

INVESTIGATING THE EFFECTIVENESS OF INTER-VARSITY STOCK CHALLENGE TO PREPARE LEARNERS FOR FUTURE READINESS

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ABSTRACT: In recent decades, graduate employability has been clearly recognized as one of the priorities of higher education. This has driven higher education institutions to formulate their curriculum on graduate preparedness for employability. Academic initiatives such as work-based learning, problem-based learning, simulation-based learning, and internships have become the key focus to fostering graduate employability by ensuring students acquire and develop competencies to match the industry requirements. Research studies revealed that simulation-based learning provides the learner with an effective platform to merge theory with practice. It serves as an effective tool for mediating learning and promotes soft skills that are highly valued by prospective employers in the current work environment. Therefore, it is important for higher education institutions to actively embed simulation-based learning into their curriculum in preparing learners for future readiness. This research is the continuation of our previous study, namely Investigating the Effectiveness of Inter-Varsity Stock Challenge (IVSC) to Inculcate Stock Trading Literacy Amongst Youth. This study investigates the effectiveness of IVSC in preparing learners for future readiness in both employability and the progression of their studies. The proposed research framework in this study is guided and modified from Kalugala, Chen & Gamini's conceptual framework on individual investors' learning behavior. Reliability analysis that was carried out showed that the questionnaire had acceptable reliability with Cronbach's alpha readings between 0.96 and 0.97 which is well above the recommended level of 0.70. The statistical analysis revealed that there was a statistically significant perception of the effectiveness of IVSC for future employability preparedness. The IVSC not only serves as an effective platform to enhance and develop participants' stock trading practical skills and soft skills that are required in the industry but also acts as a powerful tool to motivate them to pursue a career related to the stock market/investment in the future. The results also revealed that there were strong statistically positive correlations between stock trading literacy and participants' preparedness in the progression of their studies.

Keywords: Simulation-based learning; future readiness; employability; progression of studies; experiential learning; Inter-Varsity Stock Challenge

INTRODUCTION

Over the past few decades, higher education institutions have been experiencing a paradigm shift from conventional teaching methods to interactive and experiential learning. Conventional teaching methods and techniques in the form of lectures to educate and provide young learners with theoretical insights are no longer applicable in the current global competitive market environment. The declarative knowledge gained from conventional teaching is found lacking in real-world experiences and actual practices necessary to prepare graduates for work readiness skills required in the new global competitive environment.

Interactive teaching strategy using simulation-based learning as a supplemental pedagogical tool has become increasingly popular and important in higher education to enhance and enrich the teaching and learning process [1, 3, 4, 5, 6, 9, 16, 17, 20, 21, 27]. Generally, simulation-based learning promotes interactive teaching and learning, improves students' motivation and satisfaction in the course, and enhances learning. Simulation-based learning has been incorporated into a variety of disciplines, including business [1, 3, 6, 20, 23, 27], STEM [4, 11], and health education [2, 9].

In recent years, simulations in business education have become significantly important to serve as an effective pedagogical tool for interactive and experiential learning. Business simulation learning is a dynamic, simplified, and realistic business model that provides the learner with a platform to merge theory with practice [6, 10]. Simulation-based learning is an effective tool for mediating learning and

promotes soft skills and hard skills to well-prepare learners for future employment [1, 24].

The initiative to integrate simulation-based activities into the curriculum has become more prominent in higher education institutions to provide learners with authentic learning environments as well as to develop graduate employability skills [1, 24, 25]. Therefore, it is timely and important for higher education institutions to make improvements to embed simulation-based learning into their curriculum to prepare learners for future readiness in both employability and the progression of their studies.

In our previous study on the Inter-Varsity Stock Challenge (IVSC), statistical analysis revealed that IVSC as an industry-led stock trading simulation initiative was a significant and effective platform to raise awareness of stock market investing and promotes financial literacy amongst the youths [18]. Further from the Inter-Varsity Stock Challenge (IVSC) findings, this paper sets out to study how the stock trading simulation activity effectively prepares learners for future readiness in both employability and the progression of their studies.

LITERATURE REVIEW

An interactive teaching strategy using simulation-based learning offers an effective way to improve lecturer-student engagement as well as enhance student experiential learning [6, 9, 20, 23]. Simulation-based learning enables students to apply theoretical knowledge to practice which is reflective of Kolb's [15] experiential learning theory. Kolb's learning model is known as a holistic process of adaptation to the world whereby knowledge is created and recreated through the

transformation experience. Learning involves the integrated functioning of thinking, feeling, perceiving, and behaving that may portray as a lifelong learning process that bridges the gap from higher education to future employability.

Simulation-based activities serve as an effective pedagogical strategy to foster experiential learning and promote interactive learning experiences [6, 10, 20]. The research findings revealed that the use of simulation-based activities in higher education has the potential to enhance the cognitive, affective, and behavioral learning dimensions of learners [6, 13, 18, 20]. Simulation-based activities have shown to be effective not only to reinforce knowledge and skills but also to act as a powerful tool in motivating and creating interest in students toward their studies as well as to develop teamwork and leadership skills among learners [6, 10].

Simulation-based activities are reliable and cost-effective virtual system that provides learners with a framework for interactive and challenging experiential learning in a risk-free environment [20, 23, 27]. Simulation-based activities provide vicarious experience to participants to learn from their mistakes without detrimental consequences. Throughout the simulation-based activities, participants can learn from their mistakes by knowledge accumulated from individual learning and social learning [13]. The knowledge accumulated from participants' own trading experiences (individual learning) and other participants' trading experiences (social learning) is expected to provide favorable and effective decision-making. Business simulation creates an opportunity for learners to improve their decision-making skills, and personal and social competencies in a risk-free environment while merging theory with practice. Analysis and application of theories in business simulations offer learners the chance of first-hand experience in a realistic controlled environment before encountering the real-life world of work [3, 23].

The Employability Skills Framework established by the Department of Education, Science and Training (DEST) [8] includes communication skills, teamwork ability, problem-solving skills, entrepreneurialism, planning and organizational ability, self-management ability, self-directed learning, and scientific and technological ability. These are key employability skills and personal attributes of successful employment in the current working environment. Therefore, it is the priority of higher education institutions to improve and enhance their curriculum to foster graduate employability by ensuring that graduates acquire and develop competencies to match the industry requirements [7, 12, 14].

Research findings revealed that simulation-based learning serves as an effective tool for mediating learning and promotes soft skills and hard skills to well-prepare learners for future employment [1, 7, 24]. The soft skills (communication skills, personal competencies, social competencies, entrepreneurialism, and global perspective ability) and hard skills (discipline-specific knowledge, cognitive skills, including critical thinking and problem-solving skills) are graduate capabilities and qualities to prepare the learner for successful employment and future learning. These soft skills and hard skills are qualities and attributes valued by potential employers in the current increasing competitive and volatile graduate employment market [14]. Statistical analysis revealed that stimulation-

based activities do significantly develop participants' hard skills, whereas soft skills are often more difficult to acquire and develop [24]. There is not enough data to show that business simulation games could potentially develop participants' soft skills to meet the needs of prospective employers [16, 21]. Moreover, the appreciation of the acquisition of soft skills through simulation activities may only be realized in the future when participants had immersed themselves in the complex and dynamic real world of work.

The ability of learners to utilize and apply internalized knowledge acquired from simulations has increasingly promoted the adoption of simulation-based learning in higher education institutions in recent decades to develop graduate employability skills [26]. The integration of simulation-based activities into the curriculum has added value to students' experiential learning experience. Students' ability to work collaboratively, solve problems, and integrate knowledge has strengthened the recognition that simulation-based learning does serve as an effective and excellent pedagogical tool for enhancing graduates' job readiness and improving learners' future academic achievements [26, 27].

PROBLEM STATEMENT

In recent decades, graduate employability has been clearly recognized as one of the main objectives of university education. This has driven the university to formulate its curriculum on graduate preparedness for employability. Academic initiatives such as work-based learning, problem-based learning, simulation-based learning, and internships have become the key focus to fostering graduate employability by ensuring students acquire and develop competencies to match the industry requirements.

Research studies revealed that simulation-based learning provides the learner with an effective platform to merge theory with practice. Many research studies have explored and evaluated the effectiveness of simulations to enhance students' experiential learning experience in the cognitive, affective, and behavioral dimensions. However, there are limited studies done to explore the effectiveness of simulations in preparing learners for future readiness in both employability and the progression of their studies. Therefore, it is timely and important for this research initiative to close the gap. This paper will explore how the Inter-Varsity Stock Challenge (IVSC) as an industry-led stock trading simulation initiative effectively prepare learners for future readiness in both employability and the progression of their studies. This IVSC stock trading simulation initiative is also in line with Malaysia Higher Education Blueprint 2015-2025 [19] and National Graduate Employability Blueprint 2012-2017 [22] where both their focus was on enhancing the students learning experience and industry collaboration to strengthen graduate employability.

PURPOSE OF STUDY

In our previous study, statistical analysis revealed that the Inter-Varsity Stock Challenge (IVSC) effectively raise the millennial's awareness of investing in the stock market and enhance their stock trading literacy [18]. Further from the Inter-Varsity Stock Challenge (IVSC) findings, the purpose of this study is to investigate the effectiveness of stock

trading simulation activity, namely the Inter-Varsity Stock Challenge (IVSC) in preparing learners for future readiness in both employability and the progression of their studies. Two null hypotheses and their subsidiary null hypotheses were formulated to guide the research process.

H₀₁: There is no significant perception of the effectiveness of IVSC for future employability preparedness

H_{01a}: There is no significant perception of the effectiveness of IVSC for future employability preparedness (stock market/investment career)

H_{01b}: There is no significant perception of the effectiveness of IVSC for future employability preparedness (practical skills)

H_{01c}: There is no significant perception of the effectiveness of IVSC for future employability preparedness (soft skills)

H₀₂: There is no correlation between the participant's perception of stock trading literacy and the perception of participants' preparedness in the progression of their studies

H_{02a}: There is no statistically significant relationship between the participants' perception of stock trading literacy and the perception of participants' preparedness in the progression of their studies (active learner)

H_{02b}: There is no statistically significant relationship between the participants' perception of stock trading literacy and the perception of participants' preparedness in the progression of their studies (critical thinking skills)

H_{02c}: There is no statistically significant relationship between the participants' perception of stock trading literacy and the perception of participants' preparedness in the progression of their studies (practical skills)

RESEARCH FRAMEWORK

This study is guided by Kalugala, Chen & Gamini [13] conceptual framework on individual investors' learning behavior in the context of stock trading. This conceptual framework incorporates cognitive, affective, and social aspects of learning that led to the change in the frame of reference on individual stock trading. As shown in Figure 1, individual and social learning behavior processes are expected to be influenced by various internal and external structures.

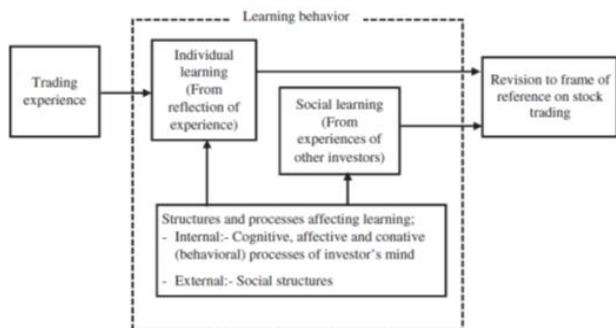


Figure 1: Conceptual framework for individual investors' learning behavior

The internal structures that foster individual learning include cognitive, affective, and behavioral of investors. Investor cognitively evaluates their own past trading experiences and transform the experiences into stock trading knowledge. This learning process would affect individual perspectives in adapting to the dynamic market condition and could result in

a change to the frame of reference for stock trading. In addition, the external social structures which include imitating and inquiring into other investors' experiences would affect social learning. Social learning developed from the experiences of other investors is expected to be beneficial when an individual obtained information about the reasons and strategy underlying these behaviors.

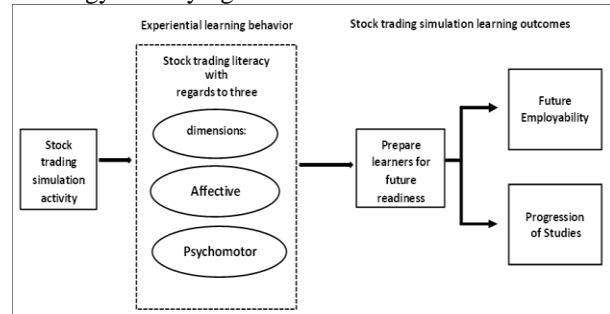


Figure 2: A proposed research framework for simulation stock trading guided and modified from Kalugala, Chen & Gamini conceptual framework on individual investors' learning behavior

The proposed research framework for simulation stock trading to prepare learners for future readiness in this study is guided and modified from Kalugala, Chen & Gamini [13] conceptual framework on individual investors' learning behavior. A set of two null hypotheses and their subsidiary null hypothesis as stated in the purpose of the study section are formulated from the proposed research framework as shown in Figure 2. Stock trading simulation activity fosters experiential learning behavior among participants. The stock trading simulation activity enhanced stock trading literacy among participants in three dimensions: cognitive, affective, and psychomotor. These qualities and attributes are expected to prepare learners for future readiness in aspects of future employability and the progression of their studies.

METHODOLOGY

This research is the continuation of our previous study which was to investigate the effectiveness of the Inter-Varsity Stock Challenge (IVSC) to raise the millennial's awareness of investing in the stock market and enhance their stock trading literacy in three dimensions: cognitive, affective, and psychomotor [18]. This study investigates the effectiveness of simulation-based learning, namely the Inter-Varsity Stock Challenge (IVSC) to prepare learners for future readiness in both employability and the progression of their studies. The questionnaire was divided into two parts the aspects of future employability and the progression of studies. This research investigates the effectiveness of IVSC for future employability preparedness in the dimension of stock market career, practical skills, and soft skills that are valued by prospective employers in the competitive workplace. This research also focuses on the correlation between participants' perception of stock trading literacy and perception of participants' preparedness in the progression of their studies. The dimensions of active learner attributes, critical thinking skills, and practical skills developed through IVSC are expected to prepare learners for the progression of their studies.

Inter-Varsity Stock Challenge (IVSC)

The Inter-Varsity Stock Challenge (IVSC) was an industry-led stock trading simulation activity initiated by Taylor's University Industry Advisory Panel – N2N Connect Berhad and Taylor's American Degree Transfer Program. This Inter-Varsity competition was aimed to educate the youths to be intelligent and informed investors in order to increase their participation in the capital market. This IVSC was also a unique experiential learning strategy that merges theory with practice. IVSC encourages youths to learn more about stock trading, managing portfolios, and analyzing market sentiments under the industry mentorship guidance of the broking houses.

The IVSC was a real-world stock trading executed in real-time and followed the local trading hours of Bursa Malaysia. This interactive stock trading competition was opened to university/college and high school students to trade virtually for a period of 3 months. This competition was a team challenge, comprising of 1-4 members in a team. The teams were put to the challenge of achieving the highest returns from real-time investments with a virtual initial investment capital of RM100,000 per team. Apart from demonstrating the ability to maximize investment returns, they were also required to demonstrate a sound understanding of investment principles and strategies to the panel of judges comprising industry leaders in the financial markets during the finals. The judging criteria were 70% on profit made based on portfolio value and 30% on the quality of trading strategy presented during the finals.

Throughout the competition, there was a series of 6 workshops led by equity researchers from the industry to enhance the effectiveness of cognitive growth among participants. The active involvement of industry mentorship throughout the workshops is the core determinant to close the gap between the theory and real-life situations. The workshop series introduced investment strategies on technical analysis and value investing to generate interest among young people and build their confidence in becoming savvy, knowledgeable capital market investors. One of the unique features that were not executed in previous research studies was that the participants in the IVSC were able to learn from the industry experts. The active involvement of industry mentorship is the core determinant to closing the gap between the theory and real-life situations before participants embark on the trading simulation activity.

Participants

This study focuses on 44 teams from Taylor's University that were ranked in the top 100 on the IVSC. A total of 70 participants from 29 teams responded to the online questionnaire. The respondents are from various educational backgrounds studying in various programs from universities, colleges, and high schools.

Data Analysis

The data obtained from the questionnaire were entered, tabulated, and analyzed using Statistical Package for Social Science (SPSS) version 25. Statistical tests were then carried out on the collected data. All items are responded to a Likert scale of 1 – 10 where 10 = Most Agreeable and 1 = Least Agree. The null hypotheses and associated subsidiary null hypotheses were tested to either reject the null hypotheses in

favor of the alternative hypotheses or failed to reject the null hypotheses.

Reliability analysis that was carried out showed that the questionnaire had acceptable reliability with Cronbach's alpha readings between 0.96 and 0.97 which is well above the recommended level of 0.70. All items appeared to be worthy of retention.

RESULTS AND FINDINGS

The purpose of this study is to investigate the effectiveness of stock trading simulation activity, namely the Inter-Varsity Stock Challenge (IVSC) in preparing learners for future readiness in both employability and progression of studies. The hypotheses which were formulated to guide this research were tested and the findings are in the following section.

Testing of Null Hypothesis 1 and Subsidiary Null Hypotheses

H₀₁: There is no significant perception of the effectiveness of IVSC for future employability preparedness

H_{01a}: There is no significant perception of the effectiveness of IVSC for future employability preparedness (stock market/investment career)

H_{01b}: There is no significant perception of the effectiveness of IVSC for future employability preparedness (practical skills)

H_{01c}: There is no significant perception of the effectiveness of IVSC for future employability preparedness (soft skills)

One-sample t-tests were conducted to determine the effectiveness of IVSC for future employability preparedness. The hypothesized test value was set to be 6 which was after the participants attended the IVSC competition. Results showed that the null hypothesis H₀₁ and its associated subsidiary null hypotheses are rejected in favor of the alternative hypotheses. Table 1 displays the results of the hypotheses testing.

Table 1: One sample t-test: Effectiveness of IVSC for future employability preparedness

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
H01a	70	7.5057	1.68912	.20189
H01b	70	7.5738	1.66004	.19841
H01c	70	7.6679	1.68847	.20181
H01a+employability+preparedness	70	7.5825	1.58898	.18992

One-Sample Test						
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
H01a	7.458	69	.000	1.50571	1.1030	1.9096
H01b	7.932	69	.000	1.57381	1.1780	1.9696
H01c	8.264	69	.000	1.66786	1.2653	2.0705
H01a+employability+preparedness	8.332	69	.000	1.58246	1.2036	1.9613

Thus, there is a statistically significant perception of the effectiveness of IVSC for future employability preparedness (M =7.58, SD =1.59); t (69) =8.33, p=0.000.

There is a statistically significant perception of the effectiveness of IVSC for future employability preparedness with regards to stock market/investment career (M=7.51, SD=1.69); $t(69) = 7.46, p = 0.000$.

There is a statistically significant perception of the effectiveness of IVSC for future employability preparedness with regard to practical skills (M=7.57, SD=1.66); $t(69) = 7.93, p = 0.000$.

There is a statistically significant perception of the effectiveness of IVSC for future employability preparedness with regard to soft skills (M =7.67, SD =1.69); $t(69) = 8.26, p = 0.000$.

These results suggest that IVSC has effectively prepared participants for future employability. The result revealed a statistically significant perception of the effectiveness of IVSC to develop participants' stock trading practical skills and soft skills to prepare them for future employment. After undergoing the stock trading activity, it is statistically significant that IVSC creates participants' interest in stock market/investment careers.

Testing of Null Hypothesis 2 and Subsidiary Null Hypotheses

H02: There is no correlation between the participant's perception of stock trading literacy and the perception of participants' preparedness in the progression of their studies

H02a: There is no statistically significant relationship between the participants' perception of stock trading literacy and the perception of participants' preparedness in the progression of their studies (active learner)

H02b: There is no statistically significant relationship between the participants' perception of stock trading literacy and the perception of participants' preparedness in the progression of their studies (critical thinking skills)

H02c: There is no statistically significant relationship between the participants' perception of stock trading literacy and the perception of participants' preparedness in the progression of their studies (practical skills)

Pearson product-moment correlation coefficient was computed to assess the relationship between the participants' perception of stock trading literacy and perception of participants' preparedness in the progression of studies. The results shown in Table 2 revealed that the null hypothesis H02 and its associated subsidiary null hypotheses are rejected in favor of the alternative hypotheses.

Thus, there is a statistically significant, positively strong correlation between the participant's perception of stock trading literacy and the perception of participants' preparedness in the progression of their studies ($r = 0.919, n = 70, p < 0.05$, two-tailed).

There is a statistically significant, positively strong correlation between the participant's perception of stock trading literacy and the perception of participants' preparedness in the progression of their studies with regard to the active learner ($r = 0.906, n = 70, p < 0.05$, two-tailed).

There is a statistically significant, positively strong correlation between the participant's perception of stock trading literacy and the perception of participants' preparedness in the progression of their studies with regard to critical thinking skills ($r = 0.918, n = 70, p < 0.05$, two-tailed).

Table 2. Pearson's Product-Moment Correlation: Participants' perception of stock trading literacy and participants' perception of preparedness in the progression of their studies

Descriptive Statistics			
	Mean	Std. Deviation	N
H02a	7.6279	1.58689	70
H02b	7.8000	1.61909	70
H02c	7.5714	1.65320	70
H02Preparednessinprogressionofstudy	7.6664	1.58465	70
StocktradingLiteracy	7.4616	1.61897	70

Correlations						
		H02a	H02b	H02c	H02Preparednessinprogressionofstudy	StocktradingLiteracy
H02a	Pearson Correlation	1	.934**	.936**	.977**	.906**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	70	70	70	70	70
H02b	Pearson Correlation	.934**	1	.937**	.978**	.918**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	70	70	70	70	70
H02c	Pearson Correlation	.936**	.937**	1	.979**	.873**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	70	70	70	70	70
H02Preparednessinprogressionofstudy	Pearson Correlation	.977**	.978**	.979**	1	.919**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	70	70	70	70	70
StocktradingLiteracy	Pearson Correlation	.906**	.918**	.873**	.919**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	70	70	70	70	70

** . Correlation is significant at the 0.01 level (2-tailed).

There is a statistically significant, positively strong correlation between the participant's perception of stock trading literacy and the perception of participants' preparedness in the progression of their studies with regard to practical skills ($r = 0.873, n = 70, p < 0.05$, two-tailed).

These results suggest that after undergoing the stock trading transaction activities during the period of competition, the level of perception in stock trading literacy in the cognitive, affective, and psychomotor dimensions was strengthened. There is a statistically significant, positively strong correlation between stock trading literacy and the perception of participants' preparedness in the progression of their studies with regard to active learner attributes, critical thinking skills, and practical skills. This statistical analysis revealed that stock trading literacy not only develops participants' critical thinking skills and practical skills, but it also promotes participants' self-efficacy and self-motivation to be active learners in the progression of their studies.

DISCUSSION

The statistical analysis revealed that there was a statistically significant perception of the effectiveness of IVSC for future employability preparedness. The IVSC provides participants with an effective platform to develop stock trading practical skills and soft skills. Soft skills such as communication skills, personal competencies, and social competencies; and practical skills which include stock trading knowledge and cognitive skills are capabilities and qualities to prepare participants for successful employment. Prospective employers often expect graduates to possess employability skills including practical skills and soft skills to match their industry requirements. Thus, IVSC not only effectively enhances and develops participants' stock trading practical skills and soft skills that are required in the industry, but IVSC also acts as a powerful tool to motivate and enhance

the participant's interest to pursue a career related to the stock market or investment in the future.

The results also revealed that there was a strong statistically positive correlation between stock trading literacy and participants' preparedness in the progression of their studies. The stock trading activity increased the participants' self-efficacy and self-confidence in becoming savvy, knowledgeable capital market investors. After undergoing stock trading activities, it fosters the participants' critical and practical skills that motivate them to be active learners. These attributes promote participants' interest and prepare them for the progression of their studies in stock trading-related fields.

CONCLUSION

The Inter-Varsity Stock Challenge (IVSC) as an industry-led stock trading simulation initiative is a good platform to merge theory with practice and to foster experiential learning behavior among participants. The IVSC enhanced stock trading literacy among participants in three dimensions: cognitive, affective, and psychomotor. These qualities and attributes are statistically significant to prepare learners for future readiness including future employability and progression of their studies.

Simulation-based activities significantly serve as an effective tool for mediating learning and promoting soft skills and hard skills that are highly valued by prospective employers in the competitive workplace. The learning outcomes of the simulation-based initiative are also in line with Malaysia Higher Education Blueprint 2015-2025 [19] and National Graduate Employability Blueprint 2012-2017 [22]. Both blueprints focus on enhancing the student learning experience and industry collaboration to strengthen graduate employability. Successful graduate employability is important in maintaining a nation's social-economic well-being and the sustainability of a nation's economic growth. Therefore, there is a need for higher education institutions to actively embed simulation-based learning into their curriculum to prepare learners for future readiness in both employability and future academic achievement.

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