrepreneurial opportunities and achieving their entrepreneurial behaviour. **Implications for Research and Practice:** This research provides insights to college students that EL has a strong theoretical framework for entrepreneurship learning in university.

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Introduction

Innovation plays essential role in driving economic progress and national competitiveness, particularly through its function in entrepreneurship. Innovativeness serves as a key instrument for entrepreneurs to create new product or service and to put more products (Antonietti & Gambarotto, 2018). However, many people do not pay attention to students' skill in making innovation in start-up business. In the current labor market reality, many graduates remain unemployed, contributing to the increasing number of higher education graduates facing unemployment. In Indonesia, open unemployment continues to rise annually, reaching 1 million people. Moreover, in entrepreneurship course, the student-produced products are lacking innovation and fail to align with regional economic advantages; students tend to put less time to identify entrepreneurial opportunities (Nwankwo & Kanyangale, 2020); and they tend to imitate rather than innovate. Hence, this reiterates that many graduates are more inclined to depend on existing jobs rather than pursue entrepreneurship. This is also emphasized by the fact that most of the students prefer to have a paid job rather than being entrepreneur.

To address this entrepreneurial disinterest among students, it is important to understand the value entrepreneurship can bring in shaping mindset and opportunity recognition. Being entrepreneur fosters people to have positive attitude toward identifying market opportunities (Maheshwari et al., 2022); openness to product opportunity; as well as and forming synergistic partnerships for success (Koch et al., 2023). Entrepreneurial parameters are closely tied to both competence and entrepreneurial characteristics (Huber et al., 2014). One of the most important characteristics for an aspirant entrepreneur is innovativeness. Whether or not the product or service innovation attracts costumers can be the indicator (Nirwan & Dhewanto, 2015). Hanaysha et al. (2021) states that innovativeness in a product or a service has significant positive impact to performance and strategy in the business. In addition, a business needs to have innovative elements to compete and survive, as business entity value is primarily driven by entrepreneurial dynamics such as innovativeness, risk management, and ambiguity tolerance (van der Westhuizen & Goyayi, 2019).

Given the importance of innovation and entrepreneurial characteristics, experiential-based learning approaches become crucial to cultivate such competencies. Kolb's EL model is regarded as effective for stimulating student entrepreneurship and encouraging the creation of entrepreneurial opportunities in higher education institutions (Durão et al., 2023). Kolb's EL integrates entrepreneurial practices such as start-up activities and technology-based promotion, making it highly relevant to real-world industry demands (Motta & Galina, 2023). This approach represents an innovative learning method capable of producing entrepreneurial graduates. Empirical evidence also shows that EL can develop students' sustainable entrepreneurial attitudes (Adib, 2024); increase entrepreneurial intention (Nayak et al., 2024); improve entrepreneurial soft skills (Haritha & Rao, 2024). The EL model also supports entrepreneurship educators in adopting effective teaching methods in entrepreneurship courses (Kim & Park, 2023), while providing space for students to thrive in business (Lackéus et al., 2016).

Nevertheless, achieving student innovativeness requires more than just learning models—it also depends on the institutional environment and curriculum support. To achieve students' innovativeness, the EL model needs proper ecosystem that is entrepreneurial university (EU) (Etzkowitz & Zhou, 2008; Schulte, 2004). In addition to environmental factors, strengthening the entrepreneurship curriculum is equally crucial.

Quality entrepreneurship education has been proven to accelerate the creation of start-up businesses (Menzies & Paradi, 2002); an intention to start a business (Sánchez et al., 2011); and entrepreneurial attitude (Pihie & Bagheri, 2010). All of those aspects provide space for innovativeness to grow in making business. As stated by Wegner et al. (2019), entrepreneurial university environment has the ability to stimulate students' intention to start a new business or actively seek market opportunity. It has been proven empirically that the support from the university is important for the creation of new business by providing a conducive business environment to innovate. Furthermore, universities are not only responsible for bringing out outcome and spreading knowledges but also stimulating entrepreneurial attitude to make new business (Bergmann et al., 2016).

In line with the importance of pedagogical innovation and institutional support, this study aims to investigate how EL can effectively foster student innovation within the Indonesian higher education context. In the premises, this research is relevant as it confirms the effectiveness of Kolb's EL model in entrepreneurship education, with a specific focus on fostering student innovativeness in creating entrepreneurial opportunities (start-up businesses) and achieving entrepreneurial behaviour. Additionally, this research uses Grade Point Average (GPA) as one of the indicators to assess the students' academic achievement. Generally, students with high GPAs exhibit strong academic performance, which may reflect a higher level of learning readiness. Nevertheless, GPA is not a determining factor for a successful business (Zhou & Jew, 2023). Additionally, Indonesian education varies in quality based on the institution's accreditation status, with no difference in EL quality between institutions with superior and good accreditation. Therefore, fostering student innovativeness in creating entrepreneurial opportunities is crucial regardless of the institution's accreditation status.

Overall, this research seeks to contribute new insights by linking experiential learning, entrepreneurial behaviour, and academic performance in a comprehensive model. It offers novelty by strengthening student innovation in creating entrepreneurial opportunities and entrepreneurial behaviour based on updated Kolb's EL theory in the Indonesian context. Moreover, GPA and entrepreneurial behaviour are also considered in the analysis. Accordingly, the main objective of this study is to analyze the effectiveness of Kolb's EL model in enhancing student innovativeness in creating entrepreneurial opportunities and entrepreneurial behavior, with GPA as a moderating variable. The academic performance and entrepreneurial competencies of students are expected to contribute to optimizing opportunities as a foundation for new business creation.

Theoretical Overview and Hypothesis Development

Innovativeness in creating Entrepreneurial Opportunity and Entrepreneur Students

Innovativeness is a special channel for an entrepreneur to exploit transformation as an opportunity. Student innovativeness is needed in creating entrepreneurial opportunities to face the competitiveness among university graduates in Indonesia. It is closely related to innovation and creativity (Antonietti & Gambarotto, 2018). According to McNally et al. (2010) student innovativeness in creating entrepreneurial opportunities includes their ability to produce new products/services and use technology/digital-based marketing. New ideas, the creation of dynamic products, and improving services with a touch of technology shows the students' innovativeness. The results of the study by Wathanakom et al. (2020) found that an important factor to support innovativeness to grow is the use of new technologies, techniques, or product ideas. In the context of entrepreneurship

education, creativity and innovation are considered as the main factors to achieve success (Danish et al., 2019). A number of theoretical studies show a positive relationship between business sustainability and innovativeness (Abu Amodu & Aka, 2017). Moreover, in economic contexts, innovation is divided based on the perspective of the company and the consumer. Technological developments affect the market which influences on marketing strategies, which is why it is better if students have a good understanding of that aspect. Innovation with digital solutions has been proven to be an invisible hero for many companies (Wasilczuk & Stankiewicz, 2021). Creating a technology-based business can theoretically increase benefits, efficiency, promotion, branding position, and new opportunities (Melović et al., 2020). Based on this theoretical framework, the innovation referred to in this research is the innovation of students in creating business start-ups with digital-based marketing.

Innovation is the soul of a true entrepreneur and a primary key for an entrepreneur to stand out, survive competition, and bring positive change through the business they create. Being entrepreneur is all about the ability to see opportunity, manage organization to get the opportunity, react to the uncertainty of dynamic environment. Bygrave and Hofer (1992) define an entrepreneur as one who performs entrepreneurial functions, while the entrepreneurial process itself is "all functions, activities, and actions associated with the recognition of opportunities." Entrepreneurs are not merely business actors but also agents of change who combine creativity, courage, and adaptability. Thus, the concept of entrepreneurship in this study refers to indicators such as opportunity recognition, resource acquisition, social network development, effective response to highly dynamic environments, and tolerance for uncertainty (Antoncic & Hisrich, 2003; Balan & Metcalfe, 2012).

Overview of Experiential Learning

The emphasis on student innovativeness in creating entrepreneurial opportunities is closely linked to the application of Kolb's Experiential Learning (EL) model through entrepreneurial practice, collaboration, and interaction. A learning approach that emphasizes experience is required to effectively connect these elements. This aligns with Byrne and Toutain (2012) who argue that understanding and reflecting on experiences in entrepreneurship education necessitates the EL model as a lens, as it brings the learning environment closer to real-life contexts. Applying Kolb's EL model in entrepreneurship education enables students to develop critical thinking, creativity, collaboration, and synergy in launching new businesses, where business plans originating from their own ideas can be executed through real actions Radu Lefebvre and Redien-Collot (2013). The EL cycle also fosters self-reflection and critical thinking skills (Cheng et al., 2020). Furthermore, soft skills—highly valued in the workforce—can also be cultivated through this model. The result of a study conducted by Bradberry and De Maio (2018) found that Kolb's EL model enhances learners' soft skills in entrepreneurship.

Kolb (1984) EL model consists of four interrelated and cyclical stages: (1) concrete experience, in the form of direct experience or activity in understanding concrete reality; (2) reflective observation, where students reflect based on these experiences; (3) abstract conceptualization, where students construct or form knowledge and design experiments; and (4) active experimentation, where students conduct direct business tests. The assumption is that the greater the student involvement, the deeper the learning (Ferguson et al., 2015; Kolb, 1984). According to Rauch and Hulsink (2015), the components in the EL model aim to develop student entrepreneurial practices in universities and form

competencies in designing a business, establishing new business, and modifying old products to comply with trends. Therefore, EL provides opportunities for learners to prepare business plans and create awareness for business opportunities (Bell & Bell, 2016).

Based on the above discussion, student innovativeness in creating entrepreneurial opportunities can be fostered through the implementation of Kolb's EL model, as it provides students with practical entrepreneurial experiences. However, individual levels of innovativeness may vary depending on entrepreneurial characteristics, academic performance (GPA), and the entrepreneurial behaviours they practice. Therefore, the hypotheses in this study are as follows:

H1: *There is an effect of Kolb's EL model on innovativeness in creating entrepreneurial opportunities.*
H2: *There is an effect of student GPA on innovativeness in creating entrepreneurial opportunities.*
H3: *There is an interaction effect between the EL model and GPA on innovativeness in creating entrepreneurial opportunities.*
H4: *There is an effect of Kolb's EL model on the achievement of student entrepreneurial behaviour.*
H5: *There is an effect of student GPA on the achievement of student entrepreneurial behaviour.*
H6: *There is an interaction effect between the EL model and GPA on the achievement of student entrepreneurial behaviour.*

Methodology

Research Design

This study adopts the Design-Based Research (DBR) method developed by Reeves (2006), which consists of four stages: analyzing practical problems in entrepreneurship, designing and developing Kolb's Experiential Learning (EL) model, conducting iterative cycles of theory testing and refinement, and reflecting on the process based on design principles. The findings presented in this paper reflect the implementation of the third and fourth stages—namely, the interactive cycle of theory testing and refinement, and reflection guided by design principles. Accordingly, a quasi-experimental approach with a 2 x 2 factorial design was used (Ary et al., 2009). This design includes a moderating variable—students' Grade Point Average (GPA)—which influences the effect of the treatment. In addition, entrepreneurial behaviour is the focus of the study, considering that an entrepreneur is a person who carries out entrepreneurial functions. The design framework is presented in Table 1.

Table 1

Factorial Design 2 x2

Grade Point Average	Learning Model	
	Experiential Learning Model (EL)	Conventional Model
High GPA	EL GPA T	Conventional GPA T
Low GPA	EL GPA R	Conventional GPA R

The experimental group and control group were randomly selected from the population after class matching was conducted, based on criteria such as: enrolment in the same entrepreneurship course, comparable ability, similar learning schedules, nearly equal number of students. In each treatment group, there were students from High GPA and Low GPA group. The experimental procedure is described in Table 2.

Table 2

Research Procedure

Pre-Test Result	Learning Model	GPA	Posttest Result
Q1	X1	Y1	Q2
Q3	X1	Y2	O4
Q5	X2	Y1	O6
Q7	X2	Y2	O8

Note: Q1, 3, 5, 7: Pre-test result observation; Q2, 4, 6, 8: Post test result observation; X1: experiential learning model; X2: conventional model; Y1: High GPA Y2: Low GPA

The procedure for implementing the experiment was as follows: (1) compiling a learning guide that incorporated the EL model into the entrepreneurship course; (2) preparing instruments to measure student innovativeness in creating entrepreneurial opportunities and a questionnaire on entrepreneurial behavior; (3) selecting the experimental and control groups through stratified random sampling after class matching; (4) conducting simulations with the lecturers involved; (5) implementing the treatment using the EL model based on the learning guide by each lecturer; (6) measuring student innovativeness and entrepreneurial achievement; and (7) analyzing the research data.

Research Sample

The population of this study consisted of active students from universities in Indonesia. The sample for this large-scale trial was drawn from students at seven (7) universities using stratified random sampling. The stratification was based on the accreditation status of the universities (Excellent and Good), as well as their regional location (Western, Central, and Eastern Indonesia). Following this procedure, the selected universities were Syiah Kuala University (Excellent/A, Western Region), Tanjungpura University (Excellent/A, Western Region), Sanata Dharma University (Excellent, Central Region), Surabaya State University (Excellent, Central Region), Mataram University (Very Good, Eastern Region), Hamzanwadi University (Good, Eastern Region), and Manado State University (Good, Eastern Region). From each university, two (2) classes were randomly selected, all of which were enrolled in entrepreneurship courses.

Research Instrument

Student innovativeness in creating entrepreneurial opportunities refers to the results of the study by McNally et al. (2010). The scope of innovativeness is limited to product innovation and digital-based marketing innovation. Innovativeness data is collected using a project-based assessment sheet, which consists of 4 (four) main elements (Van den Bergh et al., 2006), namely planning, project implementation, project outcomes/products, and reporting. The measurement of entrepreneurial behaviour achievement refers to indicators proposed by Antoncic and Hisrich (2003), Balan and Metcalfe (2012), namely: opportunity recognition, resource acquisition, social network development, effective response to a highly dynamic environment, and tolerance to market disruption levels. The data collection instrument was a questionnaire in the form of a 5-point Likert scale: very good/strongly agree (5), agree/good (4), neutral/fair (3), disagree/poor (2), and strongly disagree/very poor (1). The validity of the innovativeness instrument was tested through expert judgment, while its reliability was tested using correlation of scores from two raters (Gronlund & Waugh, 2009). For the entrepreneur achievement instrument, validity was tested using Pearson correlation, and reliability was tested using Cronbach's alpha.

Data Analysis Techniques

All research data were analyzed quantitatively using comparative analysis through ANOVA techniques. The analysis was accompanied by Duncan post hoc test analysis to determine which groups had differences. Before the statistical test, a data normality test was first carried out using the Kolmogorov-Smirnov test and a homogeneity test using Levene across groups. However, if the data did not meet the requirements for normality and homogeneity, then non-parametric analysis would be used. The entire analysis used the help of SPSS version 23.00 for windows.

Results

The results begin by describing students' innovativeness in creating entrepreneurial opportunities, followed by the attainment of entrepreneurial behavior, and concluded with the results of hypothesis testing.

Analysis of Students' Innovativeness

This analysis explains about students' innovativeness in creating start-up business (product and/or services) through Entrepreneurial Opportunity. Table 3 shows samples from the experimental groups that use EL model in the seven universities, followed by their short descriptions.

Table 3

Student Entrepreneurial Innovation Products

No	Product	Output	Impact	Description
1	Suka Jajan	Product	Improve skills, provide experience, and develop market.	Digital-based and market development.
2	Banana Crunchtopia	Product	Improve skills, provide experience	Initiating market development.
3	Gohyoung Mixed	Food Product	Improve skills, provide experience	Initiating market development and providing market demand by pre-order system
4	Madu Mongso	Food Product	Kick start market development, provide experience.	Initiating market development, digital marketing, optimizing benefit.
5	Culinary Journey Hub	Services	Improve skills, provide experience, and kick start market development	Product and market development, optimizing benefit.
6	Preloved Thrift	Product	Kick start market development and provide experience.	Initiating market development from product modification.
7	Ruang HAFAL	Services	Provide more experiences	Initiating market development.
8	CIBO "Cimol Bojoy"	Product	Kick start market development and increase profit.	Open door service, initiating market development.
9	Ubi Lumer Ngempet Elor	Product	Kick start product development.	Developing product by adding more variative filling.
10	Clothing Anything Apparel Store	Product	Develop design and product, strengthen experience.	Initiating market development from product modification.

Suka Jajan is a student business group from University of Mataram which offers several products such as Jelly Ball, Cilok, Risol, as well as Bracelets and Rings. The variety of their products serves as their innovation to attract more customers while maintaining good quality and competitive prices. Sales are conducted primarily through a pre-order system with delivery via COD (Cash on Delivery).

Banana Crunchtopia is a product by a student business group from University of Mataram, containing crunchy bananas with various unique flavours such as cheese, chocolate, tiramisu, and matcha, with various toppings such as oreo and cheese. The innovation lies in the customizable flavours and toppings of the bananas, which attain to the customers' request.

Madu Mongso (Traditional Snack) is a product from Surabaya State University students. It is traditional food from Ponorogo that people bring for their family after visiting Ponorogo. It is made with black sticky rice. The innovation of this product lies in the rice's soft texture with a crunchy sensation. The students put their products on social media like Instagram to promote.

Culinary Journey Hub is a service offered by Manado State University students. It is a combination of culinary service, travel experience and education. This business has three main elements; 1) thematic restaurant and café: serving monthly changing menu inspired by tourism destinations with the branding "go around the world"; 2) travel & tour services: providing travel ^ tour to destinations that inspire the menus; and 3) cooking workshop to add educational value of local culture. The innovation of this service lies in the combination between culinary experience and tourism destination theme.

Preloved Thrift. The idea of selling preloved stuff or Thrift comes from Manado State University students. This type of business is popular among young people and teens nowadays because it offers affordable, yet trendy and fashionable stuff. The innovation of this business lies in the students' modifying and repairing the thrifted clothes to elevate the quality so that they can increase the clothes' prices.

Ruang Hafal is a tutoring service for subjects like mathematics, physics, biology and chemistry. The target of this business is junior and senior high school students. The innovation of this business lies in trustworthy tutors and outdoor learning environment which can help students relax, reduce boredom, encourage explorations, and boost learning spirit. This business is a collaborative product of the students in Tanjungpura University as most of the tutors master only one subject. They also offer online classes with digital platform, helping the tutors to teach at ease through video conference.

CIBO (Cimol Bojot), also known as "cimol bojot", is a creative take on the traditional Indonesian snack *cimol* with three different flavors: spicy, shredded chicken and mozzarella. It is made by order through Open Order system. They use Instagram and Whatsapp to introduce their products and they also use COD or Cash On Delivery payment method. The innovation of this product lies in the unique variants offered.

Ubi Lumer Ngempet Elor innovate by adding more varieties of fillings like strawberry, as opposed to the more common chocolate fillings, in *ubi lumer* (melted sweet potato). In addition, they also come in several sizes: small, medium and large. This group promotes their product on social media (Instagram) and at on-the-spot stalls.

Anything Apparel Clothing Store was created by Syah Kuala University students. As clothing line, its innovation lies in the manly design for men and girly design for women. They also offer affordable prices, and you can make custom orders by request. Besides that, this group produces recycled products from excess fabric or patchwork. The specialty of this business is supplying clothes for Anything Apparel and being able to use their own brand to support local brand. The advantages of their products that differentiate them from others in the market are: 1) exclusive limited designs made to order; 2) high durability due to supervised production by the owner; and 3) recycling patchwork.

Entrepreneurial Achievement

The entrepreneurial achievement variable in this research refers to indicators such as: opportunity recognition, resource acquisition, social network development, effective response to a highly dynamic environment, tolerance to market disruption. The analysis of entrepreneurial behavior achievement in this study involved 181 students, with the results summarized in Table 4.

Table 4

Entrepreneurial Achievement of Students

Entrepreneurial Component	Achievement Percentage (N: 181)				
	Very Good	Good	Fair/ Neutral	Poor	Very Poor
Identifying market and product opportunity	7.06	6.47	4.71	7.06	6.47
Using resources to achieve success	5.88	5.88	6.47	4.71	4.12
Synergy and collaboration for profit	18.82	20.00	15.29	18.24	23.53
Optimism toward any kind of opportunities and challenges	39.41	34.12	36.47	34.71	42.35
Using resources to overcome any obstacles and mental/emotional issues due to market's responses.	28.82	33.53	37.06	35.29	23.53

Based on the data provided above, it seems that entrepreneurship learning using Kolb's EL has been proven effective in influencing students' entrepreneurial achievement. From the perspective of the respondents (students), they are capable in reading market opportunities, reading product opportunities; using potential human resources to achieve success; synergizing and cooperating in achieving profit; being optimistic about various opportunities and challenges; and using their resources to overcome mental and emotional issues that arise due to market responses. This achievement occurred because of the implementation of entrepreneurship learning using Kolb's EL model.

Hypothesis Test Results

Prior to the hypothesis testing, normality and homogeneity tests were conducted on the data of student innovativeness in creating entrepreneurial opportunities and entrepreneurial behavior. The Kolmogorov-Smirnov normality test results showed that the probability value for the experimental class data was 0.73 (greater than 0.05), while for the control group it was 0.60 (also greater than 0.05) for the innovativeness variable. For

entrepreneurial behavior data, the Kolmogorov-Smirnov test yielded a value of 0.70 for the experimental class and 0.58 for the control group (both greater than 0.05). These results indicate that the data for both innovativeness and entrepreneurial behavior in the two groups are normally distributed. Next, the homogeneity test showed a Levene's statistic value of 2.420 with a probability of 0.115 (> 0.05) for student innovativeness in creating entrepreneurial opportunities, and 2.407 with a probability of 0.109 (> 0.05) for entrepreneurial behavior. These results suggest that the variances of both datasets are homogeneous. Thus, hypothesis testing in this study could be validly conducted using parametric statistical tests. The results of the hypothesis testing for the variable of student innovativeness in creating entrepreneurial opportunities are summarized in Table 5.

Table 5

Summary of Hypothesis Testing Results based on Students' Innovativeness Parameter

Variable	Group	N	Mean Square	F Value	Sig	Partial Eta Squared
Students' Innovativeness	Experimental (EL)	181	28974.326	2037.455	0.000	.854
	Control (Conventional)	171				
	High Grade Point Average (GPA)	178	92.519	6.506	0.011	.018
	Low Grade Point Average (GPA)	174				
	EL Model – GPA Interaction	181	9667.881	679.839	0.000	.854

The first hypothesis proposed that the Kolb experiential learning model influences student innovativeness in creating entrepreneurial opportunities. Based on the results, the F-value was 2037.455 with a significance level of 0.000 (< 0.05). This indicates that the experiential learning (EL) model significantly affects student innovativeness in generating entrepreneurial opportunities. The Partial Eta Squared value of 0.854 shows that the treatment applied in the experimental class substantially increased student innovativeness.

The second hypothesis suggested that students' Grade Point Average (GPA) influences their innovativeness in creating entrepreneurial opportunities. The analysis yielded an F-value of 6.506 with a significance level of 0.011 (> 0.05), indicating no significant influence of GPA grouping on student innovativeness. Although the contribution is relatively small (Partial Eta Squared = 0.018), academic background still appears relevant in shaping student innovativeness.

The third hypothesis assumed an interaction effect between Kolb's EL model and students' GPA on student innovativeness. According to the analysis (see Table 5), the F-value was 679.839 with a significance level of 0.000 (< 0.05), meaning that student innovativeness differed significantly due to the interaction between the Kolb EL model and GPA. With a high contribution (Partial Eta Squared = 0.854), the findings suggest that the influence of GPA on innovativeness is strongly moderated by the learning model used in the experimental class. These findings are further supported by the post hoc test results presented in Table 6.

Table 6

Post Hoc Analysis of the Interaction Effect between GPA and Experimental Class on Students' Innovativeness in Creating Entrepreneurial Opportunities

Group	N	Subset			
		1	2	3	4
Control-Low GPA	82	13.5366			
Control-High GPA	89		15.4157		
Experiment-High GPA	89			20.5506	
Experiment-Low GPA	92				21.5326

The fourth hypothesis proposed that the experiential learning model would affect the achievement of entrepreneurial behaviour. The test results showed an F value of 554.822 with a probability of 0.000 < 0.05. Thus, it was concluded that Kolb's EL model had a significant effect on students' entrepreneurial behavior. The Partial Eta Squared value of 0.615 indicates that the treatment given in the experimental class dominantly increased and gave a large influence on entrepreneurial behavior, with a contribution of 61.5%.

The fifth hypothesis examined whether students' Grade Point Average (GPA) influenced the achievement of entrepreneurial behaviour. Based on the analysis, the F value was 2.590 with a probability of 0.108 > 0.05, indicating no significant difference in entrepreneurial behaviour between students with high and low GPAs. Thus, it can be concluded that GPA has no effect on students' entrepreneurial behavior.

The sixth hypothesis explored the interaction effect between Kolb's experiential learning model and students' GPA on entrepreneurial behaviour. The analysis yielded an F value of 179.777 with a probability of 0.000 < 0.05, which means that there is a difference in the achievement of student entrepreneurial behavior because of interactions between Kolb's EL model with students' GPA. Hence, it is concluded that there is a significant interaction effect between Kolb's experiential learning model and students' GPA on the achievement of students' entrepreneurial behavior. Partial Eta Squared value of 0.070 (7% contribution) shows that the effect of GPA on students' entrepreneurial behavior depends on the type of class attended—experimental or control. These results are further supported by the post hoc test results presented in Table 7.

Table 7

Post Hoc Analysis of the Interaction Effect between GPA and Experimental Class on Entrepreneurial Behaviour

Group	N	Subset			
		1	2	3	4
Control-Low GPA	82	13.5366			
Control-High GPA	89		15.4157		
Experiment-High GPA	89			20.5506	
Experiment-Low GPA	92				21.5326

The post hoc test results in Table 7 reveal significant differences in student entrepreneurial achievement based on the interaction between the experimental class and GPA level. The Control-Low GPA group had the lowest average student entrepreneurial achievement. In contrast, the Experimental-Low GPA group recorded the highest average, followed by the Experimental-High GPA group. This indicates that the treatment in the

experimental class significantly increased student entrepreneurial achievement, even for students with low GPAs. These results confirm that the EL Kolb model applied in the experimental class not only increased overall student entrepreneurial achievement but also reduced the skill gap between students with low and high GPA, making the treatment an effective approach to support student entrepreneurship development.

Discussion

Based on the elaboration stated above, this research identifies two key aspects of student innovativeness in creating a business as an impact of Kolb's EL model. Those two essential aspects are marketing innovation and product innovation. The first innovation is creating entrepreneurial opportunity through their product innovation while the second innovation relates to innovations in marketing—selling and promoting product. Both aspects, within economic activity, can be viewed from the perspectives of the entrepreneur and the consumer. From the entrepreneur's perspective, according to McNally et al. (2010), innovativeness has two indicators: technological discontinuity, which refers to the ability to adapt to emerging technological trends, and market discontinuity, which involves the introduction of new marketing activities targeting unfamiliar competitors, products, consumers, and distribution channels.

While from the consumer's viewpoint, innovativeness is seen in terms of how effectively a company implements innovation, which depends on perceived innovation signals, associated risks, and behavioral changes when using the innovation. Digital marketing is commonly found in start-up business and it has become their trait. Moreover, some studies show that digital marketing increased business revenues for Micro, Small and Medium Enterprises in Indonesia (Redjeki & Affandi, 2021); as well as upgraded business capacity, qualification, and relevant offerings. This adaptability begins with creative content, images, photos, and attractive product advertisements. Digital marketing is also carried out through e-marketplaces and popular platforms in Indonesia, such as YouTube, Instagram, TikTok Live, Facebook, Toko Kuning, and others. This is what is truly meant by student entrepreneurial innovation—demonstrated not only through real-world experience but also through the regeneration of fresh and creative concepts and ideas, analysis of changing trends and audience preferences, identification of unmet market demand and opportunities, and the application of new technologies to remain competitive.

Creating entrepreneurial opportunities in entrepreneurship education within universities requires several supporting factors, such as effective interaction between universities, industry, and government; the presence of entrepreneurial role models; technology support; and the implementation of entrepreneurship courses that are interesting and fun for students through the application of appropriate learning models (Klofsten et al., 2019). The implementation of EL in entrepreneurship learning plays a role in changing the entrepreneurial mindset based on changing times (Martin et al., 2013). The achievement of students' innovativeness and entrepreneurial behaviour indicates that EL is a high-quality learning model, as it enhances critical thinking skills and entrepreneurial abilities by emphasizing active learner engagement in exploring opportunities within dynamic environments, ultimately enabling the creation of new product ideas (El Bedawy, 2017). This is because being an entrepreneur requires, at the very least, an optimistic attitude and enthusiasm in facing various challenges—traits that influence their willingness to enter and compete in the market.

In comprehending the attainment of entrepreneurial behaviour in students who are intervened by the EL model, it is important to understand how direct experience forms the adaptive and resilient mindset needed for entrepreneurship. EL model fosters entrepreneurial skills that are relevant to the business world with its experiential learning cycles (Halberstadt et al., 2019). EL rises an optimistic, positive attitude towards market opportunities and forward-thinking attitudes towards success (Capolupo, 2023). Blankesteijn et al. (2024) states that EL is an effective strategy for supporting the attainment of entrepreneurship education goals, the development of basic entrepreneurial skills and the cultivation of an entrepreneurial mentality and mindset. Students who learn through the EL model have a greater chance of running a sustainable business. This model emphasizes active learning based on direct experience, such as business simulations, group projects, working with real-world clients, and internships that provide opportunities for students to learn through hands-on practice. EL can be an effective tool in developing self-confidence, capitalizing resources to succeed, being optimistic in seizing opportunities, and being calm about market dynamics (Ghannad & Sörensson, 2024). Entrepreneurship learning must be experience-based, not limited to the classroom (Motta & Galina, 2023). In this way, students can develop the mindset and skills that support entrepreneurial success.

Kolb's EL model can enhance the development of entrepreneurial behavior in students; however, the findings show that there is no significant difference in entrepreneurial outcomes between students with high and low GPAs. A high GPA does not always guarantee success in entrepreneurship (Yanling et al., 2024), because practical skills, creativity, innovation, and adaptability often play a more significant role in the business world (Pandita & Kiran, 2023). Such findings are in contrast with the results of Xu (2023) study, which found that in China, students' GPA influences entrepreneurial intentions and creativity, likely due to the relatively higher quality of education, where GPA more accurately reflects a student's comprehensive abilities. Students with average to high GPAs, when supported by real-life experiences through the EL model, tend to demonstrate stronger entrepreneurial outcomes. This shows that the combination of academic achievement and hands-on experience is a key factor in developing students' entrepreneurial potential, along with high commitment (Nayak et al., 2024). Nevertheless, this research indicates that students with low GPA still get benefit from Kolb's EL model. Kolb's EL is bridging the gap between theoretical and practical abilities, especially for students who need direct experience to understand the concept of entrepreneurship in depth (Azeez & Aboobaker, 2024).

Kolb's EL model, with its four cyclical stages, appears to offer learners real experiences for learners that foster innovation in creating entrepreneurial opportunities and achieving entrepreneurial outcomes. According to Calvert et al. (2016), the four cycles that define Kolb's EL model can support entrepreneurship learning because it provides sufficient understanding of the content, especially relating to industry, opportunity recognition, and meaningful learning outcomes in entrepreneurship. This is also confirmed by the results of the study by Zheng et al. (2021) which found that Kolb's EL model can stimulate innovation and creativity, especially for students. Several studies have also found that Kolb's EL model has a positive impact on self-efficacy and entrepreneurial intentions; as well as on entrepreneurial intentions, skills development, and entrepreneurial competence (Motta & Galina, 2023). Through this EL model, students at universities can allign theory with entrepreneurial practice in the business/industry world, thereby bringing out student innovation (Cheng et al., 2020). Consistent with previous studies, EL promotes higher-order learning, such as critical thinking, independent and meaningful learning, and better knowledge retention (Gittings et al., 2020; Kolb & Kolb, 2005).

Furthermore, according to Zhang et al. (2018) the Concrete Experience stage begins with observing and analyzing a product, which evokes learner feelings and intuitive understanding of the real world. This stage emphasizes the process in entrepreneurial practice (Svinicki & Dixon, 1987). This process is the starting point in starting a business, and it is an important indicator of creative thinking. The concrete experience stage in entrepreneurship teaching has helped learners to understand and apply new experiences critically and creatively, such as analyzing and examining market opportunities (Honig & Hopp, 2019). Meanwhile, creativity is an important key in entrepreneurship, because it features innovative actions (Li et al., 2022). This perspective makes it clear that Kolb's EL provides a framework to strengthen learners to become prospective entrepreneurs.

Kolb's EL model provides students with the opportunity to do reflection and problem solving, higher order thinking, integrative reasoning, goal clarification, and openness to new ideas (Leary & Sherlock, 2020). Students who actively reflect show passions for becoming entrepreneurs and ambitions to develop new products and services, as well as marketing strategies. It is admitted that commitment directly affects students' intentions (Li et al., 2022). According to O'Flynn et al. (2023), encouraging reflection among students during entrepreneurial practices can shift their perspective from simply focusing on how to do it to why they do it, this helping to hone critical thinking skills.

Besides these two elements, the EL model also provides students with some experiences by comparing business theory (abstract conceptualization) with entrepreneurial learning experience. According to Smith (2011) abstract conceptualization is essential because it includes understanding and awareness of challenges, securing capital, planning—even roughly—and identifying the risks associated with product development. During the abstract conceptualization stage, students work in groups to create a business model, plan the necessary funding, handle marketing, identify target markets, and more. This stage is crucial because it shows how students acquire strategic thinking skills for competitive strategies through abstract conception. Based on the results of the study by Huang et al. (2014), business strategy can affect how well a company performs. Business strategies that include digital marketing, analyzing market trends, and market dominance are what determine the success of a business (Piñeros, 2020).

The last cycle in EL is active experimentation. According to Matsuo (2015), the active experimentation stage focuses on practicing business creation based on prior analysis of challenges, opportunities, and trends—not merely chasing trends. In this case, students create innovations in producing business products. In the active experimentation cycle, students train themselves to make predictions and test products from ideas and business opportunities until they are ready to be put on the market (Kennedy et al., 2001). The business products/services themselves have uniqueness and selling point in the market, including a good digital marketing. The point is that the students test new concepts through business/entrepreneurship practices (active experimentation) by themselves (Svinicki & Dixon, 1987). Students in the experimental group succeeded in selling products digitally and collaborating with marketing network providers. This activity represents real entrepreneurship (Hisrich & Ramadani, 2017), and provided students with entrepreneurial experience (Stirling et al., 2017).

Transforming campuses into entrepreneurial universities which supports and provides plenary service quality by maximizing resources is very important (Cerver Romero et al., 2020). This includes the accessibility of supporting facilities for entrepreneurship learning such as entrepreneurship laboratories, innovation centers, and business units tailored to

the characteristics of each university. Furthermore, ideally, universities as an organization where business start-ups can emerge should be supported by the proper resources as stated by Klingbeil et al. (2018), such as strong human, financial, technological, and social capital, along with at least basic experience in industry. However, the problem is that the quality of learning is still relatively low. In truth, entrepreneurial universities should efficiently manage resources and foster collaboration and coordination across human capital within the institution.

Conclusion, Recommendations, and Limitations

Based on the discussion above, it can be concluded that Kolb's EL model is quite effective in strengthening student innovation in creating entrepreneurial opportunities and entrepreneurial behavior. The EL model emphasizes practical skills by providing real experiences in learning and soft skills (such as the ability to collaborate and to solve problems). Innovativeness is not only apparent in the business products/services but also in marketing, thus providing space in creating entrepreneurial opportunities. Moreover, Kolb's EL model also becomes an effective bridge to encourage the achievement of entrepreneurial behavior. Hence, Kolb's EL model has been proven effective in enhancing entrepreneurial behavior achievement, both in terms of successfully starting new businesses and sustaining ventures that have already been initiated. Kolb's EL model can serve as a strategic approach to optimize students' entrepreneurial potential, regardless of their GPA.

The practical implication of this study is that applying Kolb's EL model in entrepreneurship courses at the university level can effectively produce graduates with entrepreneurial behavior and opportunity-creating abilities. This approach is proposed as a solution based on the findings of this research. Beyond empirical rigidity, it is highly recommended that further research address the current study's limitations, such as expanding the study sample, conducting follow-up research and development, and integrating various relevant learning theories. In addition, it is a priority for universities to align entrepreneurship education with entrepreneurial activities outside the specific fields of study mentioned.

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References

Abu Amodu, A., & Aka, A. (2017). The Primacy of Social Networks in Entrepreneurship: A Study of Networking Ability and Innovativeness Among University Students in north Central Nigeria. *PEOPLE: International Journal of Social Sciences*, *3*(3), 644-657. https://doi.org/10.20319/pijss.2017.33.644657

Adib, H. (2024). Experiential learning in higher education: Assessing the role of business simulations in shaping student attitudes towards sustainability. *The International Journal of Management Education*, *22*(2), 100968. https://doi.org/10.1016/j.ijme.2024.100968

Antoncic, B., & Hisrich, R. D. (2003). Clarifying the intrapreneurship concept. *Journal of Small Business and Enterprise Development*, *10*(1), 7-24. https://doi.org/10.1108/14626000310461187

Antonietti, R., & Gambarotto, F. (2018). The role of industry variety in the creation of innovative start-ups in Italy. *Small Business Economics*, *54*(2), 561-573. https://doi.org/10.1007/s11187-018-0034-4

Ary, D., Jacobs, L. C., Razavieh, A., & Sorensen, C. K. (2009). *Introduction to Research in Education* (8th, Ed.). Cengage Learning. https://ebookppsunp.wordpress.com/wp-content/uploads/2016/06/donald_ary_lucy_cheser_jacobs_asghar_razavieh_bookfi-org.pdf

Azeez, F., & Aboobaker, N. (2024). Exploring new frontiers of experiential learning landscape: a hybrid review. *The Learning Organization*, *31*(6), 985-1007. https://doi.org/10.1108/TLO-02-2023-0022

Balan, P., & Metcalfe, M. (2012). Identifying teaching methods that engage entrepreneurship students. *Education + Training*, *54*(5), 368-384. https://doi.org/10.1108/00400911211244678

Bell, R., & Bell, H. (2016). An enterprise opportunity for entrepreneurial students: Student enterprise development and experience assessed through the student voice. *Education + Training*, *58*(7/8), 751-765. https://doi.org/10.1108/et-12-2014-0150

Bergmann, H., Hundt, C., & Sternberg, R. (2016). What makes student entrepreneurs? On the relevance (and irrelevance) of the university and the regional context for student start-ups. *Small Business Economics*, *47*(1), 53-76. https://doi.org/10.1007/s11187-016-9700-6

Blankesteijn, M. L., Houtkamp, J., & Bossink, B. (2024). Towards transformative experiential learning in science- and technology-based entrepreneurship education for sustainable technological innovation. *Journal of Innovation & Knowledge*, *9*(3), 100544. https://doi.org/10.1016/j.jik.2024.100544

Bradberry, L. A., & De Maio, J. (2018). Learning By Doing: The Long-Term Impact of Experiential Learning Programs on Student Success. *Journal of Political Science Education*, *15*(1), 94-111. https://doi.org/10.1080/15512169.2018.1485571

Bygrave, W. D., & Hofer, C. W. (1992). Theorizing about Entrepreneurship. *Entrepreneurship Theory and Practice*, *16*(2), 13-22. https://doi.org/10.1177/104225879201600203

Byrne, J., & Toutain, O. (2012). Research in Entrepreneurship: Learning from Learning Theories. *Academy of Management Proceedings*, *2012*(1), 14080. https://doi.org/10.5465/AMBPP.2012.14080abstract

Calvert, F. L., Crowe, T. P., & Grenyer, B. F. S. (2016). Dialogical reflexivity in supervision: An experiential learning process for enhancing reflective and relational competencies. *The Clinical Supervisor*, *35*(1), 1-21. https://doi.org/10.1080/07325223.2015.1135840

Capolupo, N. (2023). Looking Forward: Hubs and Entrepreneurs' Skills for the Future. In *Entrepreneurial Learning Evolutions in Startup Hubs: A Post-Pandemic Perspective for Lean Organizations* (pp. 69-86). Emerald Publishing Limited. https://doi.org/10.1108/978-1-83753-070-020231005

Cerver Romero, E., Ferreira, J. J. M., & Fernandes, C. I. (2020). The multiple faces of the entrepreneurial university: a review of the prevailing theoretical approaches. *The*

Journal of Technology Transfer, *46*(4), 1173-1195. https://doi.org/10.1007/s10961-020-09815-4

Cheng, Y.-C., Huang, L.-C., Yang, C.-H., & Chang, H.-C. (2020). Experiential Learning Program to Strengthen Self-Reflection and Critical Thinking in Freshmen Nursing Students during COVID-19: A Quasi-Experimental Study. *International journal of environmental research and public health*, *17*(15), 5442. https://doi.org/10.3390/ijerph17155442

Danish, R. Q., Asghar, J., Ahmad, Z., & Ali, H. F. (2019). Factors affecting "entrepreneurial culture": the mediating role of creativity. *Journal of Innovation and Entrepreneurship*, *8*(1). https://doi.org/10.1186/s13731-019-0108-9

Durão, M., Nogueira, S., Fernandes, S., & Neves, A. (2023). Entrepreneurship Learning: Applying a Revised Experiential Learning Model to Cultural and Creative Industries. In *Smart Innovation, Systems and Technologies* (pp. 153-163). Springer Nature Singapore. https://doi.org/10.1007/978-981-19-6585-2_14

El Bedawy, R. (2017). Experiential Learning for Supporting Learning Effectiveness in Business Education: A Case Study from Egypt. *International Journal of Business and Management*, *12*(5), 159. https://doi.org/10.5539/ijbm.v12n5p159

Etzkowitz, H., & Zhou, C. (2008). Introduction to special issue Building the entrepreneurial university: a global perspective. *Science and Public Policy*, *35*(9), 627-635. https://doi.org/10.3152/030234208x363178

Ferguson, J. L., Makarem, S. C., & Jones, R. E. (2015). Using a class blog for student experiential learning reflection in business courses. *Journal of Education for Business*, *91*(1), 1-10. https://doi.org/10.1080/08832323.2015.1108279

Ghannad, N., & Sörensson, A. (2024). Entrepreneurial education in a pandemic era: Timeframes, demographics, and the nexus between teaching and experiential learning. *Industry and Higher Education*, *39*(1), 8-16. https://doi.org/10.1177/09504222241249898

Gittings, L., Taplin, R., & Kerr, R. (2020). Experiential learning activities in university accounting education: A systematic literature review. *Journal of Accounting Education*, *52*, 100680. https://doi.org/10.1016/j.jaccedu.2020.100680

Gronlund, N. E., & Waugh, C. K. (2009). *Assessment of student achievement* (9th ed.). ERIC. https://catalog.libraries.psu.edu/catalog/4435202

Halberstadt, J., Timm, J.-M., Kraus, S., & Gundolf, K. (2019). Skills and knowledge management in higher education: how service learning can contribute to social entrepreneurial competence development. *Journal of Knowledge Management*, *23*(10), 1925-1948. https://doi.org/10.1108/jkm-12-2018-0744

Hanaysha, J. R., Al-Shaikh, M. E., Joghee, S., & Alzoubi, H. M. (2021). Impact of Innovation Capabilities on Business Sustainability in Small and Medium Enterprises. *FIIB Business Review*, *11*(1), 67-78. https://doi.org/10.1177/23197145211042232

Haritha, D. G., & Rao, D. R. (2024). A Holistic Approach to Professional Development: Integrating Kolb's Experiential Learning Theory for Soft Skills Mastery. *Journal of Engineering Education Transformations*, *37*(IS2), 415-424. https://doi.org/10.16920/jeet/2024/v37is2/24069

Hisrich, R. D., & Ramadani, V. (2017). *Effective entrepreneurial management*. Springer. https://doi.org/10.1007/978-3-319-50467-4

Honig, B., & Hopp, C. (2019). Learning orientations and learning dynamics: Understanding heterogeneous approaches and comparative success in nascent entrepreneurship.

Journal of Business Research, *94*, 28-41. https://doi.org/10.1016/j.jbusres.2018.09.014

Huang, H.-C., Lai, M.-C., Kao, M.-C., & Sung, C.-H. (2014). A team-learning framework for business model innovation in an emerging market. *Journal of Management & Organization*, *20*(1), 100-120. https://doi.org/10.1017/jmo.2014.20

Huber, L. R., Sloof, R., & Van Praag, M. (2014). The effect of early entrepreneurship education: Evidence from a field experiment. *European Economic Review*, *72*, 76-97. https://doi.org/10.1016/j.euroecorev.2014.09.002

Kennedy, E. J., Lawton, L., & Walker, E. (2001). The Case for Using Live Cases: Shifting the Paradigm in Marketing Education. *Journal of Marketing Education*, *23*(2), 145-151. https://doi.org/10.1177/0273475301232008

Kim, M., & Park, M. J. (2023). Absorptive capacity in entrepreneurial education: Rethinking the Kolb's experiential learning theory. *The International Journal of Management Education*, *21*(3), 100873. https://doi.org/10.1016/j.ijme.2023.100873

Klingbeil, C., Semrau, T., Ebers, M., & Wilhelm, H. (2018). Logics, Leaders, Lab Coats: A Multi-Level Study on How Institutional Logics are Linked to Entrepreneurial Intentions in Academia. *Journal of Management Studies*, *56*(5), 929-965. https://doi.org/10.1111/joms.12416

Klofsten, M., Fayolle, A., Guerrero, M., Mian, S., Urbano, D., & Wright, M. (2019). The entrepreneurial university as driver for economic growth and social change - Key strategic challenges. *Technological Forecasting and Social Change*, *141*, 149-158. https://doi.org/10.1016/j.techfore.2018.12.004

Koch, F., Hoellen, M., Konrad, E. D., & Kock, A. (2023). Innovation in the creative industries: Linking the founder's creative and business orientation to innovation outcomes. *Creativity and Innovation Management*, *32*(2), 281-297. https://doi.org/10.1111/caim.12554

Kolb, A. Y., & Kolb, D. A. (2005). Learning Styles and Learning Spaces: Enhancing Experiential Learning in Higher Education. *Academy of Management Learning & Education*, *4*(2), 193-212. https://doi.org/10.5465/amle.2005.17268566

Kolb, D. A. (1984). *Experiential learning: Experience as the Source of Learning and Development*. Prentice Hall. https://www.researchgate.net/publication/235701029

Lackéus, M., Lundqvist, M., & Middleton, K. W. (2016). Bridging the traditional-progressive education rift through entrepreneurship. *International Journal of Entrepreneurial Behavior & Research*, *22*(6), 777-803. https://doi.org/10.1108/ijebr-03-2016-0072

Leary, M. P., & Sherlock, L. A. (2020). Service-Learning or Internship: A Mixed-Methods Evaluation of Experiential Learning Pedagogies. *Education Research International*, *2020*, 1-9. https://doi.org/10.1155/2020/1683270

Li, L.-N., Huang, J.-H., & Gao, S.-Y. (2022). The Relationship Between Personality Traits and Entrepreneurial Intention Among College Students: The Mediating Role of Creativity. *Frontiers in psychology*, *13*, 822206-822206. https://doi.org/10.3389/fpsyg.2022.822206

Maheshwari, G., Kha, K. L., & Arokiasamy, A. R. A. (2022). Factors affecting students' entrepreneurial intentions: a systematic review (2005–2022) for future directions in theory and practice. *Management Review Quarterly*, *73*(4), 1903-1970. https://doi.org/10.1007/s11301-022-00289-2

Martin, B. C., McNally, J. J., & Kay, M. J. (2013). Examining the formation of human capital in entrepreneurship: A meta-analysis of entrepreneurship education outcomes. *Journal of Business Venturing*, *28*(2), 211-224. https://doi.org/10.1016/j.jbusvent.2012.03.002

Matsuo, M. (2015). A Framework for Facilitating Experiential Learning. *Human Resource Development Review*, *14*(4), 442-461. https://doi.org/10.1177/1534484315598087

McNally, R. C., Cavusgil, E., & Calantone, R. J. (2010). Product Innovativeness Dimensions and Their Relationships with Product Advantage, Product Financial Performance, and Project Protocol. *Journal of Product Innovation Management*, *27*(7), 991-1006. https://doi.org/10.1111/j.1540-5885.2010.00766.x

Melović, B., Jocović, M., Dabić, M., Vulić, T. B., & Dudic, B. (2020). The impact of digital transformation and digital marketing on the brand promotion, positioning and electronic business in Montenegro. *Technology in Society*, *63*, 101425. https://doi.org/10.1016/j.techsoc.2020.101425

Menzies, T. V., & Paradi, J. C. (2002). Encouraging technology-based ventures: Entrepreneurship education and engineering graduates. *New England Journal of Entrepreneurship*, *5*(2), 57-64. https://doi.org/10.1108/neje-05-02-2002-b008

Motta, V. F., & Galina, S. V. R. (2023). Experiential learning in entrepreneurship education: A systematic literature review. *Teaching and Teacher Education*, *121*, 103919. https://doi.org/10.1016/j.tate.2022.103919

Nayak, P. M., Nayak, M., & Joshi, H. G. (2024). Exploring entrepreneurial intentions: integrating Kolb's experiential learning theory with Ajzen's theory of planned behaviour. *Cogent Social Sciences*, *10*(1). https://doi.org/10.1080/23311886.2024.2382283

Nirwan, M. D., & Dhewanto, W. (2015). Barriers in Implementing the Lean Startup Methodology in Indonesia – Case Study of B2B Startup. *Procedia - Social and Behavioral Sciences*, *169*, 23-30. https://doi.org/10.1016/j.sbspro.2015.01.282

Nwankwo, C. A., & Kanyangale, M. (2020). Deconstructing entrepreneurial marketing dimensions in small and medium-sized enterprises in Nigeria: a literature analysis. *International Journal of Entrepreneurial Venturing*, *12*(3), 321. https://doi.org/10.1504/ijev.2020.107931

O'Flynn, E., Stephens, S., Cunningham, I., Burke, A., & McLaughlin, C. (2023). Experiential learning and the entrepreneurial university: An Irish case study. *Industry and Higher Education*, *37*(5), 663-672. https://doi.org/10.1177/09504222221151146

Pandita, A., & Kiran, R. (2023). Tapping the Potential of Academic Leadership, Experiential Learning, and Employability of Students to Enhance Higher Educational Institute Performance. *Sage Open*, *13*(3). https://doi.org/10.1177/21582440231183932

Pihie, Z. A. L., & Bagheri, A. (2010). Entrepreneurial attitude and entrepreneurial efficacy of technical secondary school students. *Journal of Vocational Education & Training*, *62*(3), 351-366. https://doi.org/10.1080/13636820.2010.509806

Piñeros, M. L. (2020). Economic sectors and the monetary policy risk-taking channel. *Cuadernos de Economía*, *43*(123), 275-290. https://doi.org/10.32826/cude.v43i123.135

Radu Lefebvre, M., & Redien-Collot, R. (2013). "How to Do Things with Words": The Discursive Dimension of Experiential Learning in Entrepreneurial Mentoring Dyads. *Journal of Small Business Management*, *51*(3), 370-393. https://doi.org/10.1111/jsbm.12022

Rauch, A., & Hulsink, W. (2015). Putting Entrepreneurship Education Where the Intention to Act Lies: An Investigation Into the Impact of Entrepreneurship Education on Entrepreneurial Behavior. *Academy of Management Learning & Education*, *14*(2), 187-204. https://doi.org/10.5465/amle.2012.0293

Redjeki, F., & Affandi, A. (2021). Utilization of Digital Marketing for MSME Players as Value Creation for Customers during the COVID-19 Pandemic. *International Journal of Science and Society*, *3*(1), 40-55. https://doi.org/10.54783/ijsoc.v3i1.264

Reeves, T. (2006). Design research from a technology perspective. In *Educational design research* (pp. 64-78). Routledge. https://doi.org/10.4324/9780203088364-13

Sánchez, A., Lago, A., Ferràs, X., & Ribera, J. (2011). Innovation Management Practices, Strategic Adaptation, and Business Results: Evidence from the Electronics Industry. *Journal of technology management & innovation*, *6*(2), 14-39. https://doi.org/10.4067/s0718-27242011000200002

Schulte, P. (2004). The entrepreneurial university: a strategy for institutional development. *Higher Education in Europe*, *29*(2), 187-191. https://doi.org/10.1080/0379772042000234811

Smith, J. G. (2011). Abstracting The Concrete, Concretizing The Abstract: Reframing Diversity Education Through Experiential Learning Theory. *Journal of Diversity Management (JDM)*, *6*(4), 1-8. https://doi.org/10.19030/jdm.v6i4.6662

Stirling, A., Kerr, G., MacPherson, E., Banwell, J., Bandealy, A., & Battaglia, A. (2017). Do Postsecondary Internships Address the Four Learning Modes of Experiential Learning Theory? An Exploration through Document Analysis. *Canadian Journal of Higher Education*, *47*(1), 27-48. https://doi.org/10.47678/cjhe.v47i1.186196

Svinicki, M. D., & Dixon, N. M. (1987). The Kolb Model Modified for Classroom Activities. *College Teaching*, *35*(4), 141-146. https://doi.org/10.1080/87567555.1987.9925469

Van den Bergh, V., Mortelmans, D., Spooren, P., Van Petegem, P., Gijbels, D., & Vanthournout, G. (2006). New Assessment Modes Within Project-Based Education-The Stakeholderes. *Studies in Educational Evaluation*, *32*(4), 345-368. https://doi.org/10.1016/j.stueduc.2006.10.005

van der Westhuizen, T., & Goyayi, M. J. (2019). The influence of technology on entrepreneurial self-efficacy development for online business start-up in developing nations. *The International Journal of Entrepreneurship and Innovation*, *21*(3), 168-177. https://doi.org/10.1177/1465750319889224

Wasilczuk, J. E., & Stankiewicz, K. (2021). It is not OK but it works – unproductive entrepreneurship, the case of Poland. *Economic Research-Ekonomska Istraživanja*, *35*(1), 2943-2959. https://doi.org/10.1080/1331677x.2021.1985571

Wathanakom, N., Khlaisang, J., & Songkram, N. (2020). The study of the causal relationship between innovativeness and entrepreneurial intention among undergraduate students. *Journal of Innovation and Entrepreneurship*, *9*(1). https://doi.org/10.1186/s13731-020-00125-5

Wegner, D., Thomas, E., Teixeira, E. K., & Maehler, A. E. (2019). University entrepreneurial push strategy and students' entrepreneurial intention. *International Journal of Entrepreneurial Behavior & Research*, *26*(2), 307-325. https://doi.org/10.1108/ijebr-10-2018-0648

Xu, M. (2023). The effects of personality traits on entrepreneurial intention and creativity among Chinese and African college students in era of industry 4.0/5.0. *Frontiers in psychiatry*, *14*, 1098148-1098148. https://doi.org/10.3389/fpsyt.2023.1098148

Yanling, L., Sulong, R. M., Ahmad, N. A., & Ruihua, L. (2024). Grıt Relates to Academıc Performance Among College Students: A Fıve-Year Systematıc Lıterature Revıew. *Journal of Institutional Research South East Asia*, *22*(1), 47-69. http://www.seaairweb.info/journal/articles/JIRSEA_v22_n01/JIRSEA_v22_n01_Article03.pdf

Zhang, H., Zhou, Y., & Stodolska, M. (2018). Socio-Cultural Adaptation Through Leisure Among Chinese International Students: An Experiential Learning Approach. *Leisure Sciences*, *44*(2), 141-160. https://doi.org/10.1080/01490400.2018.1491351

Zheng, X., Yang, Y., Zhang, Q., & Yang, J. (2021). Linking entrepreneurial learning to entrepreneurial competencies: the moderating role of personality traits. *Current Psychology*, *42*(14), 11597-11612. https://doi.org/10.1007/s12144-021-02465-1

Zhou, J., & Jew, L. (2023). Factors Influencing the Employability of Higher Vocational Students: A Case of Western China. *International Journal of Operations and Quantitative Management*, *29*(1), 128-141. https://submissions.ijoqm.org/index.php/ijoqm/article/view/164/55