ACBSP REGION 10 ANNUAL CONFERENCE 2023

17-18 FEBRUARY 2023

Phnom Penh, Cambodia

CELEBRATING COLLABORATIVE ALLIANCES: STRONGER TOGETHER

CONFERENCE PROCEEDINGS

EDITORS

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A NOTE FROM CONFERENCE PROCEEDINGS EDITORS

We are pleased to present here the Proceedings of the ACBSP Region 10 Conference, organized by and held at CamEd Business School, Phnom Penh, Cambodia, on 17-18 February 2023. The Conference included contributions from speakers, presenters and participants representing 25 institutions in 16 countries around the world. Insightful speeches were delivered by the leaders of the Ministry of Education, Youth and Sport, the ACBSP Home Office, and the ACBSP Region 10. Moreover, there were research contributions from the leaders, faculty and students of CamEd Business School and other higher education institutions as well as useful experiences shared by professionals and policy makers of prestigious business enterprises and INGOs.

The presentations and papers focus on the conference theme "Celebrating Collaborative Alliances: Stronger Together" which covers a wide variety of current topics organized in six sub-themes, including strategic alliances in higher education and research, internationalization of business education, higher education and business collaboration, industry-based education, modern trends in higher education, public-private sector partnerships and business partnership.

This volume results from the papers presented and discussed at the conference. Fifteen full research papers in this volume are brought under the sub-themes of the conference. Authors of the papers put their best efforts into focusing advancements in conducting research, and teaching business, finance, accounting and management, and other areas of crucial contribution supported by the ACBSP in promoting excellence in business school education worldwide. These research-based contributions are valuable for academics, practitioners, and policymakers to deal with emerging challenges and strengthen collaborative alliances.

We are incredibly grateful to H.E. Dr. Hang Chuon Naron, Minister of Education, Youth and Sport, Royal Government of Cambodia, for his thought-provoking inaugural address and meaningful message. We are also thankful to the guests of honors, keynote speakers, presenters, and contributors. The Conference Advisory Committee, Organizing Committee, Paper Review Committee, and support team deserve special thanks. Last but not least, we thank all participants for their valuable contributions to the conference.

We are proud to support the vision and mission of the ACBSP and to have provided a conference with such a rich variety of research outputs. The variety of research topics included in these Conference Proceedings provide a record of the Conference and a benchmark for future progress.

We thank you for your interest and look forward to growing our partnership with the ACBSP in the future.

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Identifying Factors Influencing Knowledge Collaboration Effects in Knowledge Alliances in Cambodia: A Structural Equation Model

Tapas R. Dash and Lim Siphat
CamEd Business School

Knowledge sharing between organizations helps increase competency of employees in performing their work, but the level of knowledge collaboration might be affected by willingness to cooperate, learning abilities, knowledge attributes, and knowledge activity. To unwind this suspicion, our study used a Structural Equation Model initially composed of twenty-seven manifest or observed variables in predicting five latent or unobserved variables. The first latent variable, Willingness to Cooperate, was measured by five manifest variables. The second latent variable, Learning Ability, was measured by seven observed variables. Knowledge Attributes, Knowledge Activities, and Knowledge Collaboration Effects were measured by six, six, and three variables respectively. Based on the Confirmatory Factor Analysis, seven measurements were eliminated since their loading was less than the threshold. Maximum Likelihood Estimation Method was combined with bootstrapping technique to estimate sample parameters and establish standard errors for hypothesis testing. The empirical results of the study reveal that Learning Abilities and Knowledge Attributes have a highly significant positive impact on Knowledge Collaboration Effects. As such the empirical findings of this study have implications for both private and public sector organizations that should take initiatives to encourage members to learn and better understand, and use the acquired knowledge that meets their needs, and to establish knowledge alliances with external partners.

Keywords: *Knowledge collaboration effects, latent variables, manifest variables, confirmatory factor analysis, structural equation model*

INTRODUCTION

Educated and skilled employees are indispensable for every organization to facilitate completion of important assignments or fulfilling managerial roles. Through their active involvement and actions, organizations are able to achieve their objectives and desired results. The encouragement of the organization in creating the alliance with the organization's stakeholders to absorb new knowledge and skills help improve employees' capacity to make them perform better and more efficiently (Wang & Shao, 2012). These activities are considered as Knowledge Alliances (KAs) as it is open to all areas for collaboration between organizations. The extensive connection among organizations makes an ideal KA, in which knowledge gets value-added (Inkpen, 1998). Studies have shown that although KA can help improve organizational performance, it depends on how willing the partners are to share knowledge and skills with each other (Bouncken et al., 2016). In order to encourage the sharing of knowledge between organizations more widely, many organizations have developed procedures, known as Knowledge Collaboration (KC) which is defined broadly as the sharing, transfer, accumulation, transformation, and co-creation of knowledge involving individual acts of offering knowledge to others as well as adding to, recombining, modifying, and integrating knowledge that others have contributed (Faraj et al., 2011).

In today's competitive environment, knowledge has become a critical part of economic resources. By forming strategic alliances and partnerships with universities, research institutes, suppliers, and customers, enterprises seek knowledge resources to improve their core competence (Anklam, 2005; Nieves et al., 2016; Yayavaram et al., 2018). Through these processes, KAs intend to achieve knowledge sharing, knowledge creation and knowledge advantage and finally benefit from knowledge collaboration effect.

With lack of availability of any research on knowledge collaboration in Cambodia, it is not known which elements may have an effect on knowledge collaboration. Therefore, based on the literature, the study made an attempt to examine which of the four factors such as *Willingness to Cooperate, Learning Abilities, Knowledge Attributes and Knowledge Activities have a significant influence on Knowledge Collaborations of Knowledge Alliances*.

In order to estimate sample parameters and standard errors for statistical testing, previous studies had used only *Maximum Likelihood Estimation Method* which did produce robust standard errors for hypothesis testing. The current study however, is considered rather different from the previous studies because in order to estimate sample parameters and robust standard errors for statistical testing, *Maximum Likelihood Estimation Method* has been combined with bootstrapping technique. Additionally, all manifest variables used to predict all latent variables were integrated in the *Confirmatory Factor Analysis* and the model fit has been assessed through bootstrap distribution.

In the following sections of this paper, we present the literature concerning the factors that have influence on *Knowledge Collaborations Effects*, followed by conceptual framework and research hypotheses, study methodology, empirical results and discussions, including conclusion and suggestions for future studies.

LITERATURE REVIEW

The process of producing a product or service can progress smoothly only when the company knows how to manage and mobilize employees having adequate knowledge, ability and skills. The level of work efficiency will be higher if the company encourages employees to exchange knowledge and collaborate among themselves, all of which lead to higher productivity, especially with a lower coordination cost (Cheng et al., 2022). According to a study by Inkpen (1996), the sustainability of a company's competitive advantage will increase, if companies are able to develop new knowledge through strategic alliances. Establishing supply chains, joint ventures, and research and development partnerships are considered as strategic alliances that can help increase a company's value (Grant & Baden-Fuller, 2004). Companies should take opportunities from their partners by absorbing professional knowledge to increase their capacity and efficiency. Alliances between companies and companies, or alliances between parent and subsidiaries are referred to as knowledge alliance (Rajan et al., 2021). But access to knowledge resources varies depending on the location of the subsidiaries and branches of the multinational company (Ferraris et al., 2017).

Knowledge alliance is a mechanism for inter-organizational communication to transfer knowledge to each other, but to achieve a positive return for partners, it requires knowledge collaboration (Whitehead et al., 2019). According to Macey and Schneider (2008), to increase the efficiency of employees, knowledge alliance plays a role in the coordination of specialists in the alliance groups, while knowledge collaboration requires the division of common perceptions and values of partners in the same alliance. In addition to strategic alliances, to enhance the capabilities of employees as well as strengthen competitive advantage, the company should expand partnerships with educational institutions, and other stakeholders such as suppliers and customers (Yagavaram et al., 2018).

According to a study by Cheng and Chang (2019), there are four factors that have a positive effect on knowledge collaboration effects in knowledge alliance: *Willingness to Cooperate, Learning Abilities, Knowledge Attributes,* and *Knowledge Activities.* Cheng et al. (2022) used the input-output mathematical model to find out whether incentive mechanisms help promote the sharing of knowledge between organizations or within a single organization. According to their study, the input-output ratio of knowledge has a positive effect on incentives in the distribution of knowledge in knowledge alliances. In addition to the willingness to cooperate (Luo et al., 2017), there are other factors that may influence knowledge collaborations of knowledge alliances, including learning abilities (Xiao et al., 2009), knowledge attributes (Xue & Sun, 2012), and knowledge activities (Gu et al. (2006). Cheng and Chang (2019) used a *Structural Equation Model* (SEM) to study which of the above four factors influenced the knowledge collaborations of knowledge alliances.

Qiao and Li (2015) found that profitability has a positive effect on the willingness to cooperate between partner organizations. But the development of innovation comes from internal sources. Referring to their empirical results generated from path analysis of SEM, training for increasing the organizational value and the willingness to cooperate did not explain the possibility of developing an innovation. The results

of a study by Fontana et al. (2006) showed that Willingness to Cooperate depends on the activity and scale of R&D and the degree of openness of partners. Cooperation comes from working together between partners to achieve a common goal, meaning that all their work activities are interdependent. Therefore, *Willingness to Cooperate* is very important (Bruffee, 1995). To measure it, Wu and Gu (2008) focus on three factors: Level of trust, mutual benefit and mutual dependence. When partners trust each other, the exchange of knowledge between them occurs more frequently. In addition, the exchange of knowledge is more in-depth between the unit and the unit, which makes them have a higher level of trust. They can benefit from each other by imparting knowledge to each other. Establishing interdependent partnerships makes the exchange of knowledge more frequent and in-depth.

The level of interaction of staff through learning at work is considered to be a key success factor in improving individual staff performance, but learning outcomes depend on the learning ability of each staff (Wielenga, 2008). Lehtonen et al. (2021) argued that although the learning ability of workers at any institution depends on many factors, the most critical one is the accessibility of the organization's resources that support learning. Mayo (2008) claimed that learning opportunities given to workers by the company through any training program is considered to be a non-financial incentive scheme which can help improve the performance of the company.

Some companies develop challenging tasks and assign it to their employees so that they would put their skills into practice by means of collaboration with their colleagues in order to increase their learning ability and to accomplish their tasks (Cedefop, 2021). This helps the company to increase its performance. Three factors such as learning autonomy, absorptive capacity, and applying ability have significant effects on learning abilities of workers in organization. Learning autonomy is determined by two items, the initiation of staff in acquiring knowledge and habit of staff self-learning. There are two key items which measure the absorptive capacity: Understanding the basic concepts of the knowledge gained and personal understanding of the knowledge gained through knowledge collaboration and knowledge transfer. Employees should be skilled in knowledge and techniques, and they should be able to apply knowledge to practical operation, and use acquired knowledge to innovate new things. These three activities used to identify the applicable ability of workers (Luo et al., 2017).

Given that information is a critical asset for contemporary businesses, a focus point for knowledge-based organizations, and a resource that may lead to a competitive advantage, it is worthwhile to analyze the nature of knowledge. There are two different kinds of knowledge attributes: Mode of knowledge and type of knowledge (Clyde, 2004). Knowledge sharing occurs frequently when members of the organization admit the relative importance of different types of knowledge, especially when they truly understand their institution's strategic priorities (Turner et al., 2019). Xiao et al. (2009) and Xue and Sun (2012) claimed that the attributes of knowledge are derived from three categories, including embeddedness, complementarity, and transferability.

Ryan (2021) found five activities for knowledge exchange in an organization. The first activity is to encourage colleagues to form peer-learning groups in which they may share their skills and talents. The second activity is to create wikis for knowledge exchange, where implicit information may be documented. The third activity is to establish mentorship relationships between pioneers and younger representatives. The fourth activity is to develop buddy programs for new employees and the fifth stage is to empower representatives to make employee resource groups (ERGs). According to Gu and Wang (2005) four key factors such as knowledge division, knowledge flow, knowledge sharing, and knowledge creation identify knowledge activities. Three items are created to measure knowledge collaboration effect: The level of skills and expertise gained by members of organization, the level of benefits gained by organization, and the level of influence of organization through knowledge collaboration in knowledge alliances (Hu et al., 2015).

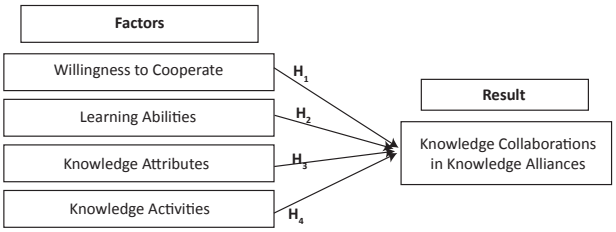
The literature clearly shows that in the context of Cambodia, there is an absence of any kinds of research on knowledge collaboration. Against this background, as a first attempt in this direction, through a *Structural Equation Model,* the present study attempts to examine which of the four factors such as *Willingness to Cooperate, Learning Abilities, Knowledge Attributes and Knowledge Activities have* a significant influence on knowledge collaborations of knowledge alliances.

CONCEPTUAL FRAMEWORK AND RESEARCH HYPOTHESES

Figure 1 represents the conceptual framework linking influencing factors of knowledge collaboration effects such as *Willingness to Cooperate, Learning Abilities, Knowledge Attributes, Knowledge Activities, and Knowledge Collaborations of knowledge alliances.* We use the framework to develop the research hypotheses that show that four factors influence knowledge collaborations of knowledge alliances.

Figure 1

Conceptual Framework and Research Hypotheses



Source: The authors

Based on the research objectives and conceptual framework, the study seeks to test the following hypotheses:

H1: Willingness to Cooperate has a positive relationship with Knowledge Collaboration Effects.

H2: Learning Abilities have a positive relationship with Knowledge Collaboration Effects.

H3: Knowledge Attributes have a positive relationship with Knowledge Collaboration Effects.

H4: Knowledge Activities have a positive relationship with Knowledge Collaboration Effects.

METHODOLOGY

Model

The study employs a *Structural Equation Model*, which is a statistical technique that combines multiple regression and factors analysis to investigate the impact of four latent variables or constructs such as *Willingness to Cooperate (WCO)*, *Learning Abilities (LAB), Knowledge Attributes (KAT)*, and *Knowledge Activities (KAC)* on the Knowledge Collaboration Effects (KCE) between organizations in Cambodia. All of the factors are unobserved or latent variables, but are measured using the observed variables or manifest variables collected from the respondents. Three items or questions determine the *KCE* factor, while the *WCO, LAB, KAT,* and *KAC,* are defined by five, seven, six, and six items, respectively. The equation used is as follows:

Where, are parameters to be estimated, is the residual or error term, and represents individual form. The estimated method of the model is the *Maximum Likelihood Estimation (MLE)*, but to get robust standard errors for statistical tests, a bootstrapping technique is applied. Moreover, the Confirmatory Factor Analysis (CFA) is adopted to evaluate the model's suitability. This research uses primary data gathered through a survey. A standardized questionnaire was distributed to the target respondents by emails and/or face-to-face meeting. The measurement of all items in the questionnaire is designed using a five-points Likert scale where "1" represents "Strongly Disagree," and "5" indicates "Strongly Agree." All questions are closed-ended questions.

Sample size

In order to identify the necessary sample size (n) to perform the analysis, we used the formula proposed by Djarwanto and Subagyo (2005):

$$n = \frac{z^{1/2}\sigma}{\epsilon}$$

in which,

n : Number of samples,

z : Area of standard normal curve,

: Standard deviation

: Error

Referring to the normal distribution table, the value of is 1.96. If standard deviation is set to be 0.5 and the error is 0.01, the sample size, n is to be at least 98 respondents. But in our study, 114 sample respondents had participated and shared their views.

Pilot test

Ten respondents were selected, two each from government institutions, research institutions, private enterprises, financial institutions, and universities, to check the feasibility of using the developed questionnaire before conducting an official

survey. Based on the feedback, the questionnaire was improved and subsequently assigned to all respondents for getting information for the study.

Table 1

Latent and Manifest Variables

Latent Variables	Items	Manifest Variables
Willing to Cooperate (WCO)	WCO1	Organizations that trust each other have more frequent knowledge exchanges
	WCO2	Organizations that trust each other have deeper knowledge exchanges
	WCO3	Organizations obtain what they need and benefit together through knowledge exchanges
	WCO4	Knowledge exchanges between cooperative partners are more frequent
	WCO5	Knowledge exchanges between cooperative partners deepen communication
Learning Abilities (LAB)	LAB1	Organization members should take the initiative to acquire knowledge
	LAB2	Organization members should form the habit of self-learning
	LAB3	Organization members should understand the basic concepts of the knowledge gained
	LAB4	Organization members should have personal understanding of the knowledge gained
	LAB5	Organization members should be skilled in knowledge and techniques
	LAB6	Organization members should apply their knowledge to practical operation
	LAB7	Organization members should innovate in the knowledge acquired
Knowledge Attributes (KAT)	KAT1	Knowledge acquired should conform to the orientation of enterprise development
	KAT2	Knowledge acquired should conform to specific economic and political environment
	KAT3	Knowledge between organizations is complementary
	KAT4	Knowledge exchanges between organization members can complement each other and progress together
	KAT5	Knowledge acquired should be easily understood
	KAT6	Knowledge acquired should be easily transformed into words or data
Knowledge Activities (KAC)	KAC1	Unevenly distributed knowledge between organizations is fit for knowledge exchanges
	KAC2	Knowledge of different domains between organizations is fit for knowledge exchanges
	KAC3	Organizations should conduct frequent exchanges of knowledge, technology and talents
	KAC4	Organizations should make the advantage of social networks to exchange knowledge, technology and talents
	KAC5	Organizations should share knowledge through exchanges and learning
	KAC6	Knowledge is transformed into a new kind of knowledge through communication and sharing
Knowledge Collaboration Effects (KCE)	KCE1	Knowledge collaboration cause members of the institutions gain more skills and expertise
	KCE2	Knowledge collaboration provides higher levels of benefits to organizations
	KCE3	knowledge collaboration helps in enhancing the influence of organizations

Source: Constructed by authors.

EMPIRICAL RESULTS AND DISCUSSION

Although 114 respondents participated in completing the questionnaire, after cleaning the data, eight respondents were eliminated as the standard deviation of their selected choices of the items of questionnaire measured by a Likert scale from 1 to 5, had a value of less than 0.3. As such, the total number of reliable sample sizes left were 106 observations which were well beyond the minimum requirement.

The total measurements of this research are 27 items which accounted for five latent constructs from *Willing to Cooperate (WCO)*, seven items from *Learning Abilities (LAB)*, six items from *Knowledge Attribute (KAT)*, six items from *Knowledge Activities (KAC)*, and three items from *Knowledge Collaboration Effects (KCE)*. To verify how well the observed variables measure the unobserved variables or constructs, a *Confirmatory Factor Analysis (CFA)* is employed. Any item of underlying latent construct having loading factor less than 0.5 was eliminated from the model.

The graphical analysis of CFA shown in Figure 2 indicates that two measurements of WCO construct, WCO1 and WCO2, were deleted from the model since they had loading factor less than 0.5. In contrast, all of the observed variables of LAB (7 items) and KCE (3 items) remained in the system as each item had a loading factor value of more than 0.5. In the KAT and KAC constructs, three and two items were eliminated, respectively. Therefore, referring to the *Confirmatory Factor Analysis*, among the 27 items of the model which were developed to predict five constructs, it had 20 measurements which passed the loading factor threshold. Regarding the results of the validity test, the composite reliability of the constructs under investigation were 0.766 for WCO, 0.811 for LAB, 0.567 for KAT, 0.712 for KAC, and 0.789 for KCE which were well above the threshold, except KAT. This claimed that the questionnaire instrument used had a good indicator of reliability. In addition, the Convergent Validity exists for WCO and KCE, since the average variance extraction values were greater than 0.5. The study further investigates the discriminant validity between the constructs in the system which can be assessed through Heterotrait-Monotrait (HTMT) Ratio. The discriminant validity between two reflective constructs is established when the HTMT value is lower than 0.9. As indicated by the HTMT ratio correlation matrix, known as multitrait-multimethod matrix, proposed by Ringle and Sarstedt (2015), there were no warnings for this HTMT analysis (Table 2).

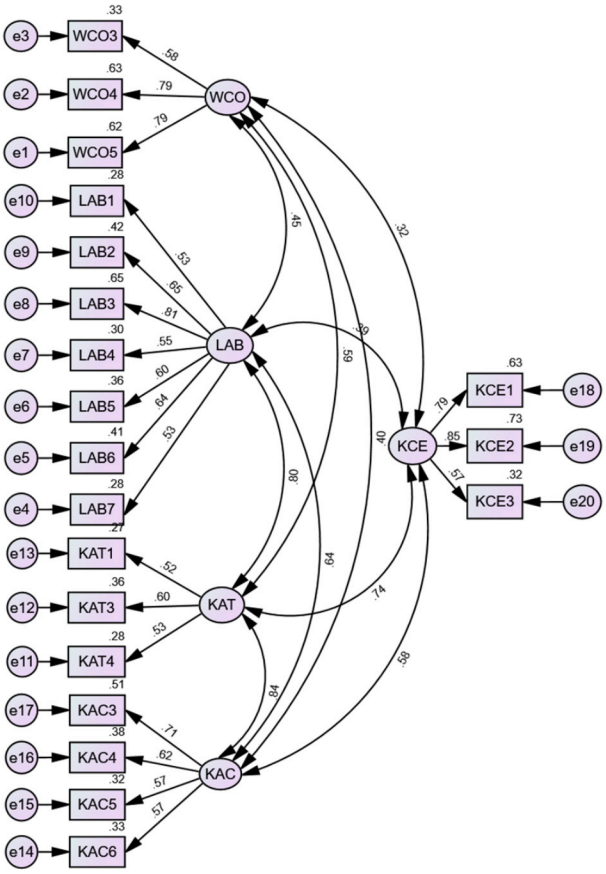
Table 2

HTMT Ratio Correlation Matrix

	WCO	LAB	KAT	KAC	KCE
WCO					
LAB	0.491				
KAT	0.624	0.814			
KAC	0.422	0.639	0.816		
KCE	0.342	0.436	0.774	0.573	

Figure 2

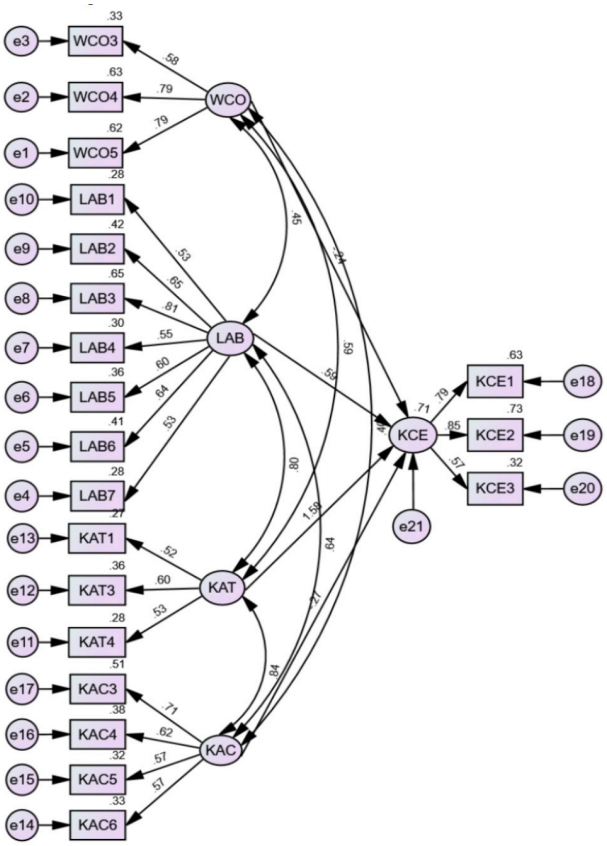
Confirmatory Factor Analysis



Source: Constructed by authors using AMOS.

Figure 3

Structural Equation Model



Source: Constructed by authors using AMOS.

In addition to the Confirmatory Factor Analysis, another main objective of this study is to analyze the impact of latent constructs, *WCO, LAB, KAT,* and *KAC* on *KCE* using the Structural Equation Model. Although the model is a kind of multiple regression model, it is far more beyond the general regression model, since it takes into account the Factor Analysis. There are four independent variables, *WCO, LAB, KAT,* and *KAC,* which have four sample parameters to be estimated. As stated earlier, the Maximum Likelihood Estimation Method is chosen in order to predict sample parameters of the model. As there are four variables, there must be four hypotheses testing to check whether each independent variable statistically explains the dependent variable, but in order to generate robust standard errors for statistical tests, bootstrapping technique is applied. The estimated result of the model is presented in Figure 3. But before performing any further analysis of the estimated results, the assessment of the model fit was worth doing.

Regarding the bootstrapping process of 1500 bootstrap samples, the model fits better at 1389 bootstrap samples. Using Bolle-Stine bootstrap, the null hypothesis which states that the model is correct, failed to be rejected because the probability value associated with the sample data is 0.075, greater than the significant level of 0.05 or 5 percent. This claimed that the model fits well with the data.

An alternative technique is applied instead of Bolle-Stine bootstrap to assess the model fit which is the bootstrap distribution. The study conducted 1500 replications and the bootstrap distribution is presented in Table 3. The calculated chi-square from the sample data was 293.823 felt in the sampling distribution, visually, indicating that the model particularly fits the data well.

Table 3

Bootstrap Distribution

		|----------
	88.385	|*
	109.891	|*
	131.397	|****
	152.903	|*******
	174.409	|**********
	195.915	|**********
	217.421	|**********
N = 1500	238.927	|**********
Mean = 221.990	260.433	|**********
S. e. = 1.224	281.939	|********
	303.446	|*****
	324.952	|***
	346.458	|*
	367.964	|*
	389.470	|*
		|----------

Source: Estimated by authors using AMOS.

The regression results between the independent variables such as Willingness to Cooperate, *Learning Abilities, Knowledge Attributes,* and *Knowledge Activities* and dependent variable, KCE, using *Maximum Likelihood Estimation Method* and bootstrapping standard errors to improve the reliability of test is presented in Table 4.

Table 4

Regression Results

Parameter			Estimate	Lower	Upper	*P*
KCE	←	WCO	-0.244	-2.194	0.263	0.310
KCE	←	LAB	0.590	0.447	0.733	0.002
KCE	←	KAT	1.582	0.509	9.425	0.004
KCE	←	KAC	-0.270	-6.865	0.500	0.341

Source: Estimated by authors using AMOS.

The regression results have shown that *Learning Abilities* have a positive significant impact on *Knowledge Collaboration Effects* since the sample parameter is 0.590 which is positive and the probability value associated with sample data is 0.002, which is less than 0.01 or 1 percent level of significance. The estimated slope coefficient of *Knowledge Attributes* is 1.582 and highly statistically significant explaining *Knowledge Collaboration Effects* because the level of significance of 1 percent is greater than p-value. In contrast, the other two latent variables, Willing to Cooperate and *Knowledge Activities* are statistically insignificant. Thus, in conclusion, among the four hypotheses, two of them (H1 and H4) are rejected (Table 5).

Table 5

Hypotheses Testing Results

Hypotheses	Description	Decision
H1	*Willingness to Cooperate has a positive relationship with Knowledge Collaboration Effects.*	Rejected
H2	*Learning Abilities have a positive relationship with Knowledge Collaboration Effects.*	Accepted
H3	*Knowledge Attributes have a positive relationship with Knowledge Collaboration Effects.*	Accepted
H4	*Knowledge Activities have a positive relationship with Knowledge Collaboration Effects.*	Rejected

CONCLUSION

The extensive connection among organizations makes an ideal knowledge alliance, in which knowledge gets value-added. Studies have shown that although knowledge alliance can help improve organizational performance, it depends on how willing the partners are to share knowledge and skills with each other (Inkpen, 1998; Bouncken et al., 2016). In order to encourage the sharing of knowledge between organizations more widely, many organizations have developed procedures, known as *Knowledge Collaboration* which is defined broadly as the sharing, transfer, accumulation, transformation, and co-creation of knowledge involving individual acts of offering knowledge to others as well as adding to, recombining, modifying, and integrating knowledge that others have contributed.

In our study, the four latent or unobserved variables such as *Willingness to Cooperate, Learning Abilities*, Knowledge Attributes, and *Knowledge Activities* had been set as hypotheses to help explain Knowledge Collaboration Effects. Although multiple regression analysis was carried out, since all of the variables in the study were latent variables, the *Confirmatory Factor Analysis* was done first. To analyze the impact of latent constructs on KCE, we used the Structural Equation Model. The estimation technique used in producing sample parameters was the Maximum Likelihood Estimation Method. Further, to establish robust standard errors to help improve the reliability tests, bootstrapping technique is applied. There were 27 manifests or observed variables which were collected from the sample respondents to predict the five latent constructs. But as seven items had loading factor less than 0.5, those items were eliminated from the model.

The study implemented 1500 replications, but the model fits better in 1389 bootstrap samples. From the bootstrapping process, robust standard errors were generated for statistical tests. Referring to the hypothesis testing, H2: "*Learning Abilities* have a positive relationship with *Knowledge Collaboration Effects*" and H3: "*Knowledge Attributes* have a positive relationship with *Knowledge Collaboration Effects*," were accepted.

On the basis of the study results, to encourage knowledge sharing between organizations, regardless of private or public sector, two key factors need to be focused on: Learning ability of employees and knowledge attributes in organization. The level

of knowledge sharing depends on the initiation of employees to acquire knowledge, the habit of employees self-learning, and the ability of employees to understand the basic concepts of the knowledge gained from partners. The employees should have personal understanding of the knowledge gained and they should be skilled in knowledge and techniques. Also, they should be able to apply the knowledge gained from their partners to practical operations, especially innovating in the knowledge acquired. Moreover, knowledge acquired between organizations should conform to the orientation of enterprise development and it should be complementary. Last, but not least, knowledge exchanges between organization members can complement each other and progress together. The last three indicators represent Knowledge Attributes of organization. The greater the *Knowledge Attributes*, the higher the level of *Knowledge Collaboration* between organizations. Thus, the empirical findings of our study have significant implications for both private and public sector organizations in terms of Learning Abilities and *Knowledge Attributes* which have positive relationships with *Knowledge Collaboration Effects* in *Knowledge Alliances*.

Our study is not free from limitations. Although the study claims to be the foremost in Cambodia in identifying factors influencing knowledge collaboration effects in knowledge alliances, it is confined to four influencing factors as discussed earlier. As such, attempts should be made in future studies to include other possible factors likely to influence the knowledge collaboration effects. Also, another way to look into the future studies is to select a particular industry and to examine the number of unobserved variables, which might have had significant impact on knowledge collaboration effects in knowledge alliances. However, in the absence of any such studies in Cambodia, the empirical findings of this study have implications for both private and public sector organizations that should take initiatives to encourage members to learn and better understand, and use the acquired knowledge that meets their needs, and to establish knowledge alliances with external partners.

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Analysis of a Multi-Country University Collaboration: The Erasmus + Friends Project

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The paper examines the pros and cons of a three-year collaboration among 11 universities from 5 Asian countries and 4 Eastern European universities. The FRIENDS project, sponsored by the European Union, was centered on the theme of Internationalization at Home (IaH), to provide international experiences to university students staying on their home campuses, without traveling abroad. The methodology and analysis are based on interviews, over three years of the Project, with delegates from the 11 participating universities. Key focal points of the interviewees (of their choosing) were the nature of Europe-Asia collaboration, variations among the universities (especially disparities in size), unexpected consequences arising from the collaboration, and difficulties in the implementation of project activities. Suggestions are made regarding future such collaborations especially for small universities who find it difficult to meet stringent targets for student numbers and other outputs.

Keywords: *Collaboration, project, internationalization, goals*

INTRODUCTION

An increasingly popular form of international collaboration is the project sponsored by a large nation, group of nations, or organization, to bring together countries with similar problems or issues. In such cases, the host country or organization funds the project that invites countries to participate in workshops, seminars, etc., in search of solutions to common problems.

The dozens of European-funded Erasmus+ projects are prototypical of such projects (Erasmus+, 2022). For example, one such Erasmus+ funded project (223,000 euros) was the Innovative Approach in Mathematical Education for Maritime Students. Eleven universities from four countries with maritime students – Latvia, Estonia, Poland, and Croatia participated in the 30-month project, the key actions were cooperation for innovation and the exchange of good practices (European Commission, 2022)

The FRIENDS project

The project describes itself in a 'Welcome to the FRIENDS Community' message as follows (FRIENDS, n.d.):

> The FRIENDS project title stands for Furthering International Relations Capacities and Intercultural Engagement to Nurture Campus Diversity and to Support Internationalisation at Home. The project is built around the concept of Internationalisation at Home (IaH) that reframes the traditional perceptions of higher education internationalization in the five Partner Countries involved, namely Bhutan, Cambodia, Malaysia, Philippines and Thailand. The notion of IaH is based on the assumption that for various reasons the largest part of the universities' student body will remain non-mobile and therefore deprived from access to global knowledge and skills.

The 'Goals and Objectives' statement of the project narrates:

> The FRIENDS project aims at strengthening the internationalization capabilities of HEIs in Bhutan, Cambodia, Malaysia, Philippines and Thailand and at developing students' global competence through the integration of intercultural dimensions into Partner Country (PC) HEI's formal and informal curriculum. To achieve this, the European HEIs from Bulgaria, Hungary, Poland and Turkey and the 12 PC HEIs will engage in a series of activities that contribute to the five project specific objectives:

1. To outline Partner Country Higher Education Institutions' (PC HEIs) internationalization landscapes and to identify levels of integration of international and intercultural dimensions into PC HEIs' formal and informal curriculum: by April 2019.

2. To improve PC HEIs' capabilities for internationalization through staff training and by translating general awareness of the Internationalisation at Home (IaH) concept into streamlined institutional policies and actions embedded in IaH Action Plans: by November 2019.
3. To build students' intercultural knowledge and sensitivity to cultural diversity through the introduction of Intercultural Passport virtual module into PC HEIs' elective formal curriculum: by July 2020
4. To transform PC HEIs International Relations Offices (IROs) into vibrant multicultural focal points through the establishment of FRIENDS Teahouses and the induction of Home away from Home Programme for integrated international student care: by February 2021.
5. To promote virtual mobility and campus diversity across the 5 PCs as key tools for students' global competence development: by November 2021.

Similar to other Erasmus+ collaborations, universities applied to the project management (in this case, Varna University of Management - VUM in Bulgaria) for acceptance into the project. Thus, the universities did not select the other universities with which to collaborate; the choice was made by the project management at VUM.

METHODOLOGY

Delegates from all participating universities (both Asian and European) were interviewed informally (i.e. no fixed agenda) over three years of bi-annual meetings among the participants. In fact, these could better be termed 'conversations', since they were open-ended and not planned. Rather, the delegates got to know one another quite well over the three years, and quite often offered their own unsolicited opinions. As a result of the long period, opinions may have evolved, and indeed, become more detailed, as delegates opened up to one another after repeated contact.

The persons interviewed were almost all natives of their home countries. There were, however, four Europeans (U.K., U.S.A., Australia) among the country delegates. The project rules specified that all work done for the project must be full-time employees of the university. That is, a university could not hire outsiders to perform project work. Thus, the persons interviewed for this study were quite knowledgeable about their universities and the role played by their universities in the project.

OBSERVATIONAL RESULTS

Responses from the interviewees

The delegates were unanimous in their view that the project benefited their universities, and that the objectives of the project had been realized. Indeed, the many project activities contributed to the 'internationalization at home' of the universities, so that they could provide international experiences on their home campuses without the difficulties and expense of travel abroad. Student and faculty responses to questionnaires showed an almost universally positive attitude towards the project activities and towards IaH in general.

On the other hand, the interviewees became increasingly aware over the three years of their lack of creative input into the project, and the priority of jumping through the hoops of the project management.

The project was entirely designed by the VUM management team, down to the smallest detail of each event. Thus, participating universities had little or no say in the design or choice of project activities.

To be sure, the activities were designed to benefit the member universities, and the university delegates interviewed were aware of the activities and their benefits before applying for project membership.

Still, it became clear from interviews with the delegates, that many member universities applied to join the project more with a view to acquiring the marketing prestige associated with an international project, as well as the financial rewards associated with work done for the project. Dewey International University, Cambodia, did not pay close enough attention to the finer details of activities described within the 80-odd page project document, especially the numerical quotas and benchmarks required.

By the end of the project, participating universities became more involved in satisfying the strict demands of project management, and less in providing meaningful activities for their students. To be sure, the activities did benefit the students, but the mindset of those producing the events was focused on following the letter of the law as laid down by the management in Europe.

European-ASEAN collaboration

Some of the interviewees expressed a negative view that Europe was dictating its own educational system and values to Asian universities. Their views are summarized as follows:

There is a risk that European universities may treat ASEAN universities as second-class citizens in the academic world. The European system is well-established, while the ASEAN systems are 'developing'. This can turn the collaboration into a process of the Europeans preaching to the Asians 'how to do it'.

This attitude could be seen in the FRIENDS Project. The universities from Bulgaria, Hungary, Turkey, and Poland received no suggestions or materials on how to change their own systems. Rather, their role was to instruct the ASEAN universities on how to 'internationalize' their programs. In most cases, this amounted to the sharing of European ideas and programs among the ASEAN universities, but in many cases the European participants instructed the Asian ones on how to educate their students about European or Western education and culture without actually traveling outside of Asia.

For example, one activity of the collaboration was the "intercultural fair". Groups of students presented cultural programs designed to acquaint the student body with cultural memes from other countries. This may be observed to be a laudable objective. However, it also means that Western countries as well as Asian countries will present cultural shows. The Western memes will seem more strange and exotic to the Asian students, who are already familiar with Thai food or Malaysian costumes, and may have a more impressionable impact on the Asian students.

One of the activities of the project was the implementation of a 'Teahouse'. This was a set of cultural booths where students could sample snacks from various countries, read brochures and other materials about foreign universities, or watch videos about those countries. Of course, these activities included Western universities as well as Asian ones, but the very name of 'Teahouse' suggests a rather colonial attitude hearkening back to old views of China and Japan rather than ASEAN countries.

To relate to the interviewees's views from the author's point of view, and as Elkin (2017) said that Europe has done an outstanding job over the past several decades of amalgamating the patchwork-quilt of the various university systems into a single integrated system applicable and transferable to all European countries, they are rightfully proud of the achievement, and they would naturally like to see such standardization applied to Asian universities.

Variations among universities

According to the conversation with delegates from all the participating universities, some of the observational results are reported as the following.

Normally, bilateral collaborations between universities involve, for instance, exchanges of students or teachers, or joint research projects. Universities with different strengths may exercise David Ricardo's Principle of Comparative Advantage. A university with a strong engineering program may engage in student exchanges with another university with a strong IT program.

On the other hand, when universities are of greatly different sizes or structures, there may be unreasonable expectations foisted on some partners. In the FRIENDS project, a given activity such as a Career Fair was required to attract a prescribed number of exhibiting companies as well as a prescribed number of students. A small country like Bhutan, or a small university with under 500 students, had considerable difficulty in meeting the targets meted out to all participating universities, including those with as many as 50,000 students.

The size of the collaborating university also affects the staffing of the project. Project staff must be employees of the university. There are not that many existing employees of a small university to choose from, and these must be asked to supplement their usual university tasks with project work. Some universities, notably my own, insist that if a worker on a full-time salary does project work during normal working hours, then that work is already covered by the salary, and thus any project funding must go to the university, and not to the worker in question. This situation adds insult to injury when the worker is paid initially from project funds (to document the project payment) but then required to turn over the money back to the university.

This practice breeds ill-will among staff. In future, they will be reluctant to take on project work, for which they will not be paid. In fact, our own staff suffered overwork, resentment, and burn-out and firmly opposed any future project work.

Sharing online courses

The observational results from the conversation with the delegates from all participating universities suggested that there are several ways to share online courses among universities:

1. Totally Centralized – all lectures, online meetings, homework assignments, etc. are done by one institution and broadcast online to the partner universities.
2. Lecture-Tutorial – Lectures are prepared and delivered from a central source university, but tutorial or recitation sessions are held locally by local teachers.
3. Multiple lecturers – Each partner university is responsible for conducting some classes, providing their own lecturers and tutorial sessions. For example, each week or month is the responsibility of one partner university to disseminate to the students of all the universities.

Shared courses can be a big cost and resource saver. Why have 5-10 different teachers preparing lectures on the same topic? Such courses also provide a degree of standardization: students in all partner universities receive the same instruction and are graded to the same standards.

In the FRIENDS project, the European universities prepared a course (MOOC = Massive Open Online Course) on intercultural awareness, which was broadcast centrally from Europe. Students from all participating ASEAN universities took the course for credit. This might have worked well, except for a few difficulties:

1. Delivery of the course by European universities to Asian students reinforces the mentality of Europe dictating material to 'developing' ASEAN universities.
2. Europe, through its Erasmus programs, has gone a long way towards standardizing its university structures and curricula. Credit-hours have been made uniform, so that course credits can be transferred from one country to another. This is not the case in Asia, where some countries have inherited an English educational structure, others the French structure, and others the American credit system. The MOOC handed down by the European universities does not uniformly fit the various ASEAN structures. FRIENDS partner universities were forced to chop up the material into courses of various credits or squeeze them into Procrustean beds of multiple faculties. (For example, the subject of intercultural awareness may not fit neatly into either the Faculty of Social Sciences or some other faculty or department, forcing the course to be split into two courses in two separate faculties.)
3. In most ASEAN countries, adding a new course, or changing the course structure, requires the approval of the Ministry of Education or its equivalent. This entails the preparation of many documents such as course outlines, evaluation methods, or attendance policies.
4. If a new course is added as a requirement, then some other existing course will probably have to be eliminated. This elimination can be a difficult choice, especially if it gives rises to strife among departments or faculties, each of which does not want to see its own courses eliminated.
5. The FRIENDS Project required at least 150 students from each partner university to enroll for the MOOC. This proved to be a hardship for small universities, while the larger universities had little trouble in garnering the required number of students.

CONCLUSION AND RECOMMENDATIONS

Collaborations sponsored by outside agencies are designed to be win-win proposals. Universities and other organizations tend to view only the substantial surface benefits, and so they apply for such collaborations tending to disregard the fact that the donor agencies aim to benefit in their own right in some way from the collaborations.

To give a concrete example, suppose a developed country, say Japan, offers to build a road in Cambodia. Of course, this will benefit Cambodia. But Cambodia must also weigh the benefits to Japan before agreeing to the project. There may be hidden agenda that only become apparent at a later date.

Dewey International University in Cambodia, and apparently other universities in the FRIENDS project (according to the interviews with project delegates), jumped at the opportunity to join a prestigious, well-funded project, without considering the hidden or not-so-hidden strings attached to their participation.

This is not to say that such projects must be avoided; rather, potential participants must enter the collaboration with eyes wide open to the benefits accruing to all parties.

Some of the interviewees had participated in previous projects, and understood what was at stake. They provided strong guidance to Dewey International University in Cambodia and other neophyte universities. An English interviewee from a large Thai university, as well as a Filipina from a large university in Cebu, had both participated in previous Erasmus+ projects, and both opined that the rewards of the project were positive enough to apply to the subsequent FRIENDS project. They were both well aware of the pros and cons of participation, and they deemed that participation was well worth their while. On the other hand, the director of the FRIENDS project in Dewey International University felt that in the future, we should not apply to similar projects without first considering the required large inputs on our part. This opinion underscores the feeling that the exigencies of the project led to a mindset not of considering what is best for our university, but of satisfying the rigorous demands laid down by the project management in Europe.

Universities in particular must be aware that in joining collaborations, they may be giving up sovereignty and autonomy in decision making. They may be forced to alter their curricula to fit project straitjackets. They must be aware that "He who pays the piper calls the tune," that is, they must obey the strict regulations laid down by the donor agencies.

Universities eager to join such collaborations should read project documents in great detail, with thought given to consequences. In particular, universities should consider whether their particular type of institution can enter into collaboration with other types of universities. This is especially true of small universities that must satisfy the same project numerical requirements as much larger institutions.

Universities should also take into account the very positive benefits of establishing relations with other project universities, even if this is done outside the formal project. These can provide many benefits and future bilateral collaborations far into the future. They should be mindful of this message of conclusion: look before you leap.

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Researching the Affecting Factors on the Use of Social Media, Collaborative Learning and Academic Performance in Higher Education, Vietnam

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In the educational context, online technologies are rapidly gaining acceptance. Understanding and applying educational plans and methods of learning through new technologies will be essential through social media. This paper will look at how students' collaborative learning behavior and learner performance can help to address the perceived issues with using social networks. As the research framework, this paper used a version of TAM and DOI, as well as quantitative data collection and analysis methods, surveying 149 university students using stratified random sampling. Thereafter, using structural equation modeling, the data was statistically examined (SEM). The results showed that Perceived Enjoyment and Perceived Usefulness were significant determinants of working in a team and learning via social media. However, it was discovered that Perceived Ease Of Use and intention to use social websites and collaborative learning have a negative association. Furthermore, the research reveals that three elements, Intentions To Use Social Media, Collaborative Learning, and Academic Performance, have substantial correlations. In applying this technique to business education, this study examines the educational benefits, pedagogical implications, and research constraints. These ideas are fleshed out, along with suggestions for future study directions.

Keywords: *Perceived enjoyment, perceived ease of use, perceived usefulness, intention to use social media, collaborative learning, academic performance*

INTRODUCTION

A new classification of social media that provides an effective method for communication, collaboration, and establishing connections among its participants has emerged in recent years as a result of the explosive development of emerging mobile technologies (Ruleman, 2012). Social media has become a popular channel for distributing information among the online users of the twenty-first century. The majority of social media users are young people, with the significant proportion of them being university students. Social networks like Facebook and LinkedIn are progressively being used for academic purposes by institutions and faculties. These mainly serve as a means of communication with current and prospective students and the distribution of educational materials (Ainin, Naqshbandi, Moghavvemi, & Jaafar, 2015). Lecturers are utilizing social media for productive conversations with their students about academic problems and to enhance learning outcomes effectively through greater communication both inside and outside of the classroom. According to various studies, social media implements utilitarian technologies based on TAM foundations. Nevertheless, it has been noted that the time spent on social media has a negative impact on the academic performance of learners (Junco, 2012; Kirschner & Karpinski, 2010). Therefore, the purpose of this study is to investigate the factors that influence student intentions to use social media to participate in social media for collaborative learning and academic performance and the impact of collaborative learning through social media on academic performance in Vietnamese higher education.

LITERATURE REVIEW

TAM and DOI (Diffusion of innovations)

Davis's original research on the Technology Acceptance Model resulted in the concepts of usefulness and ease of use of technology (F. D. Davis, 1989). This is one of the most extensively used models for determining whether or not someone intends to utilize social media. Furthermore, we used TAM in accordance with (Rogers, 2010) constructivist

theory of Diffusion of Innovation (DOI), which was inherently used as a theoretical foundation for most of the applied study.

According to an evaluation of IT adoption studies, the elements for innovations are mostly found in the IT applied literature (Hameed, Counsell, & Swift, 2012; Puklavec, Oliveira, & Popovič, 2014). DOI and TAM reflect two principles: the first is that innovations are appraised by their followers based on their perceptions of their elements, and the second is that the adoption of any invention is determined by its favorable characteristics (F. D. Davis, 1989; Rogers, 2010). TAM and DOI both operate on the idea that adopters evaluate innovations based on the expectations of their aspects, or that innovations with favorable aspects are more likely to be accepted (F. D. Davis, 1989; Rogers, 2010). This article also aims to cover the usage of information technology for students' learning via social media.

Perceived enjoyment

The increasing popularity of social media is also driven by perceived enjoyment (PE) as a motivating factor (Al-Rahmi & Zeki, 2017; Rauniar, Rawski, Yang, & Johnson, 2014; Ruleman, 2012). Sharing diverse photographs or videos on social networking platforms like Facebook, Twitter, and WeChat is seen to be having fun and enjoyment. It can provide people with entertainment, pleasure, and amusement by giving fascinating posts (Gan & Wang, 2015). According to a study conducted by Hamid et al. (2015), "online social networking (OSN) presented the students with a more engaging learning environment compared to traditional classroom-based teaching and learning" (Hamid, Waycott, Kurnia, & Chang, 2015). The intention to adopt new technology is strongly influenced by PE (G. B. Davis et al., 1992). According to the interdependence idea, it is natural for members of a team to work together to achieve a common goal, which has a substantial impact on team effectiveness (Alsharo, Gregg, & Ramirez, 2017). However, when compared to other external factors, perceived team happiness as an external factor is not typically observed in previous TAM studies in the context of student learning. In light of the preceding discussions, this study proposes following hypothesis to test:

H1: *There is a significant positive relationship between perceived enjoyment and intention to use social media.*

H2: *There is a significant positive relationship between perceived enjoyment and collaborative learning.*

Perceived ease of use

The term perceived ease of use (PEOU) refers to a situation in which a person believes that using a given method requires little effort (F. D. Davis, 1989). Additionally, PEOU was defined as a user's ability to handle a technology and the ease with which they can obtain the system to achieve their aims, the mental effort required to communicate with the server, and the ease with which they can use that system (Oly Ndubisi & Jantan, 2003). Social media platforms are regarded as important educational and learning tools for people, particularly students (Boyd & Ellison, 2007; Sánchez, Cortijo, & Javed, 2014), because they are easy to use (Al-Mashaqbeh, 2015). Furthermore, several studies discovered that perceived ease of use increased people's willingness to use social media for open learning. The term PEOU was used in this study to describe how comfortable students are with using social media for collaborative learning. Based on the earlier discussion, we suggest following hypothesis for this study:

H3: *There is a significant positive relationship between perceived ease of use and intention to use social media.*

H4: *There is a significant positive relationship between perceived ease of use and collaborative learning.*

Perceived usefulness

According to the technology adoption model, perceived usefulness (PU) is the most compelling reason to employ information technology (Cheung, Chiu, & Lee, 2011; Ngai, Tao, & Moon, 2015). PU has the greatest impact on one's intention to use information technology in general, and it also appears to be the driving factor behind the adoption of social media in educational contexts (F. D. Davis, 1989). Within the school, social media is used to improve educational efficiency. Students will plan to use social networks in accordance with the objective of collaborative learning once they discover how valuable they are. The perceived usefulness of social media tools for learning in higher education, according to Mazman, has a strong influence on behavioral intentions (Mazman & Koçak-Usluel, 2010). Other studies on Facebook adoption define perceived usefulness as the degree to which a user accepts (with trust) PU is

critical in defining university students' intentions to use social media as a tool for their studies. In view of the above discussion, we propose the following hypothesis:

H5: *There is a significant positive relationship between perceived usefulness and intention to use social media.*

H6: *There is a significant positive relationship between perceived usefulness and collaborative learning.*

Intention to use social media

Intention to use, as defined by (Venkatesh, Thong, & Xu, 2012), refers to users' willingness to use a technology. Individual will in utilizing technology, which include factors that influence any technology utilization, is described as behavioral intention to use (Venkatesh et al., 2012). In this study, behavioral intention indicates the extent to which students will utilize social media platforms for collaborative learning in the future. The research found that behavioral intention has a direct impact on the use of social media applications for collaborative learning (W. M. Al-Rahmi, M. S. Othman, & L. M. Yusuf, 2015a; Labib & Mostafa, 2015).

H7: *There is a significant positive relationship between intention to use social media and collaborative Learning*

H8: *There is a significant positive relationship between intention to use social media and students' academic performance*

Collaborative learning

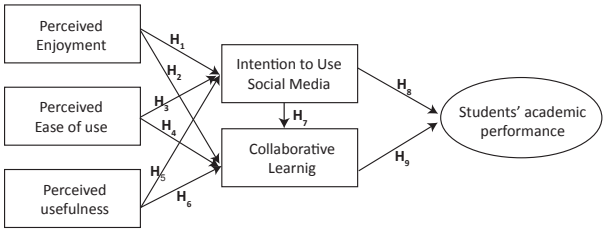
Collaborative learning (CL) is the process in which a group of students work together to achieve a particular learning achievement in a more interactive environment (Alavi, Wheeler, & Valacich, 1995). (W. M. Al-Rahmi et al., 2015a; W. M. Al-Rahmi, M. S. Othman, & L. M. Yusuf, 2015b, 2015c) stated that using social media platforms for engagement and CLhad a positive impact on group interactions. As a result, students might be more capable of communicating with their colleagues while finding solutions for issues in a collaborative way (Anderson, 2007). In light of the discussion above, the researcher suggests the following hypothesis:

H9: *There is a significant positive relationship between collaborative learning and students' academic performance*

Academic performance

Academic performance (AP) is a result of education that indicates whether a student, learner, or educational organization has achieved its educational objectives (MacGeorge et al., 2008). According to Junco (2011), social media has more significant influence on AP of its users than other types of media (Junco, 2012). In addition, Hamid et al. (2011) argued that social media use in higher education could be executed in a variety of ways and produce positive outcomes (Hamid, Waycott, Chang, & Kurnia, 2011). For instance, Madge et al. (2009) insisted that using social media can enhance access to education and engagement (Madge, Meek, Wellens, & Hooley, 2009). Nevertheless, there are some advantages of a social media user. According to (Roblyer et al., 2010), social media are sources of information exchange among students and teachers in their schools (Rutherford, 2010). Furthermore, the use of social media networks promotes the development of positive relationships among students' AP (Al-Rahmi, Alias, Othman, Alzahrani, et al., 2018; Al-Rahmi, Alias, Othman, Marin, & Tur, 2018; Al-Rahmi et al., 2019).

RESEARCH MODEL AND HYPOTHESIS



H1: *There is a significant positive relationship between perceived enjoyment and intention to use social media.*

H2: *There is a significant positive relationship between perceived enjoyment and collaborative learning.*

H3: *There is a significant positive relationship between perceived ease of use and intention to use social media.*

H4: *There is a significant positive relationship between perceived ease of use and collaborative learning.*

H5: *There is a significant positive relationship between perceived usefulness and intention to use social media.*

H6: *There is a significant positive relationship between perceived usefulness and collaborative learning*

H7: *There is a significant positive relationship between intention to use social media and collaborative Learning*

H8: *There is a significant positive relationship between intention to use social media and students' academic performance*

H9: *There is a significant positive relationship between collaborative learning and students' academic performance*

RESEARCH METHOD AND DATA COLLECTION

The aim of the study is to determine the affecting factors on the intention of using social media, learning collaboration as well as students' academic performance in higher education. Therefore, an online survey is conducted to collect data from the students of the private university in Vietnam, typically FPT University Da Nang. The quantitative method is used to analyze statistics and numbers due to its convenience (Osborne, 2008). From that, the relationships between independent variables, mediating variables, and dependent variables are examined clearly throughout the research paper.

An online questionnaire that is delivered to the student in the private school includes 2 parts: The first part is demographic information of participants and The second part has 23 questions related to 6 items in the research model. Moreover, the answers are measured by the Five-Likert Scale, where 1 = "Totally disagree" and 5 = "Totally Agree".

In order to discover the relationship among three kinds of variables, and focus on putting a theoretical framework to the test from a prediction standpoint, the PLS-SEM is a reasonable tool for the study (J. F. Hair, Risher, Sarstedt, & Ringle, 2019). Thus, the estimation of results will be more precise. While Cronbach's Alpha and Composite Reliability CR assess the threshold of reliability in the scale, Average Variance Extracted (AVE) shows the value of convergence. In addition, Fornell and Larcker and HTMT in bootstrapping analysis point out the discriminant validity in latent variables.

Barclay et al. (1995), Hair et al. (2022), and Chin (1998) suggested a method to identify the minimum sample size when using PLS-SEM, called the "10-times rule" (Barclay, Higgins, & Thompson, 1995; Chin, 1998; J. Hair, Hult, Ringle, & Sarstedt, 2022) in terms of the quantitative research papers. In the research model, the authors proposed 9 Hypotheses; therefore, the minimum sample size is 9*10 = 90. Overall, 149 participants took part in the online survey at FPT University Da Nang, whereas a sample was unusable. As a result, the number of samples is satisfied and eligible.

DATA ANALYSIS

Demographics

A total of 148 students at FPT University Da Nang filled in the online survey and the result was shown in Table 1. The statistics showed that there were 57.4% of male students which was higher than that of female students, at 42.6%. People aged 18-19 made up the highest rates during the research period, followed by 22 year old students with 20.9%. Most of the participants are freshmen to seniors, there are no differences in the groups. The survey also pointed out that students had the inclination to simultaneously use many channels for their studies. Facebook was a popular channel to study and took up 53.2% of the total channels, which is higher than Zalo 1.5 times. Meanwhile, the percentage of users was lowest at 2.3% and other channels reported 10.2%. Moreover, social media sites were helpful in learning collaboration remotely while the Covid-19 pandemic situation is complicated. Students often worked in groups of less than 1 hour and 1-2 hours, at 30.4% and 42.6% respectively. Following that, the time of using social media for 2-3 hours accounted for 16.2% and the rest of the total respondents took more than 3 hours to learn with their groups on the internet.

Table1

Demographics of respondents

Measures	Frequency	Percentage
Gender		
Male	85	57.4
Female	63	42.6
Age		
18	32	21.6
19	43	29.1
20	24	16.2
21	17	11.5
22	31	20.9
>22	1	0.7

Student year		
Freshman	69	46.6
Sophomore	25	16.9
Junior	14	9.5
Senior	40	27
Social Media Channel		
Facebook	141	53.2
Zalo	91	34.3
LinkedIn	6	2.3
Other	27	10.2
Usage of social media for studying		
<1 hour	28	18.9
1-2 hours	53	35.8
2-3 hours	30	20.3
> 3 hours	37	25
Usage of social media for collaborative learning		
<1 hour	45	30.4
1-2 hours	63	42.6
2-3 hours	24	16.2
> 3 hours	16	10.8

RESULTS

The collected data were analyzed in two main steps in the procedure (J. F. Hair, 2009). First, the reliability and convergent and discriminant validity were examined to measure the model. Then, to test the meaningful relationships in the constructs, the statistics of the structural model were implemented.

Convergent validity of the measurements

In the first time of data analysis, the outer loading of indicator (PE 2) was under 0.7, and (PE 2) should consider removing the structure (J. Hair et al., 2022). According to (J. Hair et al., 2022), outer loading pointed out significant statistics; the higher outer loading is, the similar indicators are in the construct. Thus, a remarkable outer loading should equal 0.708 or higher (J. Hair et al., 2022). In this case, the researchers should consider these carefully instead of deleting these indicators automatically (Hulland, 1999). Based on (Hulland, 1999), (PE 2) was eliminated, because the indicator of Composite Reliability and Cronbach Alpha also increased in a threshold value.

In the second time analyzing data, the indicators satisfied the recommendations of the previous researchers (Fornell & Larcker, 1981; McCarthy, 2010). All of the factor loadings were above 0.7 and the values of Composite Reliability fluctuated between 0.859 and 0.926. Cronbach Alpha values were in the range of 0.755 to 0.894 and exceeded the value of 0.7. Likewise, Average Variance Extracted (AVE) achieved the highest value at 0.805 and the rest of the values were bigger than 0.5. So, the average of latent variables will explain at least 50% of the variation of each observed variable. The measurement model related to CFA is presented in Table 2.

Table 2

Convergent validity

Factors	Code	Outer Loading	Composite Reliability	Average Variance Extracted (AVE)	Cronbach Alpha
(PE)	PE1	0.795	0.859	0.670	0.755
	PE 3	0.831			
	PE4	0.830			
(PEOU)	PEOU 1	0.882	0.914	0.726	0.874
	PEOU 2	0.784			
	PEOU 3	0.860			
	PEOU 4	0.879			
(PU)	PU 1	0.834	0.926	0.759	0.894
	PU 2	0.905			
	PU 3	0.844			
	PU 4	0.899			
(ITUSM)	ITUSM 1	0.892	0.925	0.805	0.879
	ITUSM 2	0.913			
	ITUSM 3	0.887			
(CL)	CL 1	0.862	0.904	0.704	0.856
	CL 2	0.868			
	CL 3	0.910			
	CL 4	0.702			
(AP)	AP 1	0.858	0.924	0.753	0.891
	AP 2	0.884			
	AP 3	0.884			
	AP 4	0.884			

Discriminant validity of the measures

Discriminant value indicates the distinctiveness of a structure when compared with other structures in the model. The traditional approach to assessing discriminants is to use the square root index AVE in the rows and columns respectively proposed by (Fornell & Larcker, 1981). Moreover, each construct's square root AVE should be larger than the correlations with other latent constructs (J. Hair et al., 2022). Table 3 showed that discriminant validity for this measurement model can be accepted, and it

supports discriminant validity among the constructs (Fornell & Larcker, 1981).

Table 3

Fornell-Larcker Criterion

	AP	CL	ITUSM	PE	PEOU	PU
AP	**0.868**					
CL	0.748	**0.839**				
ITUSM	0.690	0.790	**0.897**			
PE	0.614	0.746	0.678	**0.819**		
PEOU	0.695	0.744	0.693	0.738	**0.852**	
PU	0.733	0.794	0.773	0.722	0.756	**0.871**

For the HTMT index, (Watson et al., 1995) and (Kline, 2015) used a standard threshold of 0.85 to ensure a discriminant value between two latent variables. Meanwhile, three values in the column of Collaborative learning (CL) and Intentions to use social media (ITUSM), Perceived enjoyment (PE), and Perceived ease of use (PEOU) exceeded the standard point. However, according to (Henseler, Hubona, & Ray, 2016), the HTMT should be smaller than 1 to ensure the discriminant between two factors. As a result, the data was also accepted in ratio HTMT, see Table 4.

Table 4

Heterotrait-Monotrait Ratio (HTMT)

	AP	CL	ITUSM	PE	PEOU	PU
AP						
CL	0.854					
ITUSM	0.774	**0.907**				
PE	0.739	**0.915**	0.827			
PEOU	0.780	0.850	0.780	0.893		
PU	0.818	**0.907**	0.869	0.867	0.848	

Structural model analysis

The R square coefficient is a measure in the prediction of the model. In terms of variance explained by the independent constructs compared to the overall variance retrieved from the actual data, the R square achieved with the PLS model is the same as for multiple regression (J. F. Hair, Sarstedt, & Ringle, 2019).

Table 5 indicated that the R square values of (AP), (CL), and (ITUSM) were 0.585; 0.748; and 0.639 respectively. The dependent variable (CL) could be explained 74.8% by independent variables, which means that the factors (PE, PEOU, PU) can explain 74.8% of the studying in the group of students. Other variables outside the model account for the remaining 25.2%. Simultaneously, the independent factors of the TAM model can expound on 63.9% of the intentions of using social media while the variables (CL, ITUSM) can interpret 58.5% of the students' academic performance in higher education.

Table 5

R square of the Latent Variables

	R square
AP	0.585
CL	0.748
ITUSM	0.639

Path analysis

After analyzing the set of data by the SmartPLS, Table 6 described the revised structural modeling results. If the p-value is less than 0.05 or the 95% confidence interval that helps to explain the significant predictors of the relationships in a structural model (J. F. Hair, Risher, et al., 2019).

The findings suggest that (PE) has a significant effect on (ITUSM) ($\beta = 0.181$, $t = 2.196$, $p < 0.05$). Therefore, the first hypothesis is supported. Similarly, the relationship between (PE) and (CL) is strong and positive ($\beta = 0.218$, $t = 2.354$, $p < 0.05$). By contrast, in affecting of two next hypotheses include (PEOU) and (ITUSM) (H3); (PEOU) and (CL) (H4) have no positive influences, the values are ($\beta = 0.172$, $t = 1.671$, $p > 0.05$) and ($\beta = 0.153$, $t = 1.601$, $p > 0.05$) respectively. Because the p-values are higher than the standard 0.05, (H3) and (H4) are rejected. However, (PU) is reported to impact positively (ITUSM) ($\beta = 0.512$, $t = 5.800$, $p < 0.05$); thus, (H5) is accepted in the model construct. The next relationship (H6) is supported and the value is following the results ($\beta = 0.265$, $t = 2.655$, $p < 0.05$). (PU) has obviously a significant predictor of (CL). Furthermore, there is a powerful effect on the relationship between (ITUSM) and (CL) ($\beta = 0.331$ $t = 3.886$, $p < 0.05$). It means that (H7) is also positive and supported. In predicting (AP), two predictors as (ITUSM) and (CL) are reported to be significant. While the value of (H8) is ($\beta = 0.263$, $t = 2.614$, $p < 0.05$), the value of (H9) is ($\beta = 0.540$, $t = 5.431$, $p < 0.05$). So, the last two hypotheses (H8) and (H9) are accepted when the p-values are also satisfied the condition of the construct. In sum, seven hypotheses in a total of nine hypotheses are positive and supported.

Table 6

Hypotheses testing results

H	Relationship	β	Mean	SD	t-statistics	p-values	Results
H1	**PE → ITUSM**	0.181	0.179	0.083	2.196	0.029	Supported
H2	**PE → CL**	0.218	0.212	0.092	2.354	0.019	Supported
H3	**PEOU → ITUSM**	0.172	0.177	0.103	1.671	0.095	Rejected
H4	**PEOU → CL**	0.153	0.160	0.095	1.601	0.110	Rejected
H5	**PU → ITUSM**	0.512	0.507	0.088	5.800	0.000	Supported
H6	**PU → CL**	0.265	0.265	0.100	2.655	0.008	Supported
H7	**ITUSM → CL**	0.331	0.331	0.085	3.886	0.000	Supported
H8	**ITUSM → AP**	0.263	0.260	0.100	2.614	0.009	Supported
H9	**CL → AP**	0.540	0.547	0.100	5.431	0.000	Supported

DISCUSSION

The results of the study stated that the factors of the TAM Model such as (PE), (PEOU), and (PU) have positive predictors of (ITUSM) , as well as (CL). From that, it could help students improve and enhance their academic performance at University. The success of this research is to make clear the crucial role of the independent variables in the research model.

The findings showed that (PE) and (PU) were a significant impact on the intentions of using social media. The students would feel excited while exploring more information by using social media channels. Also, using social media could be able to improve their learning performance. These hypotheses also received the same results from (Al-Rahmi & Zeki, 2017; Alenazy, Al-Rahmi, & Khan, 2019; Sarwar, Zulfiqar, Aziz, & Ejaz Chandia, 2019). However, the articles (Al-Rahmi & Zeki, 2017; Alenazy et al., 2019) supposed that (PEOU) predicted positively for using social media by students, this study had the opposite result. Students felt have any problem learning about social media sites' features and their interaction with social media was not clear and understandable. Although this result has differed from former studies, (Ernst, Pfeiffer, & Rothlauf, 2013; Oum & Han, 2011) agreed that (PEOU) did not support social media use. (PEOU) simultaneously had no positive influence on (CL) and it was similar to (Al-Rahmi et al., 2022) while the last researchers supported it (Al-Rahmi, Othman, & Musa, 2014; Sarwar et al., 2019). Therefore, students believed that using social media might not be easy to incorporate and approach peers in my classroom. As the same as (Al-Rahmi & Zeki, 2017; Alenazy et al., 2019), (PE) and (PU) were not only supported for social media use but these factors also were positive and significant in the relationship with (CL). It means that social networks would go a long way towards improving students' satisfaction with learning collaboration and making them feel satisfied in their teams. In addition, the statistics revealed that the benefits of social platforms would be of use for academic purposes to discuss and communicate with colleagues. That facilitated to development of new knowledge with peer collaboration via social media. That is why (ITUSM) influenced significantly (CL) which was agreed by (Al-Rahmi, Alias, Othman, Marin, et al., 2018; Alenazy et al., 2019). Besides, both (ITUSM) and (CL) were significant predictors of (AC). Thus, the students considered social platforms as an effective channel to work in groups and increase their performance academically as much as they expected. According to (Alalwan et al., 2019; Alenazy et al., 2019) these relationships were also strong and positive.

Overall, this research backs up the idea that social media may help students improve their skills by allowing them to communicate with their peers. Their enjoyment of utilizing social media encourages them to use technology in combination with various platforms, which increases their abilities and academic accomplishment through collaborative learning.

CONCLUSION AND LIMITATIONS

The paper's aim is to determine the factors that influence student intentions to use social media for collaborative learning and academic performance. The students at FPT University Da Nang, Vietnam would be the respondents. From provided results, both educational organizations and media companies might develop useful platforms and enhance students' performance.

TAM model indicated its advantages in assessing the intentions and behaviors of a specific object in terms of using technology. Hence, based on the previous studies, the authors synthesized the factors for the development of a proposed research model. Due to the important role of the TAM model, three independent variables were chosen consist (PE), (PEOU), and (PU) (Al-Maatouk et al., 2020; Al-Rahmi & Zeki, 2017; Othman & Al-rahmi, 2013; Rietz, Benke, & Maedche, 2019). Two mediate variables were

(ITUSM) and (CL) which was proposed by (Al-Rahmi & Zeki, 2017; Alenazy et al., 2019). Finally, (AC) was displayed as a dependent variable in the construct (W. Al-Rahmi, M. S. Othman, & L. M. Yusuf, 2015; Al-Rahmi et al., 2022).

PLS Smart algorithm shows that (CL) has the highest impact on students' performance in school. They believe that learning with groups or teams experience in the social media environment is better than in a face-to-face learning environment. Additionally, the effect of the Covid-19 pandemic could be a considerable factor to increase communication via the Internet. Although obtained results in this study are similar to the last articles (Al-Rahmi & Zeki, 2017; Alenazy et al., 2019), (PEOU) was not able to predict both the intentions of using social websites and learning cooperation. The students suppose that social media sites are not easy to connect and discuss with their classmates due to their features. Meanwhile, the rest of the TAM model's factors (PE) and (PU) strongly support teamwork and learning via online platforms. Furthermore, the study suggests significant relationships among three factors (ITUSM), (CL), and (AC). If the use of social media helps students open the interaction with their colleagues and lecturers in the university, the connection of these behaviors will supplement more knowledge and skills from other people. Thereby, the students may accomplish higher academic performance. However, social media sites also have some negative impacts on students. In order to reduce this problem, education organizations and social media companies play an important role in the orientation of applying social channels in studying in higher education.

On the other hand, this study contributes to developing literature reviews concerned with the concept of the TAM model, (ITUSM) and (CL). That would be a vital element for future researchers to exploit the meaningful relationship of the construct in different contexts. Moreover, educators and enterprises can utilize the collected data and analyzed results from this research to make decisions for the enhancement of students' performance. Generally, the efficient approach to social networks would boost the motivation of students to create more ideas in class and help them enhance their performance in academics.

Nevertheless, the study also has some limitations. The first is the number of independent variables. In addition to the factors mentioned in this paper, there are still other factors that need to be considered to supplement the research. Second, the sample size of the study should be expanded in the future instead of stopping at the facilities of private schools such as FPT University Da Nang instead of public universities. Thus, future researchers might develop more affecting factors and open research scope in more quantities of universities.

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Developing a Robust Internal Quality Assurance System for International Accreditations: The Case of CamEd Business School

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CamEd Business School

An internal quality assurance system is a powerful instrument for ensuring the quality of the inputs, processes, outputs and outcomes of higher education. Designing an internal quality assurance (IQA) system however has been viewed as a great challenge by the developers. It may be even harder when the external quality assurance is compulsory such as that in Cambodia because there is little room for adaptation. Despite the challenge, CamEd Business School has developed a strong IQA system that aligns with its vision, mission and philosophy and meets the national, regional and international accreditation standards. As a result, CamEd Business School has achieved six certifications and accreditations within four years 2019-2023.This research paper introduces CamEd Business School's IQA system, explains how the system was developed, and presents the key results of the system implementation in 2019-2021.

Keywords: *Quality, quality assurance, framework, accreditation, standards*

INTRODUCTION

Quality assurance of education has been evolving for more than a century. Literature shows that the United States has the oldest tradition of accreditation and quality assessment (Khawas, 2001). Europe started out much later than the United States. Formal attention was not paid to quality, quality assurance, and quality assessment until the mid-1980s (Blackmore, 2004). Vroeijenstijn (2003) points out that this delay is because the control and management of higher education was centralized.

Some Asian countries had already adopted the concept of quality and quality assurance in higher education even before World War II. Yonezawa (2002) states that Japan already established the Japan University Accreditation Association (JUAA) in 1947. The Philippines also has a long history of quality assurance. It launched the Philippine Accrediting Association of Schools, Colleges, and Universities (PAASCU) in 1957, just 10 years after Japan (Corpus, 2003). In Hong Kong, quality assurance was not a major concern for higher education until the late 1990s. "Quality assurance is a term that has become prominent in Hong Kong's higher education vocabulary in the past few years" (Mok, 2000, p. 155). According to Mok, the National University of Singapore conducted a comprehensive institutional review and strategic planning exercise in 1997.

In the Association of Southeast Asian Nations (ASEAN) member states there is a wide range of national higher education quality assurance systems due to the organizational structures, developmental objectives, scope of the quality assurance, and socio-economic status (Niedermeier & Pohlenz, 2019). Despite the different practices, efforts have been made to harmonize the quality assurance processes in the ten ASEAN member countries with the focus on comparability and readability of academic achievements and degrees throughout the Southeast Asian region.

The quality assurance of Cambodian higher education began with an international conference held on July 31–August 2, 2002 in Sunway Hotel to assess the need for establishing a higher education accreditation system in Cambodia (National Conference Proceedings, 2002). Subsequently, a Royal decree on the Accreditation of Cambodian Higher Education was passed on March 31, 2003 (Royal Decree, 2003) to give leeway for developing accreditation standards, guidelines and rubrics. The accreditation standards, guidelines and rubrics have been revised several times, and the last revision of the guidelines was published in February 2023 (ACC, 2023). The rating scale in the rubrics was extended to include 10 points. From the internal perspective, the Ministry of Education, Youth and Sport (MoEYS) in collaboration with the World Bank issued guidelines on internal quality assurance systems. The guidelines

include the nine national standards and 48 indicators which are rated on a 4-point scale (MoEYS, 2021). The guidelines require the HEIs to maintain a minimum total score of 96 out of 144 and at least 2 marks for each indicator.

CamEd Business School has considered this demand for a proper quality assurance system as an opportunity to improve its quality education to be on a par with international standards (CamEd's Vision 2023). This case study aims to investigate into the process through which the CamEd Internal Quality Assurance (IQA) Framework was developed and implemented, and to measure its impact on the stakeholder satisfaction and student achievements over three academic years 2019, 2020 and 2021. First, this paper will discuss the related literature from which the authors identify the research gap and develop a conceptual framework of the internal quality assurance system. Then, four specific research questions are presented to guide the research methodology that explains the sampling technique, data collection, data analysis and research design. The next part is the research results that focus on student achievements and key stakeholders' satisfaction. In the end, the paper provides conclusions and recommendations for further study.

LITERATURE REVIEW

Schools as open systems

Educational institutions can be viewed as open systems which connect inputs from sources in the existing environment with the transformation processes and outputs (Lunenburg & Ornstein, 2012). In HEIs, inputs include materials, information, finance, policies, curriculum and people, which are transformed into products or services through training, teaching, learning, research, or administrative processes. The HEIs then export the products and services back into the environment. Those products and services may include students' knowledge, skills and attitude, staff's improved competencies, research outputs, and community services provided. The graduates will in turn contribute energy back to the HEIs system in terms of financial, material or human resources which makes the educational system a cyclical process (Katz & Kahn, 1978). At each stage of the cycle, there is information that reflects the previous stage - this is called feedback. In this sense, a quality assurance system needs to ensure that the inputs are of the right quality, and so are the processes and the outputs. Lunenburg and Ornstein warn that if HEIs focus on the processes (teaching, learning, and research) and pay little attention to how clients react to the products and services, the HEIs can result in serious consequences.

What is quality?

The concept of quality has evolved through the changing context of higher education influenced by rapid growth and diversity in response to limited resources, shift from elite to mass system, demands for accountability, accreditation, and quality demands for internationalization. Therefore, a uniform definition may not be realistic for a certain context. For instance, Lemaitre (2002) defines quality as excellence, fitness for purpose, fitness of purpose, efficiency, and transformation of students, while Becket and Brookes (2005) and Harvey and Green (2006) refer quality to exceptional ability, consistency with preset goals, value for money, and transformative process. However, these authors suggest that HEIs must learn all these definitions but choose the one(s) that fit(s) their purposes.

Bazargan (2000) defines quality differently and concisely, "It is a degree to which outputs of the system meet the criteria related to stated objectives" (p. 177). Bazargan adds that quality relates to the process to obtain the intended outcome which Newton (2006) calls "standard" and which can be achieved through a process. The International Organization for Standardization for instance is a good example of using process-based standards to assess the quality management system (International Organization for Standardization, ISO-9001:2015).

In summary, for various reasons, quality is the main objective of all HEIs. Even though "quality" is defined differently, it can be concluded that "quality" refers to an expected outcome that is responsive to a particular need in a particular context. Since quality is an expected outcome, it is influenced by the process through which the quality is produced. Therefore, to attain the desired quality, it is imperative for HEIs to establish a quality assurance system that is suited to their context and implements it effectively and continuously.

Quality assurance

Quality assurance is focused on the processes of education towards the attainment of the desired outcomes (the quality) which in a broad sense

include accountability (learning outcomes), sustainability (continuous improvement), and autonomy (accreditation) (Keravnou, 2006). Several authors associate quality assurance with a systematic management and assessment processes (Mok, 2000; Finish Higher Education Evaluation Council, 2012). Since quality assurance is a systematic process, it intends to ensure the quality inputs, the quality processes, the quality outputs, and the quality outcomes (Vroeijenstijn, 2003). Each of the four stages of this systematic process gives feedback to the preceding stage, making the quality assurance process a continuous process. In addition to this structural process, for the quality assurance system to sustain in the long run, it is vital to engage all departments and individuals in the process. The departmental and individual engagements which are referred to as "subsystems" by Taylor (2003) can help maintain and improve the institution's quality and so create a quality culture.

Mole and Wong (2003) suggest that a mature quality assurance system aims to facilitate a continuous quality improvement and a pervasive quality culture. To support the subsystems, Mole and Wong underscore the role of a committee that is responsible for assuring the quality at the institutional level in close collaboration with the departments. The authors add that it is essential to secure strong support from the leadership level. These hierarchical levels of internal quality assurance are referred to as "strategic, systemic and operational" levels respectively by the ASEAN University Network for Quality Assurance (AUN-QA, 2020, p. 6).

Policies and supporting mechanisms are another important component of the quality assurance system which contribute to the quality culture development. Keravnou (2006) emphasizes the need for proper policies to support the internal quality assurance system, particularly for self-awareness of the strengths and weaknesses and for self-improvement. Mole and Wong (2003) advocate that policies and supporting mechanisms have to be developed with active participation of the key stakeholders in order to build a sense of ownership of the system. It is equally important to engage external stakeholders that regulate their operations such as ministries, accreditation agencies and regulators who Turyahikayo (2019) describes as "coercive isomorphism."

After forming an internal quality assurance team or committee and creating policies, mechanisms and tools with active involvement of key stakeholders, the internal quality assurance system must be implemented in a systematic and objective manner (Jackson, 1996). The data should be gathered using a triangulation method and analyzed in a scientific way. On the one hand, the report should provide recommendations for continuous improvement. On the other hand, it should be responsive to external standards or criteria.

The literature shows that the quality assurance system in higher education generally has two approaches, including internal assessment and external assessment by peers. These two approaches are different yet interrelated. Vroeijenstijn asserts that an accrediting agency is a powerful driver of quality assurance since it is conducted by an independent agency for accountability and accreditation, and its results are publicly announced. Similarly, Lemaitre (2002) contends that internal assessment should be carried out against the standards or criteria that are consistent with those used for external assessment.

According to Vroeijenstijn (2003), many institutions may have the most important quality criteria, quality indicators, and quality aspects but do not have a model, in which various aspects are all correlated. A good model helps to structure self-analysis and to discover strengths and weaknesses. The self-analysis structure, strengths and weaknesses can be used as a basis by the institution for assuring the readiness for the accreditation process and for sustaining continuous quality improvement which is the foundation of quality culture development.

In conclusion, based on the review of related literature, there is no common definition of "quality" let alone a common IQA framework. "Quality" can be defined differently depending on the purpose of the HEIs and the context in which the HEIs are operating. However, the literature commonly suggests that an HEI system follows an open system which comprises inputs, processes, outputs and outcomes. There is also advocacy for measuring the outcomes of the IQA framework. The result at each stage may be used as feedback to the preceding stage. This makes the entire IQA system a cyclical process through which a quality culture is developed. The literature shows a common understanding that a quality culture be developed through active engagements of the key stakeholders at all levels of the HEI system. It is also suggested that the external factors be considered

and external standards be integrated into the IQA framework so that the framework's results will be in congruence with the external standards.

Research gap

The existing literature provides only foundational concepts of quality and quality assurance and suggests that quality and internal quality assurance systems be contextualized to meet a specific purpose of the HEIs. Therefore, the knowledge of the institutional, national, regional and international contexts of higher education and quality assurance and the ability to identify the alignment between the institution's context and the external contexts is fundamental to establishing a robust IQA system. So far no research has been conducted to build a good understanding of CamEd's quality and quality assurance. Though CamEd Business School introduced an IQA framework in 2015, there was no evidence of a proper study to assess the context relevance and consult related literature in order to support the design of the IQA framework both at the initial stage in 2015 and the subsequent revisions in 2016 and 2017.

Research questions

This research was designed to answer the following questions:

1. What are the characteristics of a robust internal quality assurance framework for obtaining international accreditations and building a quality culture?
2. What has CamEd done to assure the quality of its provision?
3. What are the strengths and weaknesses of the IQA framework based on the student achievements and stakeholder satisfaction in Academic Years 2019-2021?
4. What should be done to improve the positive impacts of the IQA framework on the student achievements and stakeholder satisfaction?

RESEARCH METHODOLOGY

Sample

The Census Survey Method was used to collect data from the participants. A survey questionnaire was sent to all the academic staff, support staff, students and alumni. There were 23 academic staff participating in this study in 2019, 23 in 2020 and 21 in 2021. The second group of respondents include 45 support staff in 2019, 37 in 2020, and 49 in 2021. The third group includes 1,349 students in 2019, 1,273 in 2020, and 1,262 in 2021. Data were also collected from 377 alumni in 2019, from 419 alumni in 2020, and from 523 alumni in 2021.

Table 1

Number of respondents

Respondents	2019		2020		2021	
	n	%	n	%	n	%
Academic Staff	23	62	23	62	21	44
Support Staff	45	49	37	45	49	55
Students	1349	47	1273	50	1261	42
Alumni	377	44	419	36	523	34
Total	1,794	47	1,752	46	1,854	40
Total	1,794	47	1,752	46	1,854	40

Source: This table was created by the authors based on the primary data.

The Purposive Sampling Technique was used to select employers based on two criteria: Top 30 employers who recruit the biggest number of CamEd graduates and actively cooperate with CamEd Business School. As a result, there were 7 employers participating in 2019, 29 in 2020, and 23 in 2021.

Data collection

The secondary data were collected from existing documents including CamEd IQA Framework 2015 and 2018, CamEd's Vision, Mission and Core Values, CamEd's Strategic Plan 2019-2023, Cambodian National Qualifications Framework, Cambodian National Standards, AUN-QA Guidelines for Program Assessment, ISO 9001:2015 Standards, and Accreditation Council for Business Schools and Programs (ACBSP) Process. The primary data focus on the student achievements including attrition, retention, graduation, and job placement. Another set of primary data were collected through a survey with the students, academic staff, support staff, alumni and employers in order to measure the level of their satisfaction.

The survey questionnaires were developed in Google Form and sent to the respondents by email. Alumni and employer satisfaction was measured through a tracer study conducted by an independent consulting firm. The questionnaires used a 1-7 point scale to determine the level of satisfaction, where 1 indicates the lowest level of satisfaction and 7 means the highest level. The respondents can choose N/I if they

think that the questions are not relevant to them or they had no idea. They can also write their comments at the bottom of the form.

Data analysis

The secondary data were reviewed to determine the alignment with CamEd's vision, mission and core values and the literature review. The primary quantitative data were analyzed based on the average scores on the 1-7 point scale. The analysis of the qualitative data from the open-ended questions followed the four-step procedure developed by Stake (1995). At the first step "categorical aggregation" (p. 74), the data were categorized according to the emerging theme found in the responses. In the second step, "direct interpretation," the researchers pulled the data apart and then reorganized them so that they became more meaningful in an interpretative way. After identifying the strengths and weaknesses, "established patterns" were determined and coded to identify the commonalities of the responses (p. 78). Finally, "naturalistic generalizations" were made (p. 85).

Research design

This research uses a Longitudinal Survey Design which according to Creswell (2014) refers to "the survey procedure of collecting data about trends with the same population" (p. 405). Naming this design "Trend Studies," Creswell asserts that Trend Studies involves different respondents but those respondents represent the same population. The purpose of this research design is to study the quality improvement based on the student achievements and satisfaction of the respondents within the same population over a period of 3 academic years (2019-2021). In this study, the respondents are the academic staff and support staff. It also involves the alumni who have graduated since 2014 and the key employers.

RESULTS

Development of the CamEd IQA framework

What is "quality" in the CamEd context?

Extensive literature suggests that "quality" should be defined with respect to the context and the purpose of the institution. Centered on this literature support, CamEd Business School has adopted three dimensions of quality based on its own vision, mission and educational philosophy. CamEd is committed to meeting the standards or criteria set forth by the relevant accrediting agencies at the national, regional, and international. The conceptualization of "quality" considers the level of congruence with the accreditation standards such as ACC, AUN-QA and ACBSP. The second dimension of "quality" is fitness for purpose. CamEd is determined to respond to the key stakeholders' needs. The last dimension is "exceptionality". CamEd students should be equipped with an exceptional ability to use their optimum potential beyond the national contexts.

CamEd quality assurance principles

The development and implementation of the CamEd IQA Framework are guided by the following nine principles which were adopted in consideration of the literature above.

Principle 1: Holistic Approach

Principle 2: Self-Assessment

Principle 3: Continuous Enhancement

Principle 4: Planning

Principle 5: Data and Resources

Principle 6: Teaching and Learning, Research, and Community Services

Principle 7: Benchmarking and Accreditation

Principle 8: Collegiality

Principle 9: Independence

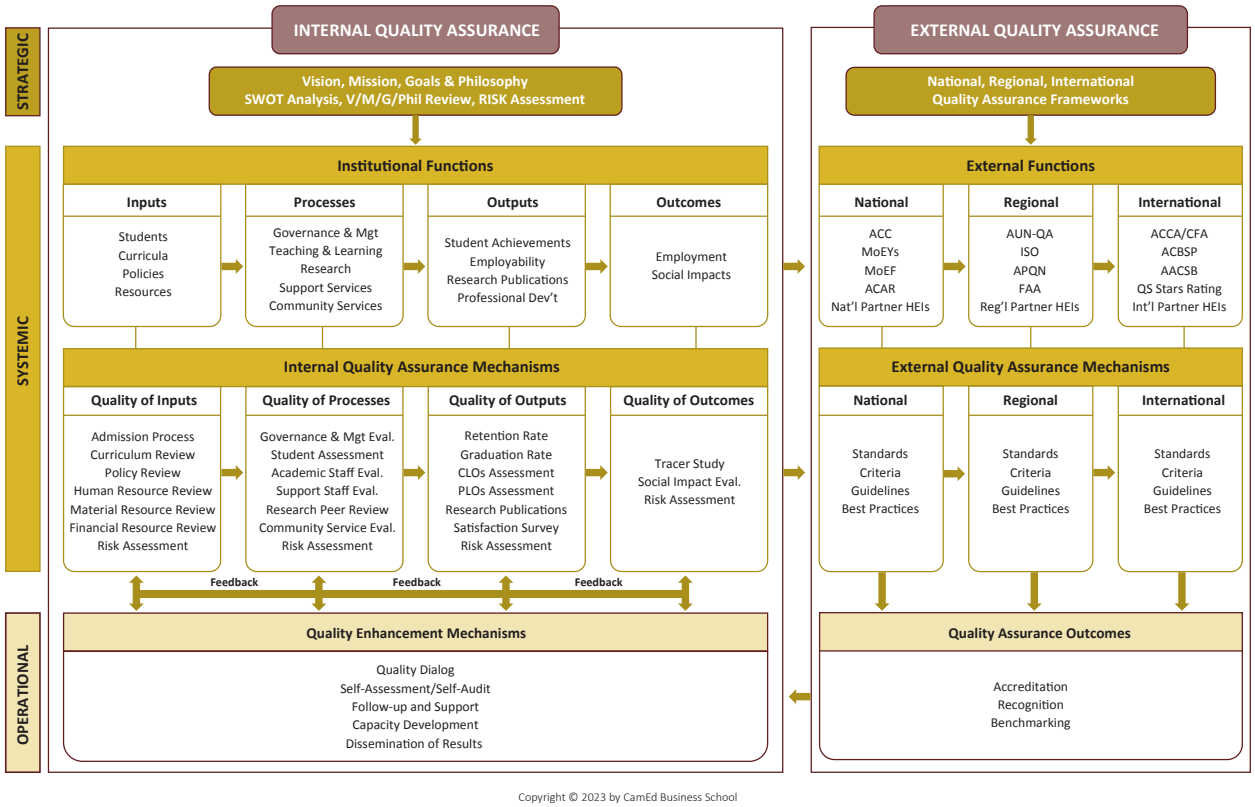
CamEd IQA framework

The CamEd IQA Framework aims to continuously improve the quality of teaching and learning, research, and community services in line with the institution's vision, mission, philosophy, core values and goals. The framework therefore addresses all areas of the institution's entire system. It also provides directions for setting up quality assurance policies, mechanisms and structures which in turn will guide the school operation. The framework comprises national, regional and international contexts of quality assurance and indicates three interrelated levels of quality assurance: strategic, systemic and operational levels. While the strategic level involves the top leadership, the systemic level deals with the management, and the operational level lies on the daily operations.

The CamEd IQA Framework shows a systematic process of intertwined internal and external quality assurance systems. Strength-Weakness-Opportunity-Threat (SWOT) analysis results are used to improve the vision, mission, goals and core values and provide directions for the institution's functions, including inputs, processes, outputs, and outcomes.

Figure 1

CamEd Internal Quality Assurance Framework



Source: CamEd Internal Quality Assurance Framework Policy

Mechanisms are in place to assure the quality of the functions. The mechanisms for assuring the quality of inputs include admission tests, market needs analysis, policy reviews, resource reviews, and curriculum reviews, while student assessments, classroom observations, faculty evaluations by students, research peer reviews, and staff engagement are used to assure the quality of processes, including teaching and learning, research and community services. The outputs are measured by the graduation rate, drop-out rate, retention rate, research publications, and stakeholder satisfaction, whereas the outcomes are assessed through tracer study, employer survey, and social impact analysis.

The third level of the IQA framework is the quality enhancement. At this level, there is a quality enhancement team (QET) in each department/committee. This team plays a crucial role in monitoring and evaluating the progress of their respective department/committee. They shall vigorously implement the recommendations provided by the internal or external assessors and conduct periodic self-assessments/self-audits. The Internal Quality Assurance and Internal Audit (IQA-IA) department conducts follow-up activities to provide necessary assistance to all departments/committees. Reports on the achievements and progress reflect the implementations at each stage of the framework.

While the internal quality assurance focuses on the continuous improvement of the institution's functions against its mission, goals and strategic objectives, the external quality assurance system requires compliance to the national, regional and international standards/criteria. It also involves benchmarking with successful HEIs inside and outside the country. The benchmarking results are used for both accreditation and quality enhancement. This quality assurance process operates in a cyclical manner, underpinned by a robust quality culture within the institution that is developed with strong support by the top leadership, department heads, and key stakeholders.

The evaluations are part of the continuous process of the internal quality assurance and following the Quality Management Cycle - Plan, Do, Check, Act, Recognition. While the formative evaluation instruments are administered in the beginning or early of the year, the summative ones are conducted toward the end of the semester and/or the year.

Some evaluations such as Classroom Observation are done during and at the end of the semester.

Evaluation tools were designed to collect data about the IQA system from various groups of key stakeholders, including students, academic staff, support staff, leadership team, alumni, and employers. All evaluations are conducted electronically with confidentiality. Although the constructs of the tools may vary depending on their respective purposes, all tools include both close-ended and open-ended questions. The close-ended questions mainly require respondents to rate the performance on a 1-7 Likert scale, while the open-ended questions aim to get qualitative feedback.

Implementation of the IQA framework

The quality assurance is a participatory and cooperative process across all levels of the quality assurance with involvement of academic staff, support staff, students, alumni, employers, and other key stakeholders. The implementation of the IQA framework is coordinated by the IQA-IA department with active engagement of the Quality Enhancement Team (QET) within each department across the institute. The QET is responsible for assuring the quality of their respective department by conducting a periodic self-assessment/self-audit twice per year.

Assuring the quality of inputs

Admission process review

The student needs and expectations are collected and analyzed in a systematic way following the CamEd curriculum development cycle (PDCA, where P stands for Plan, D for Do, C for Check, and A for Act). A number of assessment tools were used to collect the expectations, including alumni survey, employer survey, student survey, and academic staff survey. The results show that the students expect to acquire a comprehensive knowledge and technical skills in the field of accounting and finance.

Policy review and development

In January 2019, there were 68 policies and procedures in place. After the Board of Trustees approved the IQA framework on 13 July 2019, the IQA-IA department in collaboration with all departments updated 53 policies/procedures and created 55 new ones. The total number was 123 in 2019 but increased to 134 in 2021. The main purpose of the review was to document the actual practices, to simplify the processes, and to respond to the ISO 9001:2015 recommendations.

Human resource review

The Human Resource Action Plan is reviewed against the set targets twice per year. The targets are determined in consideration of the student enrollment projection and staff competency gap analysis. The annual reports show a slight increase in the number of academic staff holding doctoral degrees, from 42% in 2019 to 44% in 2021. The human resources are also monitored through staff self-evaluations conducted at the end of the year. On a 1-7 scale, academic staff engagement scores increased gradually from 6.12 in 2019 to 6.26 in 2020 and to 6.47 in 2021. Similarly, support staff engagement improved from below 6.00 in 2019 to 6.39 in 2021.

Table 2

Human resource review

Indicators	2019	2020	2021
Number of Academic Staff	33	32	36
Percentage of PhD Holders	42	38	44
Engagement Score of Academic Staff (μ)	6.12	6.26	6.47
Engagement Score of Support Staff (μ)	5.84	6.18	6.39

Source: This table was created by the authors based on the primary data.

Financial resource review

The financial health is assured through several mechanisms. Like other departments, the Financial department conducts a self-evaluation/self-audit continuously and presents a report at the management meetings twice per year. Through these processes, the department identifies the strengths and areas for improvement and sets action plans to close the gaps. Another mechanism is the internal audit process which is carried out by the IQA-IA department. The lead internal auditor reviews the accounting guidelines to ensure that they conform with the Cambodian International Financial Reporting Standard for Small- and Medium-Sized Entities (CIFRS for SMEs). Periodically the lead internal auditor reviews the accounting and financial transactions to determine whether there is a sufficient control over the transaction cycles. Cash and bank reconciliations are reviewed three to four times a year in order to assess the reconciliations. The results show no material discrepancies in the bank reconciliation and the cash balances show positive improvement over the past three years (2019 to 2021). Risk assessments are done regularly and corrective actions are discussed and implemented.

Besides, the quarterly cash flow performance is

presented in the BoT meeting to update the cash position and take a proactive response to manage the financial resources effectively. In addition, annual financial statements are audited by an independent auditor. Over 2019-2021, the external audit results have shown an unqualified opinion and a healthy profit with a net margin increase from 20% in 2019 to 34% in 2021.

Physical resource review

The quantity and quality of the physical resources are evaluated every year through feedback and requests by the academic staff, support staff and students. The facilities department regularly conducts an inspection of all facilities and equipment to identify the needs for repairs and maintenance. The needs for repairs and maintenance of facilities and equipment are updated in the maintenance schedule which are prioritized based on their urgency, scale and/or possible solution by internal staff. The repairs and maintenance are outsourced if there is a constraint on the department time and human resources. In addition, all departments inform the maintenance team to fix any facilities and equipment on time in the group telegram when the staff get to know it.

Curriculum review

Following the Plan-Do-Check-Act Model, the curriculum has been reviewed and revised several times since the first graduation cohort in 2014. However, a major revision was done in 2018, when feedback was collected from key stakeholders including academic staff, alumni and employers in consideration of the AUN-QA guidelines and standards. The program curriculum was changed to "Program Specification'' and the program outline was also adjusted to be consistent with the AUN-QA guideline (Guide to AUN-QA Assessment at Program Level version 3.0). The program learning outcomes were thematically grouped in four categories (Knowledge, Cognitive Skills, Communication, Information Technology, and Numerical Skills, and Interpersonal Skills and Responsibilities) in order to comply with the Cambodian National Qualifications Framework 2014. The curriculum was also benchmarked with the International Federation of Accountants (IFAC) requirements and the Certified Accounting Technician (CAT) or the Association of Chartered Certified Accountants (ACCA) courses. The results show that a great majority of the CamEd courses align with IFAC courses and that 13 courses align with the CAT or ACCA courses. To ensure the strategic alignment, a curriculum map was created in 2018 and adjusted in 2021 to provide clear descriptions of the rating scale.

Assuring the quality of processes

A number of mechanisms have been employed to assure the quality of processes from the leadership to frontline levels. At the strategic level, the quality of the governance and management processes is annually monitored through Board self-evaluation, president evaluation by the Board members, and management evaluation by support staff. At the systemic level, the mechanisms include annual institutional evaluations by support staff, academic staff and students. At the operational level, staff performances are evaluated continuously. To assure the quality of teaching and learning, academic staff are evaluated by students four times per year and by peers two times per year. The students are invited to do self-evaluation of their course learning outcomes (CLOs) achievements at the end of each semester and student self-evaluation of their program learning outcomes (PLOs) achievements at the end of the program. To assure the quality of services, support staff are evaluated by their supervisors and peers once per year. Staff self-evaluations are also implemented in order to provide opportunities for self-reflections and requests for professional development.

All evaluation tools are designed in Google Form. The survey questionnaires aim to reflect the roles and responsibilities of the designated department or individual. For example, the questions for the Board of Trustees Self-Evaluation are to measure the Board's performance in line with the Bylaws, while the questions for the President Evaluation by the Board of Trustees refer to the extent to which the President fulfills his job responsibilities. Likewise, the academic staff's teaching performances are evaluated based on four main criteria, namely knowledge of the subject matter, class preparation, teaching methods, and classroom management, while other key performance indicators such as research, engagement, and professional development are included in the Faculty Self-evaluation form. Similarly, support staff's performances are reviewed based on their job descriptions.

The institutional evaluations focus on the School's vision, mission, and work environment, quantity and quality of the facilities and equipment, quality of the support services, effectiveness and efficiency of communication and collaboration, professional development, and evaluation system. The departmental evaluations focus on the

implementation of the action plans. The quantitative data are converted to Google Sheets to facilitate the calculation of average scores, and the comments and suggestions are analyzed through a thematization method to identify the commonalities and distinctions. Full reports include the average scores, a summary of the strengths, areas for improvement, and the recommendations. Relevant departments as well as individuals are requested to provide responses to the recommendations in writing.

The QETs continuously conduct self-assessments/ self-audits of their respective action plans and produce reports twice a year. The reports are based on the targets and include the strengths, areas for improvement and future actions. The QETs present their reports at the management meetings when all participants discuss the reports and provide feedback. The IQA-IA department is responsible for synthesizing the departmental reports and presenting an integrated report to the Board of Trustees twice a year. The IQA-IA department requests all departments and individuals to determine actions in response to the evaluation results and follows up on the implementation.

All academic staff are encouraged to do research and their research papers must be peer-reviewed by the Research Committee, which is composed of a chair and 4-5 members elected by the academic staff biannually. The research processes are systematically monitored through double blind peer reviews. The peer review process includes five steps: submission, peer review, author's response, confirmation by the Research Committee, and authorization to publish.

Assuring the quality of outputs

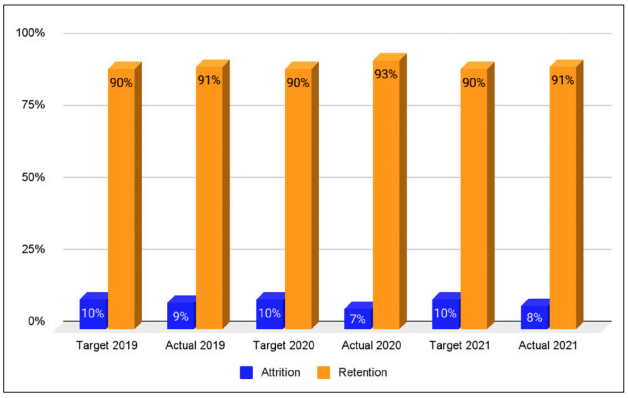
As indicated in the IQA Framework, the main outputs of the educational system are measured by student achievements (retention, attrition, graduation, CLOs and PLOs achievements), research publications, stakeholder satisfaction, and risk assessments.

Student retention and attrition

The chart below shows the retention targets and retention results in Academic Year 2019-2021. CamEd has achieved the retention target of 90% every academic year. On average, 91% of the students were retained in 2019. The retention rate increased to 93% in 2020 but slightly returned 91% in 2021. The increase of retention rate is due to the decrease of attribution. The table demonstrates the attrition target of 10% in Academic Years 2019-2021. As can be seen in the table, the average attrition rates have decreased from 8% in 2019 to 7% in 2021.

Figure 2

Student retention and attrition rates



Source: This bar chart was created by the authors based on the primary data.

Graduation

The table below shows the enrollment rates and graduation rates in Academic Years 2019-2021. The graduation rates are categorized in three groups, namely graduating on time (4 years of study), graduating 1 year later and graduating 2 years later. The results illustrate that in 2019 there were 470 students enrolled in the Bachelor of Accounting and Finance program, and 254 students graduated on time. The on-time graduation rate increased from 54% in 2019 to 62% in 2020 and slightly rose to 63% in 2021, while the late graduation rate decreased remarkably throughout the years.

Table 3

Graduation rate

Graduation	2019	2020	2021
Enrollment	470	493	482
Graduation on Time	254	304	304
Graduated on Time (%)	80	91	92
Graduation 1 Year Later (%)	15	9	8
Graduation 2 Years Later (%)	5	2	n/a
Total Graduation	316	335	330

Source: This table was created by the authors based on the primary data.

Stakeholder Satisfaction

Another main outcome of the IQA system is the satisfaction of the key stakeholders. In 2019, a survey was conducted to measure the level of satisfaction of 1,349 students, 23 academic staff, and 45 support staff. The total average score was 5.77 out of 7.0. In the following year, the key stakeholders' satisfaction increased steadily to 6.20 and remained stable through 2021, despite COVID-19 pandemic's impact.

Table 4

Level of stakeholder satisfaction

Group of Respondents	2019		2020		2021	
	n	μ	n	μ	n	μ
Students	1349	5.33	1273	6.06	1126	6.05
Academic Staff	23	6.07	23	6.28	21	6.35
Support Staff	45	5.92	37	6.25	68	6.23
Total	1417	5.77	1333	6.20	1215	6.21

Note. *In 2019, N = 2999 (n = 1349 for students; n = 23 for academic staff; n = 45 for support staff)*

In 2020, N = 2665 (n = 1273 for students; n = 23 for academic staff; n = 37 for support staff)

In 2021, N = 3139 (n = 1126 for students; n = 21 for academic staff; n = 68 for support staff)

Source: This table was created by the authors based on the primary data.

Assuring the quality of outcomes

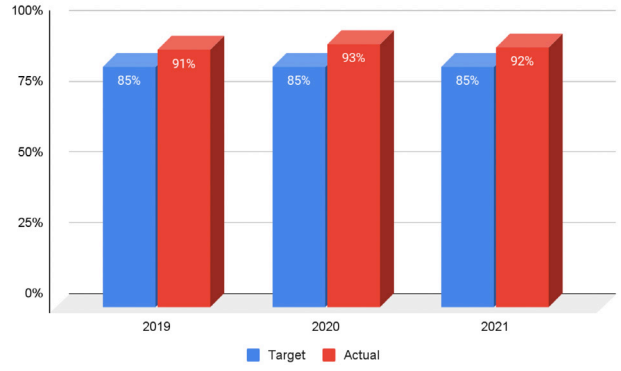
Outcomes of the IQA system refer to the student employment, accreditation and social impact. The graduates' employment is indicated by the job placements and employment advancements which are measured by tracer study and social impact assessment.

Job placements

The bar chart below shows the job placement goal of 85% within three months of graduation and the results in Academic Year 2019-2021. The results indicate a slight fluctuation in the last 3 years, that is 91% in 2019, 93% in 2020 and 92% in 2021. It can be concluded that despite the impact of COVID-19, the job placements of CamEd graduates remain relatively high, around 6.5% above the goal.

Figure 3

Job placements within 3 months after graduation



Source: This bar chart was created by the authors based on the primary data.

Accreditation

Adhering to the core value of "continuous improvement," CamEd enthusiastically welcomes challenges in order to become stronger and more successful. Through this conviction, CamEd has undertaken several accreditation processes at the national, regional and international levels. Currently CamEd is awarded ACCA Platinum which is a prestigious global award. In the last four years (2019-2022), CamEd has been awarded full accreditations by six distinguished accrediting agencies: a 5-year full accreditation by the Accreditation Committee of Cambodia (ACC), a 5-year certification by the AUN-QA, a 3-year certification by ISO 9000:2015, a 5-year full accreditation by the Finance Accreditation Agency (FAA), 3-Stars Rating by the Quacquarelli Symonds (QS) Stars Rating, and recently a 10-year full accreditation by the ACBSP. In addition, CamEd is a member of Chartered Financial Analyst (CFA), Asia Pacific Quality Network (APQN), and Association to Advance Collegiate Schools of Business (AACSB).

DISCUSSION

Based on the review of related literature, there is no common definition of "quality" let alone a common IQA framework. "Quality" can be defined differently depending on the purpose and the context of the educational institution. CamEd Business School has adopted a clear definition of "quality" which has three dimensions, including congruence with national, regional and international standards, fitness for purpose, and exceptionality. The literature however commonly suggests that a school system follows an open system which integrates all aspects of the institution comprising four stages: inputs, processes, outputs and outcomes (Lunenburg & Ornstein, 2012; Vroeijenstijn, 2003; AUN-QA version 4.0; ACBSP 2022). In CamEd's IQA Framework, there are mechanisms to assure the quality in each stage. For example, the admission process review, curriculum review, policy review, and resource review are used to assure the quality inputs. The governance and management evaluation, student assessment, academic staff evaluation, support staff evaluation, research peer review, community service evaluation are for assuring the quality of processes, while retention rate, graduation rate, CLOs/PLOs assessments, research publications, and satisfaction survey measure the quality of outputs, and tracer study and social impacts evaluation measure the quality of outcomes. The result at each stage may be used as feedback to the preceding stage making the

entire IQA system a cyclical process involving all levels (strategic, systemic and operational) of the school system through which a quality culture is developed.

The research does not show significant impacts of the IQA framework on the student achievements or school system over Academic Years 2019- 2021. However, It shows better improvement in the satisfaction of the students, academic staff and support staff of CamEd's system. This indicates that the IQA framework is fully supported by the topic management and the key stakeholders, and it reflects the improvement in the academic program, support services, and facilities. As a result, CamEd received AUN-QA certification in 2019, ISO 9001:2015 in 2019, ACC full accreditation in 2020, QS Stars Rating in 2021, FAA full accreditation in 2022, and ACBSP full accreditation in 2023.

Developing the framework as well as implementing it has faced some challenges. Financial support is a considerable challenge since CamEd has to pay a large amount of fees for membership and accreditation processes. Another challenge is integrating various standards, criteria, and practices into the IQA framework while considering CamEd's context (vision, mission, core values, and strategic goals). It is also a big challenge to get individuals on board and integrate them into a cohesive whole so that they will buy in the process and make strong commitment to achieving the goals. Difficulty still exists in the following step - getting the recommendations for improvement accepted and implemented. Last but not least, providing recognition for satisfactory performances could pose a big challenge too.

Research scope and limitations

Even though this study provides a broad literature review of quality assurance in higher education in the world, the application of this IQA framework is intended for CamEd Business School. If this IQA framework is to be applied in other institutions, it is recommended that the practitioners assess the suitability of their context.

Another limitation is that the measurement of the student achievements relies on CamEd's assessments which may not be sufficient to reflect the regional or international standards of learning outcomes. It is therefore recommended that the student learning outcomes be assessed using a regionally or internationally standardized measure. Other outputs and outcomes of the IQA system such as research, social services, and social impacts are not included in this study. Therefore, it is recommended that those areas be measured in future research. It should also be noted that this research covers only 3 academic years (2019-2021) leaving the last 2 years for further study.

CONCLUSION AND RECOMMENDATIONS

Consistent with the PDCA Model, CamEd's IQA system is a cyclical process including the inputs, processes, outputs and outcomes that are contextually defined based on the institution's vision, mission, and core values and are aligned with the local, regional and global standards or criteria. Developing a strong IQA system therefore requires a comprehensive and in-depth understanding of the institutional context, the external requirements, and the related literature. The program's assurance of learning involves a rigorous process of curriculum design, implementation, evaluation, and improvement. It is also essential to conduct direct and indirect assessments of student and faculty performances. The data must be analysed and interpreted against the CLOs and PLOs and the results must be widely disseminated to the stakeholders and used as a basis for continuous improvement.

Since this research covers only the first 3 academic years (2019-2021) of the IQA framework implementation process, its impacts on the student achievements and stakeholders' satisfaction may be limited. Therefore, it is recommended that further study be conducted to assess the Framework's impacts within its five-year cycle, to be consistent with the five-year strategic plan (2019-2023). Future related research should also adopt a more qualitative approach to data gathering from interviews and focus groups. Another recommendation is to assess the quality culture that is developed through the IQA processes. It is also suggested to use external measures for benchmarking the student achievements.

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The Relationship of Knowledge Sharing in Strategic Alliance: A Partial Least Square Analysis of Hotel Industry in Cambodia

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Seven latent variables were integrated in the Structural Equation Model to investigate the effect of Communication, Learning Intent, Mutual Commitment, Trust, Absorptive Capacity, and Knowledge Sharing on Innovation in Cambodia's four and five stars hotel industry. A Confirmatory Factor Analysis was adopted to evaluate the model's suitability. The empirical results of this research found that there was a direct positive significant effect of Communication, Mutual Commitment, and Trust on Knowledge Sharing. All latent variables, Communication, Learning Intent, Mutual Commitment, Trust, Absorptive Capacity, and Knowledge Sharing, in this study had significant positive influence on Innovation. Despite Learning Intent and Absorptive Capacity latent constructs had insignificant direct effect on Knowledge Sharing variable, but it turned out that they had highly statistical positive significant impact at 1 per cent level on Innovation construct through the mediation of Knowledge Sharing. Regarding the estimated path coefficient generated from the model of this research, Knowledge Sharing produced the highest parameter, 3.094, and had a highly statistical significant effect on Innovation which concluded that the greater the Knowledge Sharing, the more the Innovation would be made. The second variable that had a huge direct positive impact on Innovation was Communication since the estimated slope parameter was 2.738.

Keywords: *Structural Equation Model, Confirmatory Factor Analysis, Knowledge Sharing, Innovation*

INTRODUCTION

Human resource development plays a very significant role in an organization because the level of knowledge of workers represent the level of development of the institution, especially, the development of new products or services, operation methods as well as competitive strategy in order to compete or expand the market which is so-called innovation. The empirical investigation conducted by M. H. Chen et al. (2018) found that knowledge sharing inter- or intra-organizations helped improve workers' performance and innovation.

Knowledge sharing inter- or intra-organization was determined by communication, learning intent, mutual commitment, trust, and absorptive capacity as referring to a research conducted by van Wijk et al. (2008) in many different kinds of industries. This research did not taken into account the effect of knowledge sharing inter- or intra-organization on firm innovation behavior, especially, the indirect effect of communication, learning intent, mutual commitment, trust, and absorptive capacity on firm innovation behavior through the mediation of knowledge sharing (Maggioni et al., 2014).

Within the same research context, but applying in the four and five stars hotels in Cambodia, the current research tries to apply a model known as Structural Equation Model (SEM) to investigate the direct impact of communication, learning intent, mutual commitment, trust, and absorptive capacity on knowledge sharing and the indirect effect of communication, learning intent, mutual commitment, trust, and absorptive capacity on firms' innovation behavior through the mediation knowledge sharing. More interestingly, this research also tries to observe the direct effect of communication, learning intent, mutual commitment, trust, absorptive capacity and knowledge sharing on hotels' innovation behavior.

LITERATURE REVIEW

Akhavan and Mahdi Hosseini (2015) found that firms' innovation was explained by government policies (external factors), firms' culture, characteristics and employee behavior (internal factors). The initiation of innovation of the organization mostly generated from employees' knowledge. Study conducted by Cepeda-Carrion et al. (2010) showed that the capability of the companies to convert new knowledge gains from the

cooperative partners in producing new innovation was mostly dependent on the absorptive capacities of the company itself as revealed by the empirical findings of 286 large Spanish companies. Knowledge sharing was found to be dependent on social trust, relational social capital and attitude among the personnel of agricultural and education organizations in Iran as referring to empirical investigation conducted by Rad et al. (2011). Surveys of eighty-nine firms were conducted in Jiangsu Province of China to investigate the direct effect of knowledge sharing on innovation and the indirect effect of knowledge sharing on firm performance through the mediation of innovation. Knowledge sharing had been classified into explicit and tacit and there were two different kinds of innovations, speed and quality. The relationship between latent variables was investigated under a structural equation modeling. The empirical results of this study indicated that knowledge sharing not only had a significant direct effect, but also had an indirect effect on firm performance (Wang & Wang, 2012). A qualitative method using semi-structured interview was applied in Australia to assess the relationship between trust and absorptive capacity of workers in the workplace. The results of this research revealed that knowledge creation in the organization would not be improved unless the management establishes a knowledge sharing culture among employees all over the company; otherwise, the opportunity to develop new innovation and technology would be lost (Qureshi & Evans, 2013).

The level of productivity of the companies increased when the companies invested more on knowledge sharing between organizations as revealed by a research conducted in Iran. Factors influencing knowledge sharing were classified into individual factors and organization factors. There were five sub-factors which represented individual factors such as trust, perception, attitude, communication and cooperation, and motivation, while there were four sub-factors determined organization factors included management support, reward structure, organizational culture, and organizational structure (Nooshinfard & Nemati-Anaraki, 2014). The development of a good rewarding system and culture in the organization would motivate individual knowledge sharing within the organization as indicated by empirical investigation based on Hierarchical regression using survey data from multiple industries in different countries (Durmusoglu et al., 2014).

The purpose of a research conducted by Qureshi and Evans (2015) was the same as Durmusoglu et al. (2014), but it was in the pharmaceutical industry. The results showed that there were nine categories of deterrents of knowledge sharing intra- and inter-organizations including high cost of sharing knowledge, information technology limitations, knowledge-hiding, lack of socialization, lack of trust culture, non-educational mindset, organizational politics, poor leadership and time pressure. Confirmatory factor analysis (CFA) combined with structural equation modeling (SEM) were employed to study the direct effect of five factors: trust, enjoyment in helping others, knowledge self-efficacy, management support, and information and communication technology on knowledge donation and collection in the telecommunication industry in Vietnam. More interestingly, this research also assesses the direct impact of knowledge donation and collection on employees' innovative work behavior. The test of statistics supported all developed hypotheses (Nguyen et al., 2019). The results of this research was consistent with a study conducted by Kmieciak (2020), but in Polish's large capital groups and a latent variable, trust, had been disaggregated into horizontal and vertical trusts, while innovation latent construct was classified into idea generation and idea realization.

A survey of 379 high-tech companies in the electronic information industry in China in order to find out the relationship between knowledge absorptive capacity and innovative performance of the companies. This research had tried to test theory and hypotheses developed by Lewin et al. (2009), Bouncken et al. (2016), Flatten et al. (2011), and Gutiérrez et al. (2012). It had four dimensions of knowledge absorptive capacity including knowledge acquisition, knowledge assimilation, knowledge transformation, and knowledge exploitation. The research results indicated that the four dimensions had a positive impact on firms' innovation performance (Xie et al., 2018).

Studies conducted by Inkpen (1998), Nahapiet and Ghoshal (1998), and Capaldo and Petruzzelli (2014) indicated that innovative knowledge sharing implementation inter- or intra-organizations took place due to relational and social capital. Collaboration for innovation which was predicted by three observed items (Chen & Paulraj, 2004), was explained by inter-organizational communication which was estimated by five manifest variables (McGinnis & Vallopra, 1999 and McGinnis & Vallopra, 2001). Trust between

cooperative partners played a very significant role in improving marketing networks among hotel groups in Sweden (von Friedrichs Grängsjö & Gummesson, 2006). The relationship between social capital and knowledge sharing were investigated through archival data of 432 Taiwanese firms in the tourist industry. The results of this research found that organizational learning, exploitative learning and explorative learning are determined to be the key factors explaining the relationship between social capital and knowledge sharing (Liu, 2018).

Studies related to factors that impact on knowledge sharing and innovation inter- or intra- organizations were conducted in many countries such as Australia, China, Iran, Poland, Spain, Sweden, Taiwan, and Vietnam. Most of the factors, which had significantly explained knowledge sharing and initiative innovation included in those studies, were absorptive capacities, trust, and communication, but the previous studies had not taken into account two most important factors which were commitment and learning intent of employees inter- or intra-organization. In addition, a kind of research involving knowledge sharing and innovation is barely conducted in Cambodia, especially in the hotel industry. There are five latent variables, communication, learning intent, mutual commitment, trust, and absorptive capacity, which will be put together in a structural equation modeling to investigate the direct effect of the five latent variables on knowledge sharing and innovation performance, and the direct effect of knowledge sharing on innovation performance. Moreover, the indirect effect of communication, learning intent, mutual commitment, trust, and absorptive capacity on innovation performance through the mediation of knowledge sharing of four and five stars hotel in Cambodia.

METHODOLOGY

This section covers the research methodologies employed in this paper, including the estimated method of the model's parameters, the sampling technique and the determination of the appropriate sample size, the development of the structural equation model and the analysis of the collected data. This research employed a Structural Equation Model (SEM) to investigate the impact of six factors: Communication (COM), Learning Intent (LIN), Mutual Commitment (MCO), Trust (TRU), Absorptive Capacity (ACA), and Knowledge Sharing (KSH) on Innovation (INN) in the Cambodia's hotel industry. All factors were unobserved variables. However, they were measured using the observed variables collected from the samples' respondents. The detail measurement of each latent variable are presented in Table I. The general model of this study is presented in Equation (1) below:

$$INN_i = \theta_1 COM_i + \theta_2 LIN_i + \theta_3 MCO_i + \theta_4 TRU_i + \theta_5 ACA_i + \theta_6 KSH_i + \epsilon_i \quad (1)$$

Where Θ= [Θ1, Θ2, Θ3, Θ4, Θ4, Θ6] is a vector of parameters to be estimated. *εi*are the residual or error terms. *i*represents individual hotel from 1, ... , n. The estimated method of Model (1) is the Maximum Likelihood Estimation (MLE).

The likelihood function (LF) has the following form:

$$LF(\boldsymbol{\theta}|INN_1, INN_2, \dots, INN_n) = \prod_{i=1}^{n}\left[\frac{1}{\sqrt{2\pi\sigma_i^2}} exp\left(-\frac{\epsilon_i^2}{2\sigma_i^2}\right)\right] \quad (2)$$

The likelihood function can also be written as:

$$LF(\boldsymbol{\theta}|INN_1, INN_2, \dots, INN_n) = \frac{1}{\sigma_i^n (2\pi)^n} exp\left(-\frac{1}{2}\sum_{i=1}^{n}\frac{\epsilon_i^2}{\sigma_i^2}\right) \quad (3)$$

Take the logarithm of the LF to get the following:

$$lnLF(\boldsymbol{\theta}|INN_1, INN_2, \dots, INN_n) = -nln\sqrt{2\pi} - \frac{n}{2} ln\sigma_i^2 - \frac{1}{2}\sum_{i=1}^{n}\left(\frac{\epsilon_i^2}{\sigma_i^2}\right) \quad (4)$$

$$lnLF(\boldsymbol{\theta}|INN_1, INN_2, \dots, INN_n) = -\frac{n}{2} ln(2\pi) - \frac{1}{2}\sum_{i=1}^{n} ln\sigma_i^2 - \frac{1}{2}\sum_{i=1}^{n}\left(\frac{\epsilon_i^2}{\sigma_i^2}\right) \quad (5)$$

The calculus is applied to Equation (5) to find the sample parameters Θ̂1, Θ̂2, Θ̂3, Θ̂4, Θ̂5 and Θ̂6 that maximize the log-likelihood function.

In addition to the study of the direct effects of; Communication (COM), Learning Intent (LIN), Mutual Commitment (MCO), Trust (TRU), Absorptive Capacity (ACA), and Knowledge Sharing (KSH) on Innovation (INN), this research further investigated the mediation effect of Communication (COM), Learning Intent (LIN), Mutual Commitment (MCO), Trust (TRU), Absorptive Capacity (ACA) on Innovation (INN) through the mediation of Knowledge Sharing (KSH).

This research used primary data using a survey of four and five-stars hotels in Phnom Penh, Siem Reap, and Sihanoukville. A standardized questionnaire was developed and distributed to the targeted respondents through face-to-face meetings. The questionnaire was classified into seven sections. Each section represented each factor: COM, LIN, MCO, TRU, ACA, KSH, and INN, which were determined to be unobserved variables. The observed data was

collected based on a 5- point Likert scale where one represented Strongly Disagree, and five indicated Strongly Agree. The model's fitness was evaluated by applying reliability and validity testing. Reliability testing was conducted to determine the model's internal consistency. If the composite reliability was more than 0.7, the questionnaire instrument was considered to have good indicator reliability. A prerequisite for convergent validity existed when the minimum average variance extraction value (AVE) was 0.5. Moreover, Confirmatory Factor Analysis (CFA) was adopted to evaluate the model's suitability.

The sample size was determined based on a formula developed by (Djarwanto & Subagyo, 2005), as shown below:

$$n = z1 \; / \; 2\sigma/\epsilon$$

Where, n is number of samples, z is area of the standard normal curve, σ is standard deviation, and ε is error. Referring to the normal distribution table, the value of $z1/2$ was 1.96. If the standard deviation was set to 0.5 and the error was 0.01, the sample size was 98 entities.

Six hotels, three four-stars and three five-stars holes, were randomly selected from a list of four and five-stars hotels in Cambodia to complete the questionnaire in the development stage. The questionnaire was assigned to each of them to fulfill. Any problems or questions raised upon completing the questionnaire were recorded and used to update and improve the questionnaire.

Table 1

Measurement

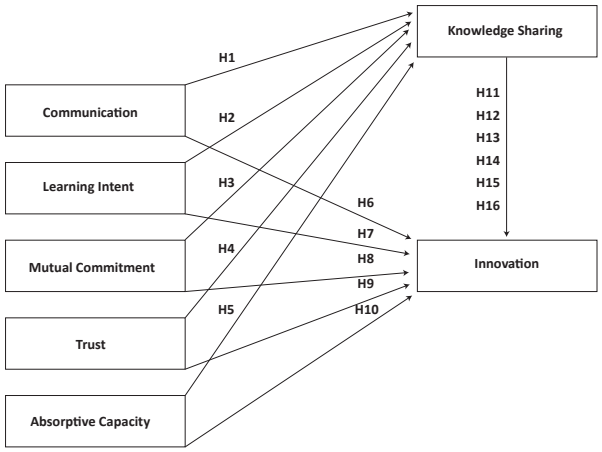
Latent Variables		Measurements
Knowledge Sharing (KSH)	KSH1	In order to develop competitive products or services, our hotel creates and shares knowledge with strategic alliance partners.
	KSH2	Our hotel regularly conducts meetings with strategic alliance partners for the purpose of communication and knowledge developing and sharing.
	KSH3	Our hotel and strategic alliance partners create a "community" that allows strategic alliance members to share and create knowledge.
	KSH4	You and your partner share know-how from work experience with each other
	KSH5	Our hotel and alliance partner learn from each other sufficiently about business activities (distribution, sales-marketing, service production, R & D, etc.)
	KSH6	Our hotel uses all its resources (financial, technical, physical, administrative, people, etc.) to support the sharing of knowledge.
	KSH7	Our hotel and alliance partner work together to create new skills and knowledge.
	KSH8	Our hotel and alliance partner share knowledge obtained from newspapers, magazines, journals, television and other sources
	KSH9	Our hotel and alliance partner share a significant proportion of knowledge with each other.
	KSH10	Our hotel and alliance partner share each other's know-where and know-whom
Absorptive Capacity (ACA)	KSH11	Our hotel and alliance partner share a lot of information about how to improve each other's capacities.
	ACA1	Our Alliance partner enables us to develop products/services for end customers.
	ACA2	Our alliance partner enables us to understand the needs of our customers better.
	ACA3	Our alliance partners allow us to better understand the competencies of our competitors.
	ACA4	Our alliance partner enables us to find better ways to market the products/ services.
	ACA5	Our alliance partner enables us to develop the strategies needed to compete in the market
	ACA6	Our alliance partner helps us better understand the market segments we serve.
Trust (TRU)	TRU1	Our alliance partners respect the confidentiality of the information they receive from us.
	TRU2	Our alliance partner has been open and honest in dealing with us.
	TRU3	We trust that our alliance partner's decisions will be beneficial to the alliance.
	TRU4	There is a high level of trust in the working relationship with our alliance partner.
	TRU5	We can rely on our partner to abide by the alliance agreement.
	TRU6	We trust that our partner's decisions will be beneficial to our hotel.
Mutual Commitment (MCO)	MCO1	Our alliance partners abide by agreements very well.
	MCO2	We and our alliance partners always try to keep each other's promises.
	MCO3	We have invested a lot of effort in our relationship with alliance partners.
	MCO4	Our alliance partners have made sacrifices for us in the past.

Learning Intent (LIN)	LIN1	As a result of this alliance, we have improved existing technical skills
	LIN2	As a result of this alliance, we have developed new management skills.
	LIN3	As a result of this alliance, we have developed new technical skills.
Communication (COM)	COM1	Our hotel and alliance partner frequently exchange each other's opinions
	COM2	Our alliance partner frequently keeps us informed of new developments
Innovation (INN)	INN1	We routinely gather information about prospective partners from various forums (e.g., trade shows, industry conventions, databases, publication, internet, etc.)
	INN2	We actively monitor our environment to identify partnering opportunities
	INN3	Our hotel is often the first to market with new products and services
	INN4	Our new products/services introduction has increased after the collaboration
	INN5	Our hotel frequently tries out new ideas
	INN6	Our hotel is creative in its methods of operation
	INN7	We are alert to market developments that create potential alliance opportunities
	INN8	Innovation in our hotel is perceived as too risky and is resisted (reverse)

Source: Constructed by the authors.

Figure 1

Conceptual framework and hypotheses



The present research tested the following hypotheses:

Hypothesis 1 (H1):	Communication has a significant positive effect on Knowledge Sharing.
Hypothesis 2 (H2):	Learning Intent has a significantly positively effect on Knowledge Sharing.
Hypothesis 3 (H3):	Mutual Commitment has a significantly positively effect on Knowledge Sharing.
Hypothesis 4 (H4):	Trust has a significantly positive effect on Knowledge Sharing.
Hypothesis 5 (H5):	Absorptive Capacity has a significantly positively effect on Knowledge Sharing.
Hypothesis 6 (H6):	Communication has a significantly positive effect on Innovation
Hypothesis 7 (H7):	Learning Intent has a significantly positive effect on Innovation. Hypothesis
Hypothesis 8 (H8):	Mutual Commitment has a significantly positive effect on Innovation. Hypothesis 9
Hypothesis 9 (H9):	Trust has a significantly positive effect on Innovation.
Hypothesis 10 (H10):	Absorptive Capacity has a significantly positive effect on Innovation.
Hypothesis 11 (H11):	Knowledge Sharing has a significantly positive effect on Innovation.
Hypothesis 12 (H12):	Commitment has a significantly positively effect on Innovation through the mediation of Knowledge Sharing.
Hypothesis 13 (H13):	Learning Intent has a significantly positively effect on Innovation through the mediation of Knowledge Sharing.
Hypothesis 14 (H14):	Mutual Commitment has a significantly positively effect on Innovation through the mediation of Knowledge Sharing.
Hypothesis 15 (H15):	Trust has a significantly positively effect on Innovation through the mediation of Knowledge Sharing.
Hypothesis 16 (H16):	Absorptive Capacity has a significantly positively effect on Innovation through the mediation of Knowledge Sharing.

EMPIRICAL RESULTS

Structural Equation Modeling (SEM) was applied to assess the direct effect of Communication (COM), Learning Intent (LIN), Mutual Commitment (MCO), Trust (TRU), Absorptive Capacity (ACA), and Knowledge Sharing (KSH) on Innovation (INN). This research also measured the indirect impact of Communication (COM), Learning Intent (LIN), Mutual Commitment (MCO), Trust (TRU), Absorptive Capacity (ACA) on Innovation (INN) through the mediation of Knowledge Sharing (KSH). All variables in this study were determined to be unobserved variables known as latent variables or latent constructs, which were predicted by the observed variables, so- called manifest variables. The seven developed latent constructs were observed by forty questions or items. One hundred of four- and five-star hotels participated in the questionnaire survey and none of the hotels was eliminated from this study due to the standard error of the choices selected by that the correspondent hotel having a value more than 0.3. With the collected data set, confirmatory factor

analysis was initially conducted, and the loading factor of each item needed to be no less than 0.5. Otherwise, it was deleted. Regarding the CFA results, twenty-sex questions were omitted from the system because their loading factors did not pass the threshold.

Table 2

Goodness of fit test, CFA

Indices	Value	References	Threshold
IFI	0.917	Meyer et al, 2005	> 0.90
CFI	0.931	Bentler, 1990 & Hatcher, 1994	> 0.90
NFI	0.932	Bentler and Bonett, 1980	> 0.90
RMSE	0.068	Byrne, 2001 & Meyer et al, 2005	< 0.08
SRMSR	0.065	Hair et al., 2009	<0.09

Source: Constructed by the authors.

The result of the model fit indicated that the chi-square or CMIN had a value of 546.601 and a degree of freedom (DF) of 254. However, its probability value was smaller than 5%, indicating that the hypothesized model differed significantly from the observed model. Yet, the CMIN/DF was 2.152, which is considered a good result (Hair et al., 2009). Moreover, to assess the model fit, this research used the following indices; Incremental Fit Index (IFI), Comparative Fit Index (CFI), Normed Fit Index (NFI), Root Mean Square Error (RMSE), and Standard Root Mean Square Residual (SRMSR). Comparing all of the indices and concerning its threshold, it was claimed that the model fitted the data well.

Table 3

Validity analysis

	CR	AVE	MSV	MaxR(H)	ACA	TRU	MCO	LIN	COM	INN	KSH
ACA	0.804	0.508	0.756	0.813	0.712						
TRU	0.829	0.617	1.174	0.833	0.846***	0.786					
MCO	0.748	0.598	0.461	0.751	0.760***	0.764***	0.773				
LIN	0.834	0.626	0.472	0.836	0.485***	0.519***	0.134	0.791			
COM	0.821	0.697	0.929	0.830	0.522***	0.753***	0.533***	0.759***	0.835		
INN	0.781	0.573	1.174	0.793	0.870***	1.083***	0.786***	0.687***	-0.746***	0.788	
KSH	0.864	0.585	0.929	0.900	0.744***	0.725***	0.679***	0.723***	0.964***	0.089	0.797

Source: Estimated by the authors using AMOS.

It is vital to generate; convergent validity, discriminant validity, and reliability when conducting the CFA. Otherwise, continuing to run a causal model test is generally regarded as unfeasible. When this study created the construct reliability, composite reliability (CR), and MaxR (H), each construct value needed to be greater than 0.7. Likewise, CR needed a value greater than the Average Variance Extracted (AVE) to demonstrate convergent validity. Notably, the AVE of each construct needed to be greater than 0.5, and the correlation between one construct and another needed to be statistically significant. Furthermore, the Heterotrait-Monotrait ratio of correlation (HTMT) was adopted to check the discriminant validity. In addition, to guarantee the constructs were discriminated against the HTMT ratio needed to be smaller than 0.9. Regarding the validity analysis in Table III, the CR of all the constructs was more significant than 0.7. The correlation between one construct and another was effective at the 1 percent significant levels. In conclusion, there were no validity concerns.

Table 4

HTMT analysis

Latent Variable	ACA	TRU	MCO	LIN	COM	INN	KSH
ACA							
TRU	0.867						
MCO	0.218	0.177					
LIN	0.483	0.532	0.122				
COM	0.009	0.055	0.538	0.057			
INN	0.806	0.783	0.286	0.693	0.055		
KSH	0.141	0.074	0.677	0.051	0.884	0.116	

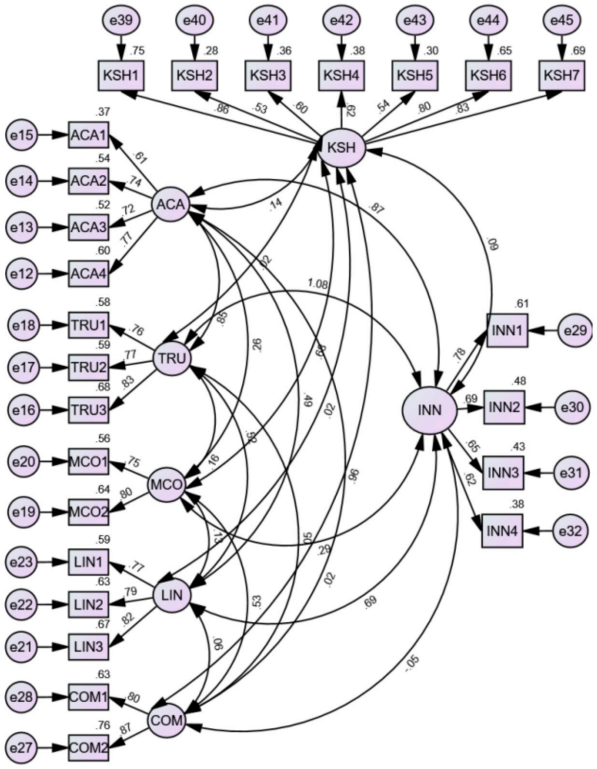
Source: Estimated by the authors using AMOS.

The HTMT analysis in Table IV indicated that the HTMT of all constructs was less than 0.9. Based on this result, all the constructs were assumed to be discriminant against. After completing the confirmatory factor analysis, the next process was to conduct path analysis using structural equation modeling. Before conducting any hypothesis testing, which concluded from the SEM, an assessment of the model's fit was performed again.

The loading factors of all items used to estimate the latent variables still exceeded 0.5 (See Figure II. Structural Equation Model). These results were consistent with the CFA. The total number of manifest and latent variables remained unchanged. The calculated value of chi-square was 546.601, and the degree of freedom was 254, which generated a 2.152 ratio of chi-square over the degree of freedom since the calculated ratio was less than three. As referring to Hair et al. (2005), the model was a good fit. Alternatively, the indices fit, Incremental Fit Index, Comparative Fit Index, Normed Fit Index, Root Mean Square Error, and Standard Root Mean Square Residual all passed the thresholds as indicated in Table V.

Figure 2

Confirmatory factor analysis



Source: Constructed by the author using AMOS

Table 5

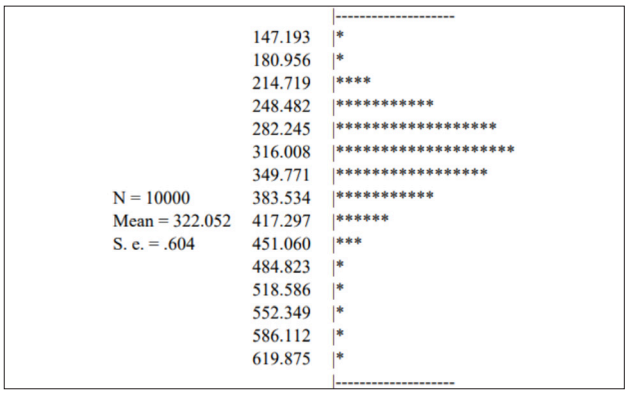
Goodness of fit test, SEM

Indices	Value	References	Threshold
IFI	0.914	Meyer et al, 2005	> 0.90
CFI	0.908	Bentler, 1990 & Hatcher, 1994	> 0.90
NFI	0.924	Bentler and Bonett, 1980	> 0.90
RMSE	0.068	Byrne, 2001 & Meyer et al, 2005	< 0.08
SRMSR	0.085	Hair et al., 2009	<0.09

Source: Constructed by the authors

Table 6

Bootstrap distributions



Source: Constructed by the authors using AMOS

Instead of using the indices fit to assess the model fit, bootstrapping distribution was also applied. This study conducted 10000 bootstrapping samples and the model fit better in 9992 bootstrap samples. Since the calculated chi-square of the model was 546.601 fall within the constructed distribution and as referring to the Bollen-Stine bootstrap testing the null hypothesis that the model was correct was fail to rejected since p-value was 0.539 which was greater than 5 per cent level which claimed that the model is at best fit.

The estimated parameters of the model were developed using the Maximum Likelihood Estimation method, and the standard errors for statistical tests were developed under the bootstrapping technique. The sample parameters and estimated standard errors found based on this method were used in calculating statistical tests for hypothesis testing. The causal relationship among latent variables or latent constructs was assessed through path analysis. The estimated results of the path coefficients, which indicate the direct effect of COM, LIN, MCO, TRU, and ACA on KSH, are presented in Table VI.

Table 7

Part analysis, direct effect on KSH

Direct Effect			Coefficient	P-Value
COM	→	KSH	0.857	0.002
LIN	→	KSH	0.111	0.146
MCO	→	KSH	0.201	0.038
TRU	→	KSH	0.044	0.024
ACA	→	KSH	0.164	0.219

Source: Constructed by the authors using AMOS.

The empirical findings suggested that the slope coefficient of COM was 0.857 since the probability value (p-value) was 0.002 lower than the significance level of 1 percent; the null hypothesis was strongly rejected, which claimed that COM had a significant positive effect on KSH. The estimated sample parameters of MCO and TRU were 0.201 and 0.044, respectively and each variable was statistically significant to explain KSH at 5 percent level. In contrast, LIN and ACA latent variables had no significant influence on KSH.

Table 8

Part analysis, direct effect on INN

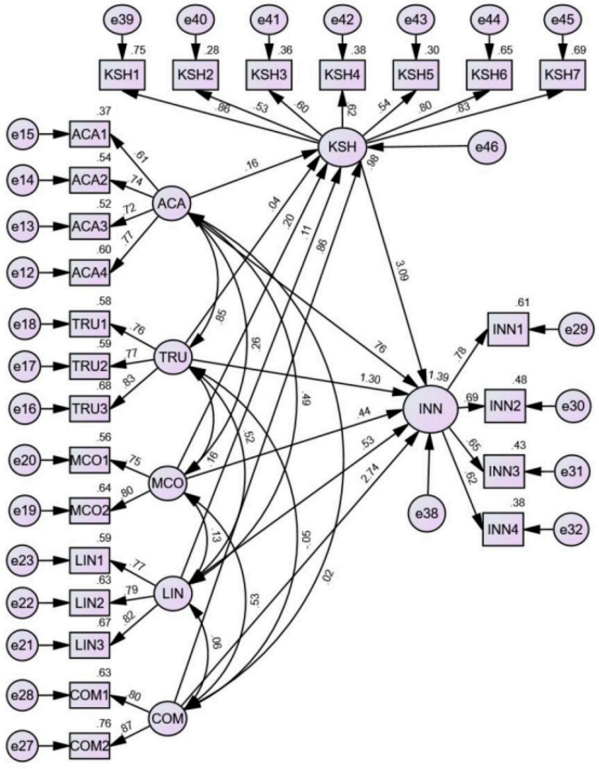
Direct Effect			Coefficient	P-Value
COM	→	INN	2.738	0.000
LIN	→	INN	0.529	0.000
MCO	→	INN	0.442	0.023
TRU	→	INN	1.303	0.001
ACA	→	INN	0.760	0.038
KSH	→	INN	3.094	0.000

Source: Constructed by the authors using AMOS.

The empirical results that indicated the direct effect of COM, LIN, MCO, TRU, ACA, and KSH on INN were shown in Table VII. All latent variables in this study were statistically positive significant, explaining INN at 1 per cent level for COM, LIN, TRU, and KSH, while for MCO and ACA, it had 5 per cent significant impact on INN. The results had further revealed that KSH had the greatest influence on INN based on it estimated slope coefficient of 3.094, following by COM (2.738), TRU(1.303), ACA(0.760), LIN(0.529), and MCO(0.442).

Figure 3

Structural Equation Model



Source: Constructed by the author using AMOS

This research also investigated the indirect effects of Communication (COM), Learning Intent (LIN), Mutual Commitment (MCO), Trust (TRU), Absorptive Capacity (ACA) on Innovation (INN) through the mediation of Knowledge Sharing (KSH). The results of the part analysis which indicated the indirect effect of COM, LIN, MCO, TRU, and ACA on INN through the mediation of KSH, was presented in Table VIII.

Table 9

Part analysis, indirect effect on INN through KSH Mediation

Indirect Effect					Coefficient	P-Value
COM	→	KSH	→	INN	2.652	0.000
LIN	→	KSH	→	INN	0.345	0.002
MCO	→	KSH	→	INN	0.623	0.000
TRU	→	KSH	→	INN	0.136	0.045
ACA	→	KSH	→	INN	0.509	0.007

Source: Constructed by the authors using AMOS.

All latent variables, COM, LIN, MCO, TRU, and ACA had statistical positive impact on INN at 1 percent level, except TRU variable that was significant to explain INN at 5 percent level. Among the five latent constructs, COM variable played the most significant role influencing INN variable through the mediation of KSH since its estimated path coefficient was 2.652 which was the highest comparing to the other four constructs, MCO(0.623), ACA(0.509), LIN(0.345), and TRU(0.136).

CONCLUSION

This paper's objectives were to investigate the direct effects of Communication (COM), Learning Intent (LIN), Mutual Commitment (MCO), Trust (TRU), Absorptive Capacity (ACA), and Knowledge Sharing (KSH) on Innovation (INN). This research further assessed whether there was an indirect effect of Communication (COM), Learning Intent (LIN), Mutual Commitment (MCO), Trust (TRU), and Absorptive Capacity (ACA) on Innovation (INN) through the mediation of Knowledge Sharing (KSH).

Seven latent variables were developed under the measurement of forty manifest variables. After conducting a confirmatory factor analysis, twenty-six observed variables were eliminated from the model. The structural relationship between the observed and unobserved variables was carried out using structural equation modeling. The empirical results of this research found that there was a direct

positive significant effect of Communication, Mutual Commitment, and Trust on Knowledge Sharing. More interestingly, all latent variables, Communication, Learning Intent, Mutual Commitment, Trust, Absorptive Capacity, and Knowledge Sharing, in this study had significant positive influence on Innovation. Despite Learning Intent and Absorptive Capacity latent constructs had insignificant direct effect on Knowledge Sharing variable, but it turned out that they had highly statistical positive significant impact at 1 per cent level on Innovation construct through the mediation of Knowledge Sharing.

Regarding the estimated path coefficient generated from the Structural Equation Model of this research, Knowledge Sharing produced the highest parameter, 3.094, and had a highly statistical significant effect on Innovation. This result was interpreted that the greater the Knowledge Sharing, the more the new Innovation would be made. The second variable that had a huge direct positive impact on Innovation was Communication since the estimated slope parameter was 2.738. In addition, among the four latent variables, Communication, Learning Intent, Mutual Commitment, Trust, and Absorptive Capacity, Communication generated the highest direct impact on Knowledge Sharing because its estimated slope coefficient was 0.857 and statistically significant at 1 percent level. At the same time, it also had the highest indirect effect on Innovation through Knowledge Sharing as compared to Learning Intent, Mutual Commitment, Trust, and Absorptive Capacity latent variables since the estimated path coefficient was 2.652 and highly significant at 1 percent level. This result would interpret that the better the Communication through Knowledge Sharing within the hotels, the more the new Innovation would be created.

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Strategic Alliances between Universities and Enterprises in Training, Development of Human Resources for Tourism after COVID-19

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COVID-19 has revealed and even increased the shortage in quantity and skills to meet the flexible business strategy of enterprises after the pandemic, especially for enterprises operating in the hotel and tourism industry. Improving the quality of human resources and increasing the supply of human resources for tourism enterprises is an urgent and complex issue. This issue requires the efforts and cooperation of businesses, schools, and the direction of the Government to meet the demand for quantity and quality of human resources for the tourism industry after the pandemic in the current situation. In this research, the authors discuss the solution of training cooperation between schools and enterprises in training and developing human resources to adapt to the post-Covid-19 era.

Keywords: *Tourism human resources, human resources for the post-COVID-19 period, human resource training and development, training cooperation between schools and businesses*

INTRODUCTION

The issue of training linkage between universities and businesses initiated by Willhelm Humboldt, whereby, Universities, in addition to the training function, must have the following functions: research and collaboration with industry. Links between university and business understood such as direct or indirect interactions, personal transactions or non-personal between the educational institution and the enterprise to bring benefits to the parties, including: cooperation in research and development, personnel exchange (study, pseudonyms, students and professionals), commercialization of the results research and development, development and dissemination of chapters training, lifelong learning, business development and administration. In 1810, Willhelm Humboldt established the University of Berlin with a difference compared to other universities to shift the focus to research and training activities, especially the development of field technology for military and civilian purposes (Toan & Mai, 2016). Today, in developed countries such as the US, Canada, Australia, UK, France, Germany, most universities are connected. Close training links with businesses. Government always plays an important role in creating a legal environment, laws and policies, forming tripartite linkages: main government- school - business. In the world, cooperation University - business is expressed in many forms and at the level. Common levels of cooperation are sending students to come to practice, visit, support expenses and equipment for teaching and learning. The higher levels are: exchange of experts, share knowledge and technology; invest for research and development for joint ownership and transfer of public turmeric; jointly invest in business development for commercial purposes scientific research results and product supply, services for society. Research by scientists on the world like Wilson (2012), Rohrberck & Arnold (2006) showed that training links between universities and businesses has become a global training trend and is evolving with increasingly diverse forms and levels. In line with that general development trend, the problem of connection training between universities and businesses has been and is getting a lot of attention in Vietnam. Vietnam is in the period of economic recovery after the Covid-19 pandemic, the tourism industry after 2 years of the pandemic is also gradually adapting to the "new normal" conditions, starting from March 15, 2022, open many opportunities for the "smokeless industry". Tourism recovered, gradually developed again, in the face of changes in trends, the tourism market, digital technology developed strongly and the requirements for ensuring safety against epidemics were met. According to Anh (2020), besides the advantages, the human resources of the tourism industry also

face many new challenges and requirements. Human resources need to be supplemented and equipped with the necessary knowledge and skills to play an important role in building, improving and perfecting tourism products and services. This is one of the key factors that increase the competitiveness and survival in the tourism market for each enterprise, locality, and the wider tourism industry of the whole country.

The main objective of this study was to assess the impact of the COVID-19 pandemic on Vietnam's tourism industry based on statistics and interview practices and to propose effective recovery strategies for the post-COVID-19 tourism industry. Therefore, three research questions must be addressed:

1. How severe is the effect of the COVID-19 pandemic on human resources Vietnam's tourism industry?
2. What are Vietnam's response policies to the tourism industry during the pandemic?
3. What strategies should be implemented to effectively recover the country's tourism industry after the pandemic?

RESEARCH METHODOLOGY

Quantitative research was conducted based on the collected secondary data. Data on Vietnam's tourism industry (e.g., tourists, revenue, labor, calendar businesses) during the epidemic-free period (from December 2019 and earlier) and the epidemic period (from January 1, 2020) were collected from the General Statistics Office (GSO), Vietnam National Administration of Tourism (VNAT) and Ministry of Culture, Sports and Tourism (MCST). The number of confirmed COVID-19 cases from January 2020 to May 2021 was obtained from the Ministry of Health (MOH). The author used a non-parametric statistical method to solve the following specific issues

1. The Mann–Whitney U test was conducted to compare the differences between two independent groups. This test was performed to answer the question of whether any significant difference exists in the number of tourists, revenue and employment rate in the tourism industry in Vietnam between the epidemic and non-epidemic periods. The hypothesis (Ho) is that no difference exists in the number of visitors, revenue and employment rate in the tourism industry during the epidemic and non-epidemic periods. The alternative hypothesis (H1) is that a difference exists in the number of visitors, revenue and employment rate in the tourism industry during the epidemic and non-epidemic periods.
2. The Friedman test was conducted to determine the difference between groups when the measured variable was ordinal. It was used in this study to answer the question over time regarding the increasingly severe course of the epidemic: Is there any difference in the number of visitors, revenue and employment rate in the tourism industry? The hypothesis is that no difference exists according to the evolution of the epidemic.
3. The Spearman test verified the relationship between two ranked variables: one typed and one measured. In this study, the test was used to examine the association during the epidemic period. A negative correlation was observed between monthly cases and visitors and employment rates.

RESULTS

Descriptive statistics analysis

Impact on tourists and revenue. After the high growth momentum before the outbreak of the COVID-19 pandemic, Vietnam's tourism industry had an average growth rate of 22.7% in 2015– 2019, from 7.9 million visitors (in 2015) to 18.1 million visitors (in 2019). However, the number of international visitors is continuously decreasing due to the outbreak of the pandemic. In 2020, Vietnam only received 3.8 million visitors, a decline of 79.5% compared to the same period in 2019 (see Figure 1). Following the downward trend from 2020, in the first 6 months of 2021, international visitors to Vietnam were estimated at only 88.2000 arrivals, down 97.6% over the same period last year (VNAT, 2021c). In general, international visitors to Vietnam by air in 2020 accounted for 80.3% and decreased by 78.6% compared to that in 2019, visitors coming by road decreased by 81.9%, and arrivals by sea decreased by 45.2%. In 2020, visitors to Vietnam from Asia accounted for 73.3% of the total international arrivals, a decrease of 80.4% compared to that of the previous year (see Figure 2). Visitors from all major markets decreased sharply: from China, 83.5%; Korea, 80.4%; Japan, 78.4%; Taiwan, 78.8%; Cambodia, 46.6%; and

Malaysia, 80.7%. Meanwhile, visitors from Europe in 2020 decreased by 69%, and those from the Americas decreased by 75.7% compared to that in 2019 (VNTA, 2021b). Vietnam's domestic tourists in 2020 decreased by 34% compared to that in 2019, from 85 million (2019) to 56 million (2020) (see Figure 1; VNAT, 2021c). Some localities prospered to welcome domestic tourists in the first quarter of 2021; however, the COVID-19 epidemic continues to break out. Therefore, the number of domestic visitors in the first 6 months of 2021 was only 30.5 million (VNAT, 2021c).

Figure 1

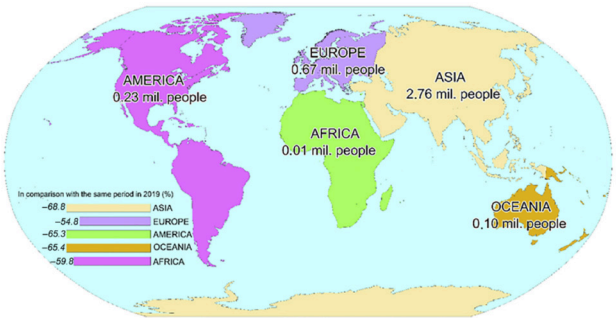
Changes in the number of tourists of Vietnam in 2016–2020

Source: VNAT, 2021a,c

Owing to the rapid decrease in the number of tourists, the total revenue from tourists in 2020 also decreased sharply. In 2020, Vietnam's revenue from tourists only reached 312,000 billion VND, which is 58.7% lower than that in 2019. Meanwhile, the country's total tourist revenue decreased in the first 6 months of 2021, reaching only approximately 134,000 billion VND, a decline of 24.2% over the same period in 2020 (VNAT, 2021b, c).

Figure 2

Number of international visitors to Vietnam in 2020 by continent



Source: VNTA, 2020b

The prolonged COVID-19 pandemic has severely affected thousands of Vietnamese tourism businesses. Tourism businesses have fallen into a state of exhaustion and no longer have the resources to maintain minimum operating conditions. Challenges accumulate when most companies have debts with banks and are almost unable to pay in the current period.

According to the GSO, employees in the tourism industry have been the most affected by the COVID-19 pandemic. In 2020, approximately 60% of the employees of Vietnam's tourism industry lost their jobs due to closure of borders and restriction of domestic travel caused by the COVID-19 outbreak. The number of employed workers in the sector fluctuates by only around 30–40% (GSO, 2020). In 2021, the unemployment rate in the tourism industry continued to increase, reaching approximately 90% of the total number of employees in travel businesses and 70–80% of workers in accommodation establishments (VNAT, 2021c).

Inferential statistics analysis

Analysis of differences. According to the results of the Mann–WhitneyUtest, the number of tourists (international and domestic), revenue and employment rate during the epidemic period was significantly different from those in the non-epidemic period. The disparity is concentrated in the number of international tourists, revenue and employment in the tourism industry, which is the largest (see Table 2). The results show that the COVID-19 pandemic has significantly reduced the number of tourist arrivals in Vietnam. The difference in the number of visitors, revenue and employment rate in the tourism industry between the epidemic and non-transition periods requires the government of Vietnam to control the epidemic to restore tourism activities effectively. Simultaneously, a strategic solution is necessary to increase tourist attractions, emphasizing that "Vietnam is an attractive and safe destination." According to the results of the Friedman test, a substantial difference existed in the number of international tourists and revenue over time. This indicates that, when the epidemic becomes increasingly severe (through two outbreaks in 2020), this difference becomes more extensive and significant than when epidemic did not emerge (see Table 3).

Table 2

Difference of measuring variables in epidemic and non-epidemic periods (comparison between 2019 and 2020)

Tourism variables	Epidemic period	Non-epidemic period	P-value
International tourists (millions of visits)	3.8	18.1	0.001*
Domestic tourists (millions of visits	56	85	0.000**
Labor (million people)	1.3	0.52	0.001
Note(s): * and ** indicate significance at the 5% and 1% levels, respectively			

Table 3

Differences in the performance of the tourism industry according to the months of the epidemic

Tourism variables	February 2020	March 2020	April 2020	P-value
International tourists (millions of visits)	1.400	450	26.2	0.001*
Revenue (billion VND)	45.5	35.2	17.6	0.032

Correlation analysis

The results of Spearman's rank correlation analysis indicate that the rate of negative correlation is significant between the number of visitors and that of recorded cases by month, but the other variables were not significant. Thus, evidently the Spearman test is true to the actual situation, with a negative correlation between the number of infected cases and that of tourists, the outbreak of the disease and the number of tourists decreasing due to the increasing awareness of epidemic prevention. Therefore, tourism planners and managers, along with the government of Vietnam, must promote propaganda on safe epidemic prevention measures and raise public awareness to contribute to disease control. This aims to reduce the negative correlation between the number of tourists and the evolution of the pandemic (see Table 4).

Table 4

Relationship between the number of infections and the variables of the tourism industry

Spearman rho	International tourists	Domestic tourists	Labor
International tourists	1	-0.092	0.182
Domestic tourists	-0.092	1	0.460
Labor	0.182	0.460	1
Note(s): *p < 0.01; **p < 0.05			

The current situation of quality of human resources in the tourism industry in the post-Covid-19

Tourism is an integrated economic sector that plays an increasingly key role in economic, political, social development and environmental resources. However, at present, this "smoke-free industries" has been severely affected by the Covid-19 pandemic. The impact of Covid 19 on the tourism industry is expected to be huge, far exceeding the epidemics that Vietnam has experienced in recent decades. In 2020, the number of international visitors to Vietnam only reached 3.7 million, a decrease of over 80% compared to 2019, domestic visitors decreased by 50%. The tourism industry lost about 23 billion USD in revenue in 2020. According to statistics, about 95% of international travel businesses have stopped operating, the occupancy capacity of many hotels in big cities and tourist areas is only reaching 10-15%, many hotels must close. The Covid-19 pandemic has had a profound and comprehensive impact, changing the entire strategy, plan, and structure of the industry, including tourism human resources. Challenges businesses face include: Organization business activities in the post-Covid period, changes in personnel,... Especially, after 2 years of the epidemic, almost the tourism industry froze, human resources in the tourism industry suffered a significant shortage in numbers. quantity and quality. Li, X. (2020) in his research points out that most of the human resources for life have changed to other occupations. Since the reopening of activities, some workers have voluntarily returned, but many workers have settled into new jobs and higher income sources, so they do not want to return to the industry. In addition, the problem of training new and additional young human resources is also difficult. Because this training process takes time to implement and foster. Therefore, the problem of tourism human resource shortage is an urgent issue that needs to be calculated and promptly supplemented in terms of quantity and quality. Currently, businesses, especially hotel businesses, are still in a state of "thirst" for human resources who can't do unprofessional work, have poor labor discipline, and lack attentive service attitudes. The use of foreign languages fluently in the work of Vietnamese workers is still very limited (laborers who can use foreign languages account for only about 57%). The comprehensive opening of tourism brings many opportunities, but in reality, many tourism human resources have left their familiar jobs, while some new human resources have not been properly

trained, especially skills. New skills need to be added such as skills to guide tourists on epidemic prevention and control measures, use of new technologies to serve customers, digital transformation applications, etc. On the other hand, additional knowledge is needed in Covid-19 epidemic prevention and control, environmental protection, necessary informatics knowledge and skills. According to Directive No.16/CT-TTg, every business in the tourism and post-pandemic service sector needs to pay more attention to equipping employees with additional knowledge and skills when welcoming guests to ensure the safety of tourists, tourism staff and the community. population at the destination. Therefore, for the old workforce to return to work, it is necessary to provide additional training with new professional knowledge and skills and supplement necessary knowledge in the new context. In addition, at present, the training and training of new tourism human resources still has many shortcomings. Specifically, according to a survey at universities, the training program for students lacks practicality. According to statistics of the General Department of Tourism, each year the whole industry needs 40,000 more workers. However, the number of students majoring in Tourism is only about 15,000 people per year, of which only 12% have college or university degrees or higher. Many students, after starting work in enterprises, did not meet the job positions, most businesses must spend time and effort to re-train professional skills, foreign language skills and especially professional consciousness. In order to solve the shortage in quantity and improve the quality of human resources to meet the needs of post-pandemic recovery, the tourism industry needs to implement many different solutions. In which, the issue of linking human resource training between universities and tourism enterprises is really necessary. However, Casey (2007), in his research show that in fact, the association of human resource training between tourism training universities and tourism enterprises still faces many difficulties and limitations, such as: there is no specific policy, effective and sustainable to link training with human resource use institutions and strong priority policies to encourage tourism enterprises to participate in training at training institutions; the information on the development orientation of tourism human resources has not really been "transferred" smoothly between the stakeholders, making the training and labor needs not be recognized correctly; Many businesses have not really supported the school in accepting interns as well as arranging jobs suitable for training occupations during the internship period, etc., greatly affecting the awareness and professional attitudes of students. It can be said that the lack of consistency between inputs and outputs causes significant difficulties for enterprises in the recruitment process. As in research by Wilson (2012), the main cause of this situation is the mismatch between theory and practice in the school's training program. To solve this problem, promoting training links between schools and enterprises is one of the necessary solutions. Because, for students, the connection between the school and the enterprise gives them the opportunity to choose a suitable internship location, thereby developing their skills to handle situations in a real environment, and at the same time have the opportunity to find out more about their career. find a job after graduation. For the universities, cooperation helps to improve the quality of training, ensure the output for the learners, thereby enhancing the position and prestige of the universities. On the business side, this is an opportunity to recruit skilled workers. capacity in accordance with actual requirements without the cost of recruitment and probationary period as well as retraining of human resources after graduation. Therefore, the adaptive solutions of the tourism training system and the tourism human resource user unit need to clearly show the close links in training to meet the needs of society and the integration trend in the post-Covid-19 era.

CONCLUSION

In this paper, we presented the strategic alliances between universities and enterprises in training and development of human resources for tourism after covid-19. The effects of the COVID-19 pandemic on Vietnam's tourism industry were analyzed based on data sources from state agencies. Results of the non-parametric test method used in this study indicate the large difference of Vietnam's tourism industry before and during the pandemic. The tourism indicators' employment rate tended to decrease compared with the pre-pandemic period. Consequently, the overall economic efficiency of the tourism industry has declined, and its role in national economic growth has been reduced. The analysis results also show a negative correlation between the number of cases confirmed and that of tourists who travel. With more issues identified, the number of people traveling decreases due to psychological reasons, fear of pandemic-related problems and

border closure policies of countries. However, due to limited statistical data sources, in the correlation analysis, new statistics only shows that the number of infections is inversely proportional to the number of tourists in a month. Regarding sufficient statistics and time, the author believes that the further analysis will fully reflect the impact of the pandemic on Vietnam's tourism industry and will help the tourism industry. Further, combining quantitative analysis and qualitative analysis (interview experts in tourism and hospitality) and statistics was important to further research. As the COVID-19 pandemic continues to have complicated effects both worldwide and in Vietnam, it can be surmised that Vietnam's tourism industry may take 2–3 years, perhaps even longer, to fully recover. However, the government is determined to address the pandemic, and stakeholders such as universities and enterprises have a consensus in the development of the tourism industry, combined with the rational use of well-founded recovery strategies, and development of human resources for the recovery of Vietnam's tourism industry promptly.

Implications and suggestions

This study puts forward a set of implications and suggestions based on the findings, as follows to improve strategic alliances between universities and enterprises to meet the sufficient quantity and improve the quality of human resources in the post-Covid-19.

Firstly, it is necessary that the university training and vocational education system together with tourism enterprises strengthen linkages with the implementation of human resource training in various forms of training, retraining, for tourism human resources. This is to equip knowledge and skills about the digital technology revolution with the tourism industry; improve the capacity of employees to use information technology in their work in the tourism industry; improve the qualifications and understanding of employees about the source and core technologies of the digital revolution and their applicability to the tourism industry.

Secondly, the universities develop and flexibly implement the cooperation policy between the universities and enterprises, enhancing the comprehensive participation of enterprises in vocational training activities, deploying the model of linking enterprises into schools, considering enterprises as the second school of learners. At the same time, diversify training models, forms, types, and levels, implementing the motto of both ensuring quality and meeting the diverse needs of learners, the needs of businesses and the labor market, etc. The universities develop training programs in a modern, open, and flexible direction. with the close participation of enterprises based on output standards. Enterprises are an integral part of the universities in the process of training labor resources for the market.

Third, for enterprises, they can participate in training by evaluating and criticizing the curriculum so that the universities can improve and adjust it to suit reality; output standards in accordance with enterprise requirements; have a specific plan in inviting business representatives to cooperate in training, in which the relationship with alumni must be tightened, because this is an effective connection channel between the universities and enterprises,... Therefore, the linkage in tourism human resource training between universities and enterprises can bring high efficiency.

Fourth, for the State, there should be mechanisms and policies to support enterprises in the process of attracting human resources through high-quality human resource training projects, such as support for facilities, loans, provide incentives and promote activities to attract foreign investment into Vietnam in the field of tourism. At the same time, the State should have policies such as: increasing training targets for tourism human resource training schools, providing support and career orientation for students , etc., thereby increasing the supply of resources. human resources for the tourism industry, meeting the shortage of human resources in the coming years. Thus, in the current post-Covid situation, along with the general recovery of the economy, the tourism industry must also prepare for itself solutions to overcome difficulties, including difficulties in quantity and quality of human resources. The fact that enterprises and universities shake hands to gradually meet high-quality and sufficient human resources in the coming years is a key solution that needs to be implemented in the current period.

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The Effect of Business Ethics Education on Business Students' CSR Perception: Evidence from Vietnam

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As prospective future business leaders, business student attitudes toward corporate social responsibility (CSR) is vital. Therefore, business schools and institutions have a responsibility to produce graduates who act in an ethical and socially responsible way when they practice business. Although business ethics courses are compulsorily required by both international accrediting organizations AACSB and ACBSP, the effectiveness of such courses is often questioned. This research uses survey data collected from business students of a private business university in Vietnam to provide empirical evidence on the effect of participation in business ethics classes on students' perceptions of CSR. The results show that after joining the course, students tend to have a higher level of general CSR perception. However, when assessing the two separate factors of CSR perception (i.e., perceptions of short-term versus long- term responsibilities), the effect of business ethics education on long-term responsibility perception is not significant, while the effect on short-term responsibility perception remains significant. The findings provide recommendations for business schools, accrediting organizations, and the students themselves to review and refine teaching syllabi and methodology so that the teaching and learning of business ethics at business schools could achieve a higher impact and create more authentic and sustainable values.

Keywords: *CSR perception, Business ethics education, business education, ACBSP*

INTRODUCTION

Unethical conduct has reached crisis proportions in business practices with a series of violation cases in finance, marketing, and information privacy related to corporations of all sizes and fields (Pan et al., 2020; Roulet, 2018; Vaiman et al., 2011; Yu et al., 2021). Considering that it could be too late to remind businesses about ethics and social responsibility when they have been in operation, it is emphasized that business schools and institutions have a responsibility to produce graduates who act in an ethical and responsible way and are committed to integrating socially and ethically acceptable operations when they practice business (Alonso-Almeida et al., 2015). Accrediting organizations such as the Association to Advance Collegiate Schools of Business (AACSB) International and the Accreditation Council for Business Schools and Program (ACBSP) both require business schools to teach a business ethics course at the graduate or undergraduate levels (AACSB International, 2004; Sikula, 1996).

Given the importance of managers as the key decision makers in an organization, business student attitudes towards CSR is vital because business students are tomorrow's business leaders and managers (Albaum & Peterson, 2016; Hambrick & Mason, 1984; Haski-Leventhal et al., 2017). However, there is a knowledge gap in the level of CSR awareness and perception of business students. Moreover, although ethics instruction has become an accepted, or even required part of the business school curriculum at both the undergraduate and graduate levels, scholars, practitioners, and accreditors have questioned the effectiveness of business ethics courses at business schools, and research results found have been mixed (Floyd et al., 2013; Ugwuozor, 2020; Wang & Calvano, 2015). Most of existing studies on predictors of attitude toward CSR focus on students' personal characteristics such as gender (Eweje & Brunton, 2010; Hudson & Miller, 2005; Luthar & Karri, 2005), and age or educational level (Elias, 2004; Eweje & Brunton, 2010; Luthar & Karri, 2005) , and professional experience (Elias 2004, Luthar & Karri 2005, Eweje & Brunton 2010). Little emphasis has been put on examining the effect of ethics education.

Particularly, in developing and emerging countries where business ethics issues were not taken seriously in both practice and education until recent years, research into attitudes to CSR-related topics in

education is still in its infancy (Ugwuozor, 2020). Taking the specific case of Vietnam, research on business ethics education and CSR attitudes of Vietnamese business students is very scarce. Existing studies have focused on the perceptions of Vietnamese students on specific aspects of CSR such as business ethics or sustainability rather than on broader CSR themes (Do & Sum, 2021).

There is, therefore, a need for a better understanding of business students' perception of CSR in the context of less developed countries, and more importantly, whether or not business ethics courses carried out at business education institutions are playing an effective role in improving such perception.

In order to fill in these gaps, this research is conducted by carrying out a survey targeting business students at a university in Vietnam with an aim to find out the level of perception of business ethics and corporate social responsibility among business students. It also seeks to examine the role of business ethics education in fostering students' CSR perception to highlight the role of institutions in preparing students with adequate awareness of social issues and their responsibility as future entrepreneurs in solving such issues before officially joining the real business world.

The results obtained by this research are expected to contribute to the existing literature in several ways. First, the study offers empirical statistics on the interest in CSR topics and the perception of CSR among business students. Going beyond a descriptive approach, the findings are also expected to shed light on the effectiveness of business institutions' efforts in organizing business ethics courses. The question of whether or not students' perceptions of CSR change following their participation in such courses will be investigated.

Second, CSR perception is not only assessed from a general approach but rather, underlying factors inherent in the conceptualization of CSR would be separated using the factor analysis technique. Given the complex nature and multi-dimensionality of corporate social responsibility, a nuanced approach is necessary to explore further insightful findings about the impact of ethics education on students' perception of different aspects of social responsibility.

Last but not least, the research is conducted at an ACBSP-accredited institution in Vietnam, contributing to advancing the nascent understanding of the topic in the context of developing countries. The results obtained, therefore, could provide insightful findings and helpful recommendations for institutions and accreditors to improve the business education curriculum toward a more socially responsible and sustainable orientation.

THEORETICAL BACKGROUND

CSR in students' perception

Nowadays, businesses' responsibility goes beyond the mere goal of satisfying stockholder benefit to the objective of creating the maximum possible value for other groups of stakeholder including customers, suppliers, employees, and financiers, etc. (Freeman, 1984, 2001). CSR, therefore, has been highlighted as an important strategy for firms to build up and maintain relationship with the key stakeholders whose satisfaction and loyalty play a critical role in the company's survival, either directly in terms of an impact on the income, or indirectly in terms of an improved reputation or the reduction of the risks related to stakeholders' behavior.

As prospective managers, business students and their views on ethics and social responsibility are important matters (Haski-Leventhal et al., 2017). Since attitude and perception needs a process of nurture and cultivation to form and mature, education on CSR issues for future business leaders should be emphasized along with business and managerial skills. As such, it is universities' responsibility to foster students' concern about ethical and CSR-related issues, thus helping to shape students' attitudes toward CSR in a way that will later be useful for them when they apply for a job (Matten & Moon, 2004).

The role of education in improving students' perception

Delivering business ethics courses is the most visible and deliberate approach for business schools to educate students about business ethics (Ugwuozor, 2020). It is the most direct method to implanting CSR values in students, making them aware of and building up their own opinion and philosophy on the matter (Okechukwu Ugwuozor & Otu, 2019; Tormo-Carbó et al., 2016). Previous evidence shows that exposure to ethics in the curriculum has a significant impact on student perceptions of CSR (Luthar & Karri, 2005). Ethics courses are recommended to be integrated into the curriculum to ensure that business students, as future managers, will be socially responsible and ethically sensitive (Mitroff, 2004).

Meanwhile, mixed results have been found on the effect of business ethics courses on making authentic and sustainable improvement in students' CSR perception and practices. Authors show that exposure to ethics classes is often short-lived, therefore, could generate insignificant influence (Fitzpatrick & Cheng, 2014; Tanner & Cudd, 2010; Tormo-Carbó et al., 2019). It is also noted that business schools focus their classroom teaching on emphasizing ''the short-term share price while neglecting research, development, the reputation of the firm and the future of the business and the community'' (Cavanagh, 2009, p. 20).

METHODOLOGY

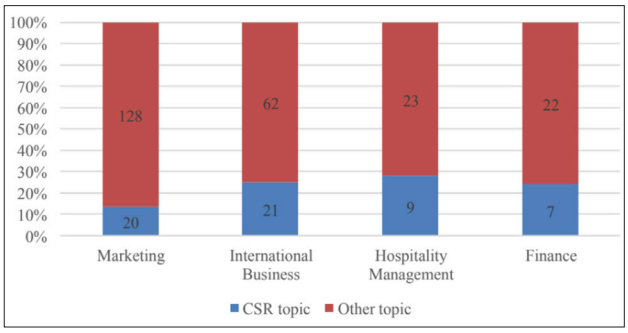
Study 1: Interest in CSR topic among first-year students

This sub-study is designed as descriptive research to examine the interest in corporate social responsibility among business students. The secondary data was obtained from teachers teaching the course Principle of Marketing during the Spring and Summer Semester of 2022. The sample includes 295 first-year students of four business majors (i.e., Marketing, Finance, International Business, and Hospitality Management) at a private university in Hanoi, Vietnam. An assignment was given to the students to figure out their interest in CSR-related topics. To be specific, the students were assigned four

different topics to write an essay and were guided that they would be free to choose one of the four topics. One of the topics regards corporate social responsibility in marketing. The level of difficulty is similar among the topic questions. All the questions were attached with detailed guidelines to minimize confounding factors that could bias students' selection. The students' choice of topic, i.e., whether or not they choose the CSR topic, would indicate their interest in corporate social responsibility.

Figure 1

The results of the students' selection by majors



According to Figure 1, the rate of students selecting the CSR topic for the essay is relatively low (lower than 30%). Notably, students of Marketing major seem to be less aware of (or interested in) CSR matters or willing to discuss it in their essays. The other three majors have a similar percentage of students choosing to share their opinion about CSR in the essay.

These statistics highlight a moderately low level of CSR awareness and interest among first-year business students. Considering the fact that at this stage, students have just finished their basic education and entered undergraduate education in business majors, the awareness of social issues, including business ethics and corporate social responsibility is still limited. This could be attributed to the theoretical orientation of basic education which restricts students from being exposed to as well as expressing their independent opinion on social matters.

Given the significance of social issues in general and in business particularly, this result raises a necessity for further investigation on the CSR perception among business students at the later stage in the business program, and the role of business schools in improving this perception. Therefore, I continued with the second sub-study to further investigate the research question.

Study 2: The effect of business ethics education on students' CSR perception

This study seeks to examine the effect of business ethics education on business students' CSR perception. A survey is conducted with 184 students in the 3rd and 4th year of their business major program. The data was collected directly in class, followed by a reliability check, factor analysis, and regression analysis.

Background of business ethics course at FPT university

At FPT University, Business ethics is a compulsory course for all majors (i.e., marketing, international business, finance, and hospitality) in business programs. The course is taken by students in their last semester, after almost all the specialized courses related to their majors have been passed.

The course lasts for ten weeks with a total duration length of 45 hours. 60% of the curriculum time is spent on theoretical lectures. The total of ten chapters cover important topics in business ethics

and corporate social responsibility including but not limited to the fundamentals of philosophical ethics and its relations to business, ethical leadership and business culture, classical theories of CSR, ethics in marketing and finance, etc.

Data collection

Data used for the analysis is obtained from a survey conducted with students at a private university in Vietnam from August to November 2022. The students major in different business subjects including marketing, international business, and finance. Students who have or have not participated in the Business ethics course were involved. The questionnaire was delivered directly to the students in class. Students were allowed to stay anonymous when answering the questions. The final sample contains 184 observations.

Measures

Participation in Business ethics course

The participation in the Business ethics course is captured by a dummy which is equal to 0 if the student has not joined the Business ethics class, and 1 if they have participated in the class (either passed or not).

CSR perception

I learn from Kolodinsky et al. (2010), Saxena and Mishra (2017), and Ham, Pap, and Stimac (2019) to obtain CSR measure using Singhapakdi et al.'s (1996) 13-item instrument on the perceived role of ethics and social responsibility (PRESOR). Participants were asked to provide their responses to indicate the extent to which they agree with the given item using a 5-point Likert scale, with "1" for "Strongly Disagree" and "5" for "Strongly Agree." The scale's reliability is 0.717.

Control variables

Several students' individual factors including gender, major, GPA, and work experience are included in the model in order to control for their effects on the dependent variables. Details of the variables and measurement are presented in Table 1.

Table 1

Variables and measures

Variable	Label	Measure
Participation in business ethics course	BUE dummy	Dummy variable, equal to 1 if the student has participated in business ethics course, and 0 otherwise
CSR perception	CSR perception	13 items adopted from Singhapakdi et al.'s (1996)
	CSR1	Social responsibility and profitability can be compatible.
	CSR2	To remain competitive in a global environment, business firms will have to disregard ethics and social responsibility.
	CSR3	Good ethics is often good business.
	CSR4	If survival of business enterprise is at stake, then ethics and social responsibility must be ignored.
	CSR5	Being ethical and socially responsible is the most important thing a firm can do.
	CSR6	A firm's first priority should be employee morale.
	CSR7	Overall effectiveness of a business can be determined to a great extent by the degree to which it is ethical and socially responsible.
	CSR8	The ethics and social responsibility of a firm is essential to its long-term profitability.
	CSR9	Business has a social responsibility beyond making a profit.
	CSR10	Business ethics and social responsibility are critical to the survival of the business enterprise.
	CSR11	If the stockholders are unhappy, nothing else matters.
	CSR12	The most important concern for a firm is making a profit, even if it means bending or breaking the rules.
	CSR13	Efficiency is much more important to a firm than whether or not the firm is seen as ethical or socially responsible.
Gender	Gender	1 if gender is female, and 0 if gender is male
Major	Major dummies	Two dummies created for International business and Finance majors. Marketing major is used as reference.
Working experience	Experience dummy	Two dummies created for working experience of less than 6 months and from 6 months to 1 year. Experience of more than 1 year is used as reference.

RESULTS

Descriptive statistics

Table 2

A description of the data

	Before BUE			After BUE		
	Frequency	Mean	Standard Deviation	Frequency	Mean	Standard Deviation
Gender						
Male	34			28		
Female	31			25		
Major						
Marketing	80			61		
International Business	18			5		
Finance	11			9		
Work experience						
Less than 6 month	89			48		
6 months- Less than 1 year	13			26		
1 year and more	7			6		
GPA		7.910	6.797		7.170	1.680
CSR perception		3.5131	0.447		3.591	0.526
CSR – Long-term perception		4.0631	0.561		4.035	0.589
CSR – Short-term perception		2.633	0.909		2.88	0.852

Factor analysis

Exploratory factor analysis (EFA) was performed for the CSR construct to identify the underlying factors measured by the 13 observed variables (items) (Field, 2013). Table 3 presents results obtained from the exploratory, principal components factor analysis employing a varimax rotation. Accordingly, the items of the factors, items' factor loadings, and Cronbach's α coefficients for the newly identified factors of CSR perception are shown. Loadings for items less than .4 or items with cross-loadings were removed (Churchill, 1979). The scale reliability of each factor was then assessed using Cronbach's α reliability coefficient.

EFA returned a two-factor solution for CSR perception (Table 3). The factors accounted for 49.4% of the variance. The first factor measures the importance of ethics and social responsibility, while the second factor indicates respondents' emphasis on profitability and short-term gains. As suggested by Do & Sum (2021) and Singhapakdi et al. (1996), the two factors are named CSR - Long-term perception and CSR-Short-term perception.

In terms of reliability, the Cronbach coefficients for the two factors are .805 and .807, respectively, meeting the requirement for a minimum threshold level of 0.5 for acceptable reliability for newly developed constructs (Nunnally, 1978). Therefore, the items in Table 3 reliably estimate their respective constructs.

Table 3

Factor analysis

Variable	Factor	Item	Loading
CSR perception	Cronbach = 0805	CSR3	.529
		CSR5	.691
		CSR6	.575
		CSR7	.636
		CSR8	.724
		CSR9	.766
		CSR10	.692
	CSR – Short-term perception	CSR2	.800
		CSR12	.839
		CSR13	.772

Regression analysis

Multiple regression was conducted to analyze the relationships between CSR perception constructs and the predictors including the focal predictor – the BUE dummy. Results of regression analysis with CSR general perception, CSR – long-term, and CSR – short-term perceptions are presented in Table 4 – Model 1, 2, and 3, respectively.

Table 4

Regression analysis

	CSR perception Model 1	CSR-Long-term Model 2	CSR-Short-term Model 3
Control variables			
Gender	-.004	-.039	.053
dummies			
Major	-.125	-.089	-.117
dummy_IB			
Major	-.154	-.101	-.238
dummy_Fin			
GPA	-.002	-.006	.004
Experience	-.158	-.465*	.333
dummy_ Less6m			
Experience	-.088	-.361	.348
dummy_ Less1y			
Independent variables			
BUE dummy	.199**	.043	.448***
R squared	.072	.052	.080
Observation	184	184	184
Note: *p<0.1, **p<0.05, ***p<0.01			

As shown in Table 4 - Model 1, the participation in business ethics course (BUE dummy) is positively and significantly related to students' general CSR perception (β=0.199, p<0.05). However, the effect of business ethics education on CSR – long-term perception is not statistically significant (β=0.043, p>0.1) (Table 4 – Model 2). The effect of business ethics course on CSR – short-term education, on the other hand, is positive and statistically significant (β=0.448, p<0.01) (Table 4 – Model 3)

DISCUSSION

The results from surveys conducted in an ACBSP-accredited business institution indicate a moderately low level of interest in and awareness of corporate social responsibility among freshman university students studying business majors. Moreover, the findings also show that business ethics courses provided by the institution do significantly contribute to improving students' general CSR perception. However, when taking a more nuanced look at the different dimensions inherent in the CSR concept, the analysis reveals that the university's efforts in educating business ethics only affect the students' perception of the short-term responsibility (i.e., the responsibility for maximizing and protecting shareholders' profit) while the effect on the long-term responsibility (i.e., the commitment to ethics and social benefit) is not significant.

The findings obtained from this research contribute to the current discussion on the effectiveness of business ethics education with empirical evidence in the context of a developing country. The result is consistent with previous findings in confirming the effect of business ethics classes, while it provides insightful new applications for developing economy contexts where attention and commitment to business ethics and social responsibilities are not as strong as it is in more developed countries. The findings, therefore, call for more attention from stakeholders including business institutions, accrediting organizations, and the students themselves to review and refine the business ethics teaching syllabus and methodology to achieve a higher impact and create more authentic and sustainable values.

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Capacity Building in Green Bonds in Cambodia: Universities Must Play a Key Role to Support the Industry

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This paper discusses, analyzes and focuses on Green Bonds in Cambodia. In order to prepare for long-term net zero engagement with the Government Ministries, regulators, private sector, institutional investors and stakeholders, Cambodia needs to promote and facilitate green financing development and solutions. The objective of the research is to analyze the gap between the Policy of Frameworks on Development of Government Securities objectives and the existing infrastructure and capacity in place. After several face-to-face interviews undertaken in Phnom Penh and desk research, researchers have found that there are still some major challenges to be addressed to promote the Green Bonds in Cambodia and to make it a success. These issues were mostly the same experienced at the earlier stage in Green Bond issuance, particularly in emerging markets, as referred to the research papers cited in our literature references from 2013-2022. The challenges in Cambodia are typical for those in a developing country, however these may be overcome by an enhanced policy framework, with consistent taxonomy and procedures aligned with the international best practices and guidelines, an active and smooth collaboration among market participants, beneficial for the green bond issuance ecosystem, and the required capacity building on technical features and implementation, in order to build trust and recognition of the Green Bond market.

Keywords: *Green Bonds, emerging markets, collaboration, stakeholder engagement*

INTRODUCTION

The Royal Government of Cambodia (RGC) is committed to address the risks of climate change, meeting with the Paris Agreement commitments, and achieving the Sustainable Development Goals (SDG). To achieve these goals significant financing must be directed to climate adaptation, mitigation, and SDG priorities. However, the government cannot do this alone; a range of traditional and innovative financing instruments must be leveraged, allowing for the mobilization of both public and private finance. The Government of Cambodia sees the issuance of Green Bonds as one financing mechanism which can support the achievement of these goals. The issuance of green bonds by both government and the private sector could play a crucial role in directing much-needed funding activities to achieve the SDGs and reach the investment levels required to create low-carbon and climate-resilient communities. As to date, only 9 bonds have been issued in Cambodia since 2019, and mostly corporate bonds (banks, MFI, consumer, telecom) and none of them can be qualified as Green Bond.

The stakeholders are multiple in this nascent capital market: Policy makers, Issuers, Market facilitators, Financial Institutions, and Public. The challenges are well known by the participants; we still have excessive issuance costs, the length of the process to get bond listed is still behind international best practices, and we have a nascent regulatory framework which is getting gradually more consistent and soon be well-aligned with regional and international standards (ICMA, CBI). The other key challenge is the current pipelines of the Green Bonds in Cambodia which remain limited and not yet scalable. Some pipelines rely on private opportunities and the demand or appetite of investors, rather than a pipeline driven by the government or a public-private partnership. Last but not least, the capacity building is a top-priority for the success of Green Bonds in Cambodia. Training, certification and public awareness are essential and will give more confidence for the market participants, especially issuers and investors, and will have a positive impact on the fixed-income appetite of domestic and foreign institutional investors.

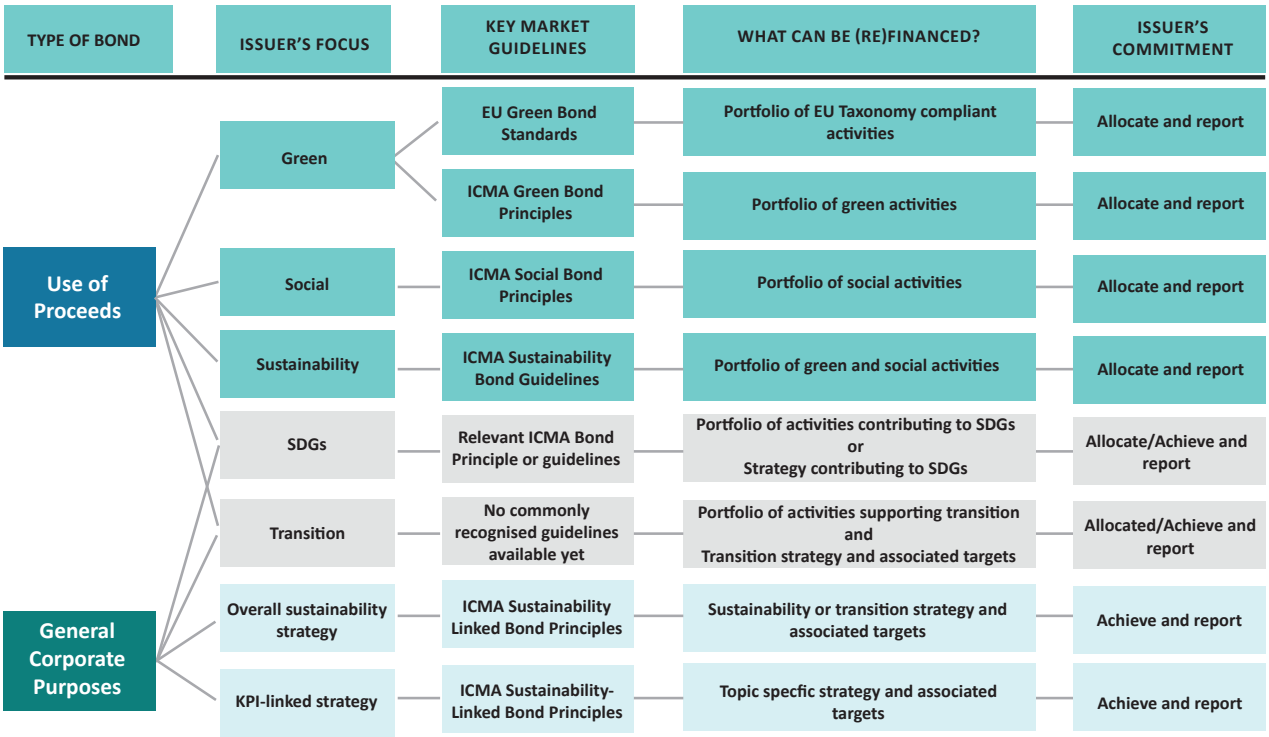
LITERATURE REVIEW

The Paris agreement adopted on 12 December 2015 in Paris by 195 countries (plus the European Union) also called the "Paris Agreement", aims to limit the adverse effects of climate change. The event opens up debate[1] on how to drive the planet towards a low-carbon future. The costs of climate change have been estimated by the Economist Intelligence Unit at the net present value costs of climate change at USD 4.2tn (Orsagh, 2020). Among several climate proposals, Green Finance and Climate Finance have emerged as one of the most followed topics. Nowadays, the "Green bond" issuance is growing fast, part of the overall trend of "do-good investments" has become more popular [2]. According to the CBI (Climate Bonds Initiative), the Green Bonds issuance is set to reach globally more than USD 1tn in 2022 (cumulative since 2007).

The Green Bonds are also a part of the "Thematic Bonds" family. Thematic Bonds are fixed-income securities that highlight the issuer's environmental and social objectives, as well as commit funds to relevant activities, and are labeled as such (Hussain, 2022). There are several different types of bonds available under the banner of "Thematic Bonds". These bonds include, but are not limited to, green, social, sustainable, and SDG bonds (Martin, 2021).

Figure 1

Overview GSS + Bond Principles and Standards



For example, Green Bonds include Climate Bonds linked to climate mitigation, such as projects in solar and wind technologies that reduce GHG emissions, and climate adaptation, such as infrastructure projects to protect against flooding. At the same time, other types of Thematic Bonds have emerged in response to new challenges. The main difference is that Thematic Bonds are primarily for funding projects that generate environmental and social benefits.[3] (Martin, 2021). The Green Bonds as well as Thematic Bonds, are common to fixed-income bonds. The section 4, will elaborate the difference between Green Bonds and Vanilla Bonds, offering predictable returns/yields for investors in the form of a fixed coupon in exchange for medium to long-term funding.

In 2022, the global issuance of all types of Thematic Bonds including Green, Social, Sustainability, and Sustainability-Linked Bonds is expected to reach a new cumulative record amount of USD 1.5tn (CBI, 2022). The Green bonds will take the lion's share, since it has increased as a prominent instrument in sustainable finance. The Green Bonds initially emerged in 2007 (Fatica et al., 2021) and the market has expanded rapidly (Tang et al., 2018) and recently reached the milestone of USD 1tn of Green Bonds issued globally (more than 66% of the total of thematic bonds).

The Green Bonds are also expected to see new record issuance volumes in 2022 (CBI, 2022), maintaining their position as the dominant Thematic Bond Category [4] . In the past decade, Sustainable Finance Initiatives in the ASEAN region have become quite a dynamic market with the growing launch of Thematic Bonds to finance numerous projects across the region. Mobilizing private finance for renewable energy and energy efficiency is critical for Association of South-East Asian Nations (ASEAN), and it is not only for the reduction of global temperature, but also for meeting fast-growing energy demand (Azhgaliyeva et al., 2019).

When we talked about Thematic and Green Bonds, we also have to refer to two international certification mechanisms, which are currently available to any issuers who wish to issue Thematic Bonds: The Climate Bonds Initiative ("CBI") and the ICMA (International Capital Market Association)'s Green Bond Principles ("GBP").

Both serve as gatekeepers to assess the eligibility and credentials of Green Bonds (Clifford Chance et al., 2022). For instance, the CBI and ICMA have developed their own taxonomies for setting out a Green Bond, beside ADB, World Bank-IFC and the United Nations.

The CBI [5] was launched in 2009 by the Network for Sustainable Financial Markets and is supported by the Carbon Disclosure Project. It is an international not-for-profit organization focusing on mobilizing the bond market for climate change solutions. In 2010, to drive down the cost of capital for climate change projects and grow aggregation mechanisms for fragmented sectors, CBI launched the Climate Bond Standard and Certification Scheme ("CBSC Scheme"),which serve as a fair trade-like labeling scheme for bonds. The CBSC Scheme is used globally by bond issuers, governments, investors and the financial markets to prioritize investments which genuinely contribute to addressing climate change.

GBP – The GBP was produced in 2014 collaboratively by capital market intermediaries, issuers, investors and environmental organizations under the ICMA leadership. The GBP were set to encourage more transparency and uniformed disclosure from the issuers and promote integrity in the Green Bonds market by laying out recommended rules for each step of a Green Bond issuance. The GBP, which are annually updated by ICMA, are divided into the following four components: (1) Use of Proceeds; (2) Process for Project Evaluation and Selection (3) Management of Proceeds; and (4) Reporting (Martin, 2021).

Beside the Green Bonds Principles (GBP) which outline the best practice when issuing bonds serving social and/or environmental purpose, however beside (GBP)[6], ICMA also oversees and helps to develop:

- Social Bonds Principles (SBP)[7]
- Sustainability Bonds Guidelines (SBG)[8]
- Sustainability-linked bonds Principles (SLBP)[9]

This report focuses mainly on Green Bonds and looks at some industry case studies of several broad categories of Green Projects. The Green bonds are a nascent but fast-growing fixed income asset class that are issued by governments, corporations and other institutions used to finance environmental and climate-friendly projects, such as renewable energy, recycling and green infrastructure (Gilchrist et al., 2021). In global practices, the ICMA Green Bond Principles are currently adopted by 95% of issuers (IFC, 2022).

The green bonds still need to face some challenges and will drive new opportunities:

- Research has discovered that environmentally responsible practices not only enhance shareholder value but also the value accrued to non-financial stakeholders (Gilchrist & Zhong., 2021).
- Furthermore, green bonds allow investors to fulfill their environment, social and governance concerns and mandates by allowing for climate-aligned investments. This "bonus" moral or green factor is what currently sets the market apart from its traditional counterparts (Weber & Saravad, 2019).
- However, a major concern among practitioners and investors relates to the so-called 'Greenwashing,' (Blecker-Olsen & Potucek, 2013), whereby companies purport to engage in green investment in order to attract impact-oriented investors while in practice engaging in investment that has little environmental value (Grene, 2015; Fatica & Panzica 2021).
- Taxonomies can play an important role in scaling up sustainable finance (Ehler et al., 2021). A solid and consistent Cambodian Green Taxonomy aligned with EU, BIS, ASEAN, UN and international organizations could facilitate the bonds issuance process and reduce risk of Greenwashing.
- While widely recognized by financial professionals; however, little is known about the convenience of green bonds for corporate and non-corporate issuers, and most important driver in investment decisions is the funding cost (Gianfrate & Peri, 2019) and the "Greenium" Effect (Loffler at al., 2021). The Greenium is basically the premium over green bond prices, i.e., the spread between green and non-green bonds of the same issuer. (Larcher & Watts, 2020)

In order to boost the green bonds industry, some significant recommendations have been proposed (but not limited) in terms of certification, disclosures, governance and capacity building:

- A proper certification by independent third parties (SPO), is an important governance mechanism in the green bond market and has a potential impact on public policy framework.
- All corporates and financiers must also use a standardized reporting format on climate risks (as set out in the TCFD or SSAB-ISSB recommendations (Burgess & Walker, 2017) also emphasizes on the importance of financial disclosures and the role of regulators and investors in strengthening the green finance schemes
- Governance will also be a key issue. And a solid governance framework on green bonds can contribute to long term sustainable development to ensure that the green bonds market matures with integrity, weaknesses in governance structures must be addressed (Berensmann et al., 2018).
- Education is also a must. Investors need to continue to educate themselves about climate change in order to provide clients with the climate-related analysis they deserve. (Orsagh, 2020). Financial markets will play a major role in those disruptive changes and practitioners, policymakers, and scholars are converging in stressing how crucial the support of finance is in delivering an actual and timely transition to a low carbon economy (Gianfrate & Peri, 2019).

Also, last but not least, the inclusion of ESG and SDG Goals criteria will be critical as: issuing size, maturity and currency do not have a significant influence on differences in pricing, but industry and ESG rating (Hachenberg & Schiereck., 2018).

METHODOLOGY

The research framework and methodology include initial data collection tools and instruments (corporate bonds feature analysis, regulatory framework) and also interviews of key players in Cambodia from academics, investment advisers (underwriters), issuers (corporates), auditors, technical experts, media, green project owners, non-governmental organizations and also regulators (NBC, SERC, MEF). Secondary data sources were by the literature review from international organization (IFC, World Bank, UN and ADB), and the practical case studies from real life situation, based on experience and interviews with Cambodian professionals (such as underwriters: Yuanta Securities, SBI Royal Securities and RHB Securities).

The interviews were carried out in Cambodia through different formats: online or/and physical or conference/workshop. The researcher also paid courtesy visits with Regulators, International Organizations and met several private sectors for Q&A sessions with high-level specialists.

The paper is divided into two sections:

(1) The first section examines policy and regulatory issues to be addressed for the effective operation of a green bond market in Cambodia including market standards (ICMA, CBI Principles) for all issuers (government and corporate). The section will describe different international and regional standards and key elements within these standards, and how Cambodia should be aligned with.

(2) The second section analyzes the process and best practices for a green bond issuance (pre-issuance & post-issuance) in Cambodia, based on the current context in the capital market including key barriers and challenges to existing corporate bonds. This section also looks at benefits /costs of issuance in the current context (Underwriting, Legal, Audit, SPOs). It lastly compares the processes and procedures and recommends best practices for green bonds issue.

In the end the researcher was not able to analyze all the current pipelines of the Green Bonds in Cambodia, because some are mostly relying on private opportunities and demand of investors, rather than a pipeline driven by the government. Therefore, some information of ongoing corporate green bonds will or must remain limited or confidential.

Also, the ongoing process of issuing the first government bond in Cambodia may add further updated information and may implicate the revised framework and appetite of investors and as well as on the Green Bonds issuers side and Investors. Additionally, ESG and SDG Goals criteria will be explored but not elaborated in a section, some references will be in the appendices.

This research examines the current context in the bond market in Cambodia including key barriers and challenges to bond issuance as well as possible benefits of issuance. The research will also attempt to identify all institutional actors/investors and key stakeholders' landscape in Green Finance, searching who/what are the specific actors in Cambodia promoting Green Bonds and Green Finance Initiatives? What is the policy-making landscape and what implications for policies to the domestic and international actors (issuers, underwriters, investors)? What could be the limits and challenges of Green Financing Regulatory Framework? What are the current taxonomies for Green Bonds currently used or implemented in/by the government? What is the pipeline and plan in targeting Green Industries? What is the current situation for reporting and/or disclosure requirements, related to social and environmental performance (voluntary based on guidelines of TCFD, ISSB)? What would be the barriers and opportunities for the securities industry and the private sector? And what would be the need in capacity building, in order to have a stronger and attractive Green Finance in Cambodia?

ANALYSIS

There are several different types of bonds available under the banner of "Thematic Bonds" (figure 1). These Thematic Bonds include, but are not limited to, Green, Social, Sustainable, and SDG Bonds (Martin, 2021). Within these categories there are also sub-categories. For example, Green Bonds include Climate Bonds linked to "Climate Mitigation" (such as projects in solar and wind technologies that reduce "GHG" Green-House Gas emissions), and "Climate Adaptation" (such as infrastructure projects to protect against flooding). At the same time, other types of Thematic Bonds have emerged in response to new challenges (such as Blue Bonds, Transition Bonds, and Pandemic Bonds).

ASEAN green bonds market

The volume of Green Bonds issued in Asia looks impressive in (figure 3), especially South East Asia. However, in relation to this, it remains low compared to Conventional Bonds; and according to the World Bank, the ASEAN market is still nascent, and it is estimated at 2.5%[10] of the conventional debt markets in 2021 (figure 4). It also has many opportunities and potential growth as the financing gap remains high.

Figure 3

Green Bonds in the Asia-Pacific Sub-Regions from 2015 to 2021

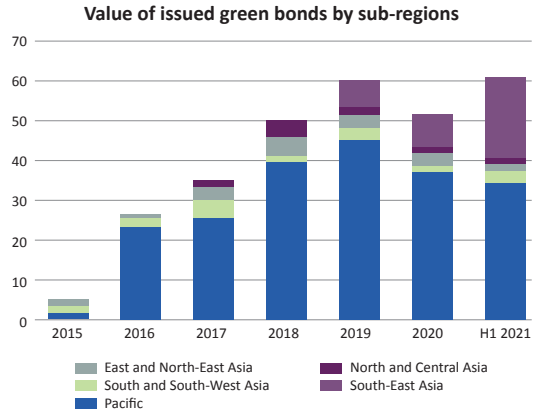
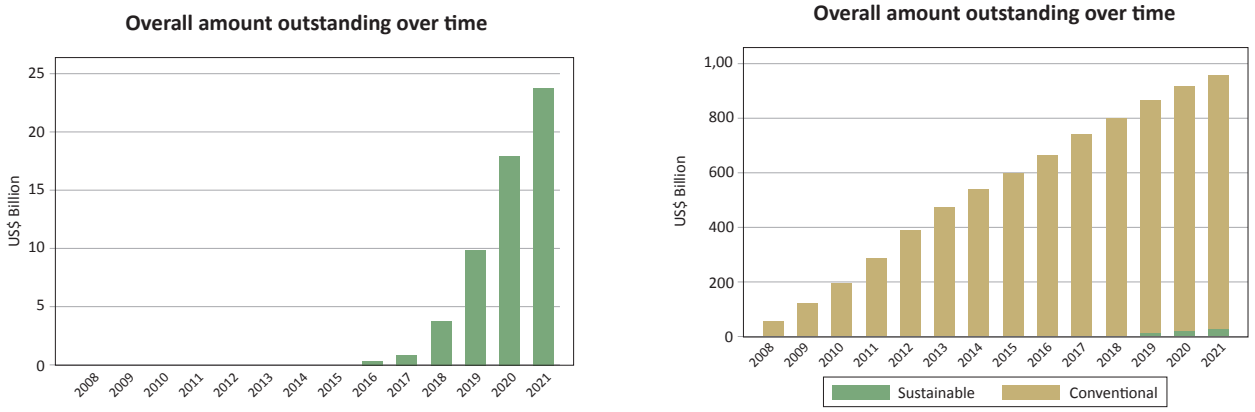


Figure 4

ASEAN-5 Green Bonds vs. Conventional Bonds 2008 to 2021



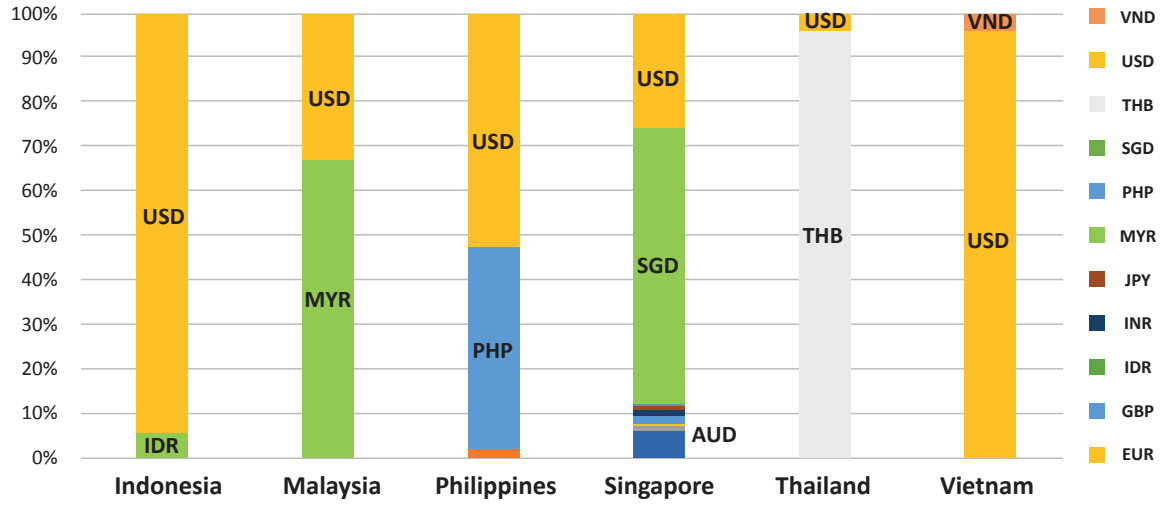
The ten members of the Association of Southeast Asian Nations (ASEAN) – Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam – taken together, represent the sixth largest economy globally. However, growth in the region has great environmental concerns such as air pollution, water contamination and deforestation, which are just a few of the pressing issues. It is estimated that around USD 3tn in green investments will be required between 2016 and 2030 to fill the funding gap needed for the region to achieve a low carbon transition.

The involvement of both public and private investors will be essential to meet the investment targets. Currently, Public Finance accounts for more than 75% of infrastructure investments in ASEAN, but this share is projected[11] to drop to 40% in the future. Private Finance will have to scale up exponentially to ensure the availability of sufficient green capital flows.

The first ASEAN country to enter the Green Bond market was the Philippines (AP Renewables in 2016). Since then, issuers from Indonesia, Singapore, Malaysia, Thailand and Vietnam have issued green debt for a cumulative total of USD 24bn, as of the end of 2021 (figure 5). Also, we can notice that most of the USD denominated bonds are significant in less advanced ASEAN countries such as Indonesia and Vietnam (benchmark for Cambodia).

Figure 5

Overview ASEAN Labeled Bonds by Country and Currency



Green bonds vs. Vanilla bonds

What is the main difference between the Green Bonds vs. Regular Bonds?

The figure 6 below (CFA, 2021) summarizes the main key difference. Unlike conventional bonds, on the pre-issuance side, there are additional steps to comply with the Green Bonds Framework such the use of an ASEAN taxonomy, which will make the screening of the bonds more consistent, and to make sure if the issuer is eligible or not. Furthermore, the issuer has to set up a process of using and managing the process, with transparency.

Figure 6

Pre-Issuance & Post-Issuance Regular Bonds vs. Green Bonds by CFA Institute

Regular Bonds Pre-issuance	Green Bonds
Get rated by Ratings Agency or SPO Get market intelligence on currency, tenor, size Decide on underwriters Register with local regulator Issue prospectus Comfort letter/due diligence Outreach through road shows and sales Price and allocate bond to support secondary market performance Communication to the capital market Monitor secondary market	Define a green bond framework Define how project meets green bond eligibility criteria (use of proceeds) Put in place project selection process and select eligible projects (selection of projects and assets) Set up accounts and process to earmark and allocate proceeds—"ring fence" the proceeds (management of proceeds) Establish reporting processes Get pre-issuance external review (external review) Allocate proceeds to the projects Monitor the projects Publish impact report Post-issuance audit if necessary

On the post-issuance side, the reporting and communication of information are critical. In some countries, like Singapore, listed companies have to disclose the green projects in their annual report. In other jurisdictions, it is on a voluntary based approach (recommended for Cambodia at the beginning).

What is the Greenium Effect?

"The Greenium", or Green Premium, refers to pricing benefits based on the logic that investors are willing to pay extra or accept lower yields in exchange for sustainable impact", (UNDP, 2022) or, in other words, it gives the investors lower yield compared to non-green bonds with otherwise similar characteristics.

The so-called 'Greenium' or the premium that bondholders are willing to pay to invest in green securities rather than conventional, makes green bonds relatively cheap vehicles to fund environmentally sustainable projects and thus contributes to the shift to a green economy. Yet, evidence on the Greenium is mixed and the determinants of green bond yields are not fully understood (Agliadi et al., 2021).

Green bonds pre-issuance

The issuer of the Green Bonds could be sovereign or non-sovereign. There are different types of Green Bonds issuers. For example, they were:

- Cities, States, State-Owned-Enterprises. Sovereign Fund
- Multilateral Development Banks or MDBs (AFDB, EIB, IBRD, IFC ADB, NIB...)
- Bilateral Trade and Development Agencies (G to G)
- Multinationals or Corporates (GDF Suez, DC Water, AC Energy...)
- Banks and Financial Institutions (Bank of America, Yes Bank. SMUFG, Toyota, ...)

Before starting the issuance process, issuers should identify their fundraising needs as well as their choice of debt instrument (capital structure, debt leverage). The issuer may decide to use the proceeds to finance projects or operations with green nature, or possibly green projects, green assets, or even to refinance relevant activities eligible with a green label.

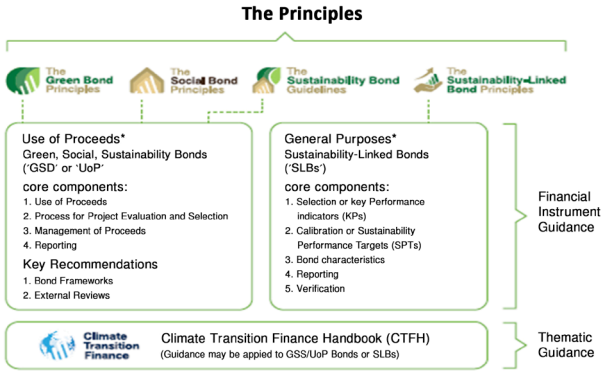
The types of green projects, assets, and expenditures which can be included in a green bond are: (i) owned projects and assets, (ii) financing arrangements for projects and assets, and (iii) related supporting expenditures.

However, issuers could refer to available taxonomy (ASEAN, International or Domestic framework) to support the "Green" criteria used in their classification. In Cambodia, the SERC recommends the ASEAN guidelines elaborated by the ADB Green Policy framework.

Once the green bond issuance is confirmed, the entity could develop Green Bonds Framework. These guidelines highlight the required transparency, accuracy, and integrity of information that issuers will disclose and report to stakeholders with its four core components (Figure 7): use of proceeds, process for project evaluation and selection, management of proceeds, and reporting.

Figure 7

ICMA Principles



The issuing entity could source for external consultancy in building up this framework (SPO, section 2.2.5) and shall provide regular reporting to investors and the market after the green bond has been issued. The format and frequency of the post-issuance report depends on circumstances (could be voluntary at the beginning, in Cambodia). In general, issuers could consider producing impact reporting, allocation reporting, or eligibility reporting. Additionally, issuers could seek a second-party or third-party assurance opinion on the allocation of proceeds to eligible green projects.

In the International context, issuers need to follow the international best practices and guidelines from: ICMA, CBI, ADB, IFC-WB, UN. There is Green Taxonomy available for ASEAN and can be applicable for domestic framework. In Cambodia, the process of labeling green bonds and eligibility of the issuer (priority sector) in terms of project metrics, assets and capital expenditures, are still ongoing. The Government of Cambodia is gradually releasing the Policy of Frameworks on Development of Government Securities (CPF SG 2023–2028). Under the leadership of MEF and SERC, the requirements of regulatory frameworks such as Policy Framework/ Strategies/Guidelines and other standardized criteria and principles relevant for Cambodia:

In summary the process to issue a green bond, before deciding to issue green bonds is:

1- Describe of the use of proceed which will finance or refinance the green projects

2- Identify of the most suitable instrument for fundraising

3- Issuers has to meet the legal, regulatory and financial prerequisite required of bond issuing

Transparency of use of proceeds is critical

The transparency of the use of proceeds is critical. We can use the past examples of the eight issuers of first corporate bonds in Cambodia (2019-2021). These examples below (none are them are Green Bonds) provide a summary on the past communicated Use of Proceeds from the issuers in Cambodia, and this part was elaborated with and through the helpful interviews with the underwriters' team (SBI Royal, Yuanta Securities and RHB Securities in May 2022):

- **LOLC:** funding the growth of lending business. LOLC issued two types of bonds – namely FX-indexed bonds and fixed-coupon bonds – and successfully raised KHR 80bn (USD 20mn) for the growth of its lending business.
- **HKL:** funding the growth in lending business, for the working capital and capital expenditure. The proceeds from HKL's KHR bond issuance will also support rural micro, small and medium enterprises ("MSME"), including women entrepreneurs in Cambodia.
- **ABA:** funding the growth in lending business and for operating expenditure. The proceeds from ABA Bank's KHR bond issuance will support rural micro, small and medium enterprises ("MSME"), including women entrepreneurs in Cambodia.
- **PPCB:** securing liquidity and ALM, and being compliant with regulatory ratios.
- **RMA:** refinancing existing working capital facilities and food business (investors: Manulife, BRED and Prudential)
- **PRASAC:** helping to diversify KHR sources of funds to finance KHR loans in rural micro, small and medium enterprises ("MSME"), including women entrepreneurs as well as helping to promote the use of Khmer Riel, following the NBC's effort to promote wider usage of the currency.
- **Telcotech:** refinancing existing debt, and in part, for meeting the on-going capital expenditure requirements of the business, which includes investment in new towers, upgrades of existing

towers and the roll out of more efficient power solutions, including solar generation.

The Use of Proceeds (UoP) is the foundation of any green bonds; it is essential that the proceeds are specifically utilized for specific activities which create a positive environmental or social impact through climate change mitigation, climate change adaptation, natural resource conservation, biodiversity conservation, and pollution prevention and control. And project categories may include activities such as renewable energy, energy efficiency, clean transportation, sustainable water and wastewater management, affordable housing amongst others.

The main additional requirement for a green bond compared with a vanilla bond is that the proceeds are allocated to "green" projects and assets. It is therefore crucial that the issuer clearly identify the categories of "green".

The green bond issuers should clearly communicate on the environmental sustainability objectives of the projects to their investors. It may also include the exclusion criteria, or any other process applied to identify and manage potentially material environmental and social risks associated with the projects, as applicable.

Since Cambodia does not have yet investible thematic bonds, the selection process would need the underwriter to discuss with the investors on the project characteristics that they want to invest in which means the underwriter uses the practical approach for selecting the projects.

- From underwriters' network (licensed by SERC)
- From investors local or international companies based in Cambodia (buy side)
- From issuers (sell side): corporates
- Other buy side system in place such as institutional investors: Pension Funds (NSSF Pension Funds Investment Management) Collective Investment Schemes (CIS) Life Insurance
- Metrics generally used are
  - ◊ Assets evaluation (balance sheets), project based (merger and acquisition, expansion, new equipment, restructuration, …)
  - ◊ Expenditures evaluation (cost of equipment, development costs, due diligence costs, tax benefits
  - ◊ Existing financing arrangement (capital structure, debt, equity, leasing, alternative source of finance, subsidies, grants, …)
  - ◊ Project evaluation tools and metrics (NPV, Payback period, IRR project vs. IRR Equity)

On the other hand, an exclusion list may help to implement the negative screening. For instance, the following activities are excluded from eligible Green and Social Projects: exploration, production or transportation of fossil fuel; large scale hydropower plants (>25MW capacity); generation of nuclear power; biomass plants, waste to energy power plants and geothermal plants, manufacture and production of finished alcoholic beverages; lethal defense goods; military contracting; gambling; weaponry; non-certified palm oil; manufacture and production of finished tobacco products; and conflict minerals activities/projects associated with child labor/forced labor.

A consistent external review is vital

While according to ICMA's Green Bond Principles, external verification is not mandatory, according to Climate Bond Standards, it is mandatory. The engagement of external reviewers is a recommended element in international practices. This helps build investors' confidence into the upcoming market and prevents the issuers from misusing and misreporting on the use of proceeds of the bond.

The external review refers to independent assessment by an external auditor (reviewer) of the green credentials of a bond. Issuers can seek certificates from recognized and approved consulting firms recognized in climate finance. Such external reviews fall under one of the two categories[12]: Second-party opinions and Assurance. These independent third-party companies undertake audit and verification, in accordance with standards set by an independent standard setter (such as the Climate Bonds Initiative). And the opinions provide an assessment of the green credentials of the bond against both the standard and the internal procedures established by the issuer.

In Cambodia, the market has been generally relying on issuers' disclosures, second party opinions, and commentary from academics, investment advisers, auditors, technical experts, media, and non-governmental organizations such as (but not limited):

- International rating agency: for ABA Bond a B rating (Standard and Poor, same as for ACLEDA IPO)
- Domestic rating agency: RAC "Rating Agency of Cambodia" (starting in July 2022)
- Audit companies: big 4 such as KPMG. EY, Deloitte, PwC and second tier (BDO, baker tilly, grant Thornton)

- Tax and legal advisory: DFDL, VDB Loi, Sok Siphana & Associates, Bun & Associates
- ESG compliance services providers: local ESG (to identify), local international (EY, Deloitte), international (Sustainalytics-Morningstar)
- Other services certification providers recognized and approved by MEF and SERC, MOE (IEA, IESA)
- Also, several international SPO[13] also identified by CBI: Veritas, (DNV), and Vigeo, among others. And green bond indices (for example, Barclays/Morgan Stanley Capital International [MSCI], Standard & Poor's) are useful benchmarks for green bond portfolios and support transparency in definitions and processes.

A voluntary-based disclosure

The SERC-CSX are currently working on how to enhance current disclosure requirements. Listed companies have to comply with SERC-CSX Disclosure Rules. However, with the introduction of Thematic Bonds, the introduction to ESG Disclosures becomes important like the Singapore Model. Plus, the disclosure should be on a voluntary based approach at the beginning.

The Public Disclosure and requirement should also extend to annual reports. The listed organizations should start working in a general and global Introduction of climate reporting, a simplified standard aligned with the recommendation of climate-related disclosures (TCFD, IFRS, ISSB).

To provide an extra layer of comfort to investors, issuers might decide to re-engage an external reviewer at the post-issuance stage:

- *Post-issuance reviews:* the reviewer undertakes an assessment to provide investors with extra assurance that the proceeds are being allocated correctly to the nominated projects and assets. Although this step is voluntary in the second-party opinion model, it is mandatory under the Climate Bonds Standard and Certification Scheme.
- *Report audit.* the issuer might decide to engage a reviewer in order to assess its investor reports periodically (usually on an annual basis). The practice allows issuers to provide investors with the confidence that the key performance indicators are being met.

The new International Sustainability Standards Board (ISSB)[14] aims to develop sustainability disclosure standards that are focused on enterprise value. ISSB will benefit from the consolidation of global bodies (CDSB, IIRC and SASB) – as well as the support of IOSCO, TCFD and WEF. Together, they share the aim of enterprise value-focused sustainability disclosures.

The findings from the interviews

From the information provided by CSX and SERC, we have completed the detailed table below with insight information through each 1-hour meeting with each Underwriters (SBI Royal, Yuanta and RHB). The second part of the analysis is based mainly on the responses of the latter underwriters particularly on the topics on pipeline.

As to date, more than USD 160 mn has been issued: USD 120mn from the SBI Royal Securities (75% of the volume) and USD 40mn from Yuanta Securities (25% of the volume). Figure 10 illustrates the characteristics of the classic corporate bonds issued in Cambodia since 2019 (Pricing, Tenors, Coupon rates, Maturities, etc.).

Figure 10

Overview Bonds Issued in Cambodia (Non-Green, Non-Social)

BONDS	1	2A	2B	3	4A	4B	5	5	7
ISSUERS	HKL	LOLC	LOLC	ABA	PPCB	PPCB	PRASAC	RMA	TELCOTECH
CODE	HKL21A	LOLC22A#	LOLC228	ABAA22A	PPCB23A	PPCB23B#	PRA23A	RMAC25A	TCT26A
INDUSTRY	MFI	MFI	MFI	BANK	BANK	BANK	MFI	INDUSTRY	TELCO
UNITS	1,200,000	536,000	264,000	848,210	400,000	400,000	1,272,000	800,000	800,000
FACE VALUE(KHR)	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
GUARANTEE	N/A	N/A	N/A	N/A	N/A	N/A	CGIF 1,5%	CGIF 1,5%	CGIF 1,5%
ISSUING DATE	11/14=2018	04/26/2019	04/27/2019	04/27/2019	04/10/2020	9/22/2020	4/23/2020	9/4/2020	8/25/2021
MATURITY	11/14=2021	04/26/2022	04/27/2022	04/27/2022	04/10/2023	9/22/2023	4/23/2023	4/4/2025	8/25/2026
YEARS	3	3	3	3	3	3	3	5	5
C RATE (KHR)	8.5% Annually	8% Annually	9% Annually	7.75% Annually	6.50% Annually	6.50% Annually	7.50% Annually	5.50% Annually	4.50% Annually
KHR HEDGING	KHR ONLY	FX-Indexed Bond 2	Plain Bond 2019-2	KHR ONLY	FOREX LINKED	FOREX LINKED	FOREX LINKED	USD SETTL SCHEME	USD SETTL SCHEME
RATINGS				S&P: B Ratings					
C TYPE	Coupon Bond SA	Coupon Bond SA	Coupon Bond SA	Coupon Bond SA	Coupon Bond SA	Coupon Bond SA	Coupon Bond SA	Coupon Bond SA	Coupon Bond SA
B TYPE	Corporate	Corporate	Corporate	Corporate	Corporate	Corporate	Corporate	Corporate	Corporate
UNDERWITRES	SBI	YUANTA	YUANTA	SBI	YUANTA	YUANTA	SBI	SBI	SBI
AMOUNT (USD)	30,000,000	13,400,000	6,600,000	21,205,250	10,100,000	10,100,000	31,800,000	20,000,000	20,000,000

None of them are Green or Social Bonds, however the Underwriters have one or two potential "Green Project" candidates in their respective pipeline, and also become vital for them to identify, include in their potential pipeline:

Here are some ongoing pipelines examples from the Underwriters (confidential)

Response 1	Green Bonds: with Green Building (3 projects), and one in green energy (renewables, solar), Green Agriculture Bond (Food security and agriculture value chain project, cold chain, green supply chain)
Response 2	Green Bonds: on water infrastructure Bond in Cambodia such as wastewater management & water supply: the project focuses on recycling (circular economy)
Response 3	Solar energy, 20 MW Stand-alone projects without recourse. The solar project is already commissioned.

In terms of bond features, we can notice that past issued bonds' maturities range from 3 years to 5 years maximum. According to the Underwriters, the new coming bonds maturity should range 3-5 years (maximum 7 years). And the coupon has decreased from 8.5% in KHR to 4.5% in USD (Telcotech). The coupons are semi-annual in Cambodia. Today, new yields are uncertain with the context of raising inflation over the world, it is uncertain if the coupon rates would remain at this level (lastly 4.5% in USD) for the future issues.

Furthermore, the credit rating and credit guarantees are very critical, even vital, to match the investors' requirements. For example, the last three bonds (PRASAC, RMA and Telcotech have cooperated with CGIF (ADB) to get an AA rating through a credit enhancement schemes on top of the yield (about 1.5%), The Underwriters would recommend a partnership with credit enhancer provider such as CGIF (ADB) and Guarantco. Some credit enhancement could be also offered by international organizations such as AIIB, AFD or USaid. Definitely, Green Bonds will need to integrate the credit rating and credit enhancement factor, in order to maximize the chance of placement.

There are still some ongoing undisclosed projects led by the public sector (sovereign bond projects).

CONCLUSION

Through the research papers and our interviews, we can summarize and emphasize some points such as the main challenges faced by Green Bonds participants: excessive issuance costs, length of the process to get bonds listed, and a nascent regulatory framework (aligned with regional and international standards and best practices). These are also obstacles that the participants have to overcome and there are in line with the past research on emerging markets bonds, such:

- The Foreign Exchange Risk: the first bonds were issued in KHR and have gradually evolved to forex-linked bonds and USD-denominated bonds (due to international investors demand). Thus, the foreign forex risk is now borne by issuers (since the recent bonds are issued in USD) exposing issuers to exchange risk. The forex risk may imply some additional concerns such as forex hedging as investors do want to mitigate the exchange risk exposure if the USD is not their main transaction currency. In that case the hedging cost could range 3%-4% on top of post- issuance costs (for example, forex swap on PRASAC bond). And there are no local hedging tools such as derivatives or swap provided by the Cambodian Derivatives market (CDX - they only trade CFD and on spot). And most of the swaps are done through foreign banks.
- The nascent Domestic Institutional Investors: need to polish their policy and refine their asset allocation. Cambodia's institutional investors are growing significantly (Pension funds, Life Insurance), but their investments remain limited to short term investments such as Certificate of Deposits (matter of financial education?). Besides Life Insurance and NSSF, the main participants in asset management can include corporate treasurers, corporate pension funds and CIS (collective investment schemes). The NSSF Pension Fund may play a leading role in local demand for domestic securities.
- The International Institutional Investors Demand Appetite Remains High: the last bond issue (Telcotech) was 100% purchased by offshore investors. The market appetite from foreigners is translated into more USD-denominated bonds and more credit guarantee and Guarantee/Credit Rating (such as CGIF-ADB, Garantco, and Credit Ratings providers like S&P,

also + AIIB and MBDs). The credit guarantee adds extra cost for the post issuance bond: for the instance CGIF Guarantee (for PRASAC, RMA and Telcotech, and cost is around 1.5% on top of yield (4.5% coupon on Telcotech +1.5%=6%, to get the CGIF AA rating)

- The Accounting Complexity: in the case of KHR-denominated bonds, the accounting can be complex as the issuers have to do mark-to-market valuation and provision the forex risks, and this is also challenging for issuer's financial statements who wants to both comply with CIFRS (Cambodian IFRS) vs. IFRS Disclosures and ongoing SSAB-ISSB recommendations (Burgess et al., 2017). The capacity boiling is needed at public and private sector level, in order for all stakeholders to be aligned with the recommendations of (Bhattacharyya, 2021) insisting on the importance of financial disclosures and the role of regulators and investors in strengthening the green finance schemes.

RECOMMENDATIONS

In order to stimulate the Green Bonds market, and based on the past experience on the CSX Bond market, some additional initiatives could be implemented to drive the Green Bonds market and leverage the domestic capital market as a whole.

For the recommendation it would be better to establish a clear, consistent and broad framework for Green Bonds in Cambodia, then detailed one later. A harmonized and a simplified framework could stimulate the bond market – harmonization between bank and non-bank (NBC & SERC-MEF).

Our green taxonomy should be innovative enough, and aligned with the international and ASEAN taxonomy. Public education is the next priority. For instance, clear definitions and practical, applicable criteria for green projects eligible in Cambodia (this will help the stakeholders to define what is green-washing or not green-washing). Greenwashing was well defined by (Blecker Olsen & Potucek, 2013) and (Grene, 2015) and (Fatica & Panzica, 2021).

The establishment of collaboration between the public and private sector on ESG criteria, compliance and guidelines is important. The government may also establish recognized local authorities that can issue local certification on ESG compliance whether with or without government backed, as referred to nonfinancial information to stakeholders by (Gilchrist & Zhong, 2021)

In terms of guarantee the government should provide guarantees to the private sector. An efficient guarantee system could be elaborated at the MEF (Ministry of Economy & Finance) level (Credit Guarantee Corporation of Cambodia, Khmer Enterprise) and could allow smaller and private limited companies to also issue bonds.

The issuance costs remain high in Cambodia. The costs of getting bonds listed may include ESG compliance, underwriting fees (2%-2.5% of the issued amount), legal fees, advisory and audit and also credit guarantee (i.e. 1.5% by CGIF) and hedging costs (swap). Therefore, a system which can provide subsidies on issuance costs would stimulate the market. In parallel, the reduction of redundant due diligence processes by reducing excessive steps in the process can also reduce the lead time which, in general, is more than a year.

A frequent periodic and voluntary disclosures, supported and encouraged by CSX platform or/and Cambodian Financial Analysts Association, dedicated green bond investors newsletter, annual report on sustainability issuer's project's website, could be a plus. Simplified and applicable disclosures and methodology for green bonds and for green loans is essential to build the trust between issuers and investors but also in the regulatory framework. Good governance structures must be addressed (Berensmann et al., 2018).

The climate disclosures will also affect the risk committee of the board of directors' agenda. Therefore, an improvement of corporate governance by including an ESG committee or ESG-driven audit committees and even in risk management will definitely change the structure of decision and internal control, the way we do today, emphasized by (Hachenberg & Schiereck, 2018).

Last but not least, the capacity building should be extended at all levels from the public (regulator) to the private sector, and even at the board of director's level. The capacity building should cover taxonomy explanations, methodologies and certifications "Align taxonomy and public education at every level", and ESG tools.

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Industrial Transformation and Skill Needs: Implications for Future Skill Development

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The Royal Government of Cambodia aims to upgrade the country's status to an upper-middle-income country by 2030; a high-income country by 2050 and human resource development is the key to this endeavor. Within this context, the study explores employers' perspectives on the relationships between worker development skill and industrial transformation. Particularly, the research applied case study methodology to examine how companies in Cambodia manufacturing industries mobilize their workforce to respond to changes in products, technology, and work organization. Interviews were conducted with 36 human resource managers and production heads at 18 companies in the electrical & electronic, garment, and food processing industries. Transcripts were thematically coded on NVivo 12 software. The findings provide employers' insights to facilitate training providers in designing skill training programs responsive to future labor market needs.

Keywords: *Industrial transformation, vocational skill development, TVET*

INTRODUCTION

The skills and knowledge of workers are critical contributors to the economic success of firms and nations (Abbas & Foreman-Peck, 2008; Benson et al., 2013) reflecting the inextricable linkage between human capital and a country's development. In Cambodia, skill development is the key to the national socio economic development (RGC, 2015; RGC, 2018). Therefore, without equipping the workforce with the skills and competencies necessary for the industry and labor market, Cambodia will not accomplish its vision of reaching upper-middle-income status by 2030 and high-income status by 2050.

Towards achieving its ambition above, Cambodia's government has embarked on several major policies including the Industrial Development Policy (IDP) 2015–25, National Employment Policy 2015–25, and National Technical and Vocational Education and Training (TVET) Policy 2017–25 in addressing skill development issues and challenges. To support the implementation of these initiatives, international development partners have provided financial and technical assistance to the government through diverse projects such as the Project for Improving TVET Quality to Meet the Needs of Industries 2015–20 (JICA, 2015) and the Skills for Competitiveness project 2019–2023 (ADB, 2019)

Despite the great efforts that have been made, the overall population has just 4.8 years of formal schooling on average, which is relatively low in the region (NIS, 2018; UNDP, 2018). Moreover, the skill mismatch is still a lingering issue as evidenced by the many employers reporting difficulties finding suitable candidates for their job vacancies (HRINC, 2010; NEA, 2018). As a result, employers seem to distrust graduates' qualifications, while most companies tend to hire job candidates with lower levels of education but at low cost to fill vacancies or to meet production workloads. Usually, the poor levels of skills and knowledge among the workforce demand urgent action from the government and relevant stakeholders to bridge the skill mismatch.

There are several recent studies focusing on the relationship between the skill supply and demand sides. The 2017 Cambodia Employer Survey of 605 businesses chiefly collected detailed information on labor market demand vis-à-vis skill supply, but also to learn about the skill shortage and skill gap in Cambodia (NEA, 2018). At the macro level, given the persistent skill mismatch (Sothy et al., 2015), ADB and ILO conducted an employment diagnostic study to examine constraints and opportunities for closing skill gaps and increasing productive employment in Cambodia (ADB & ILO, 2015). However, despite the urgency of the matter, research on the linkage between skills and transformation is still scant (Ven & Veung, 2020), the same research applies to employers' perceptions of skills and knowledge, especially in the manufacturing sector.

RESEARCH OBJECTIVES

In order to explore and develop a clear understanding of the linkage between VSD and transformation in Cambodia's manufacturing sector, we set these research objectives to examine how technological, product and work organization changes affect employees' skills and vice versa.

LITERATURE REVIEW

Skill development and industrial needs

A skilled workforce is central to a nation's socio economic development (Benson et al., 2013). Hence, skill development systems must develop human capital with the right skills and competencies at the right time to meet the labor market demand. According to (Becker, 1962) and (Schultz, 1960), human capital is one of the most important factors in a country's economic development through education and training. However, rapid changes in advanced technologies have increased the demand for higher cognitive skills and lifelong learning, reflecting the skills and knowledge received from school and the workplace can become obsolete quickly, while those changes in workplace technologies also demand new and complex knowledge and skills from workers (Kim & Park, 2020; WEF, 2020). Thus, nations need to take urgent and serious action to upskill and/or reskill their workforce to maintain their competitive edge.

Technology continually advances towards non-human operating systems (Sharma & Jain, 2020), but the skill shortage and gap in developing countries such as Cambodia could be even worse, while they are also facing a daunting challenge to upgrade and deploy new technologies and their ability to absorb foreign technologies rests largely on the availability of human resources (Abbas & Foreman-Peck, 2008). It even worsens when simple routine tasks can be done or replaced by automatization, therefore enhancing the capabilities and skills of the workforce through responsive skill training and skill upgrading since the essential skills and competence is highly needed to respond to industrial skill needs.

Skills and qualifications from formal education and training systems vary in terms of market values and effectiveness (Müller & Gangl, 2003). These skills and qualifications are seen as one viable resource available for fresh graduates to enter the labor market (Ashton & Sung, 1992). However, only a few highly competent individuals tend to enjoy many employment opportunities, while many others with poor or low skills and qualifications seem left behind (Brown et al., 2011), creating employment inequality across most economic sectors. This is because the education and training systems in developing countries are weak and not meeting industrial needs. Further issues include a poor basic education system and unequal access to quality education, which is a foundation for TVET (Spaull, 2013; Spaull & Kotze, 2015). Developing economies, due to scarce resources, face the dilemma of investing in general education leading to higher education, or investing in TVET leading to the world of work (Pefianco et al., 2003).

Despite the noticeable expansion of access to TVET across the developing world and the corresponding rise in enrollment rates, there are still many issues and problems in making formal education and training responsive to the labor market. Linking skill development to the industrial needs would require an effective coordinating mechanism among relevant stakeholders that ensures highly effective linkages among skill development policies, TVET providers and firms (Allais, 2012; McGrath, 2012).

Forms of workforce skill development

TVET, according to UNESCO's definition, covers formal, non-formal, informal, and workplace training, giving learners a wide range of and flexibility in learning experiences relevant to the world of work. It includes both initial skill development prior to employment and reskilling and upskilling through further education and training during or after employment (UNESCO-UNEVOC, 2006, as cited in Catts et al., 2011). In some contexts, vocational education, technical and vocational education, vocational education and training, workforce education, vocational skill development (VSD) are used as equivalent terms for TVET (Hollander & Mar, 2009; OECD, 2010).

In this paper, VSD is used with a focus on formal, job-specific pre- and in-employment education and training programs. Pre-employment VSD caters for workers of all skill levels – lower, medium and higher, include short-term training as much as industry-oriented higher education and lead to some kind of certification and the acquisition of industry-specific skills, while in-employment programs cater for workers across different skill levels, but after they join an industry, and could also be provided or certified by a third party, also leading to industry-specific skills. Initial education and training and workplace skill training below capture the features of pre- and in-employment VSD of the study.

Initial education and training are a crucial part of the workforce skill development. It serves as a foundation upon which workers' skills are built. This education is usually considered a key to unlock workers' full potential for the world of work, complemented by further education and training after they enter the labor market (Senker, 2000; Wolbers, 2005).

Workplace training is usually intended to enable workers to improve their job-specific skills and knowledge through on-the-job training and off-the-job training and informal learning (ECDVT, 2014; Selesnick, 1981). Specifically, on-the-job training is a popular form of workplace training incorporated into workers' normal work, in which workers learn a particular skill by doing a specific job or task, whereas off-the-job training usually requires them to be away from their normal work to participate in designated training outside of the firm or workstation (ECDVT, 2014).

Skill attainment and educational levels of the Cambodian workforce

Although there is a large proportion of workers in low-skilled and unskilled low-wage jobs in agriculture, manufacturing, construction and services dominate Cambodia's labor market, with only a small minority in high-skilled and professional jobs. According to the 2017 Cambodia Socio-Economic Survey, 12 percent of the workforce had no education, 26 percent had completed and about 32 percent had not completed primary education, roughly 16 percent had completed lower-secondary and about 8 percent had completed upper-secondary education, and only about 7 percent had completed postsecondary education (NIS, 2018). The low level of educational attainment and skill acquisition in the workforce is a tremendous challenge to implementing Cambodia's ambitious development agenda (RGC, 2015) as the Cambodians attend 3.6 fewer years of basic education than the average of 8.4 years for developing countries (UNDP, 2018). These statistics indicate the limited availability of human resources for Cambodia's industrial transformation (RGC, 2017).

Education and training are of great importance, but it is not the whole story in Cambodia. Employers need workers with more than academic and vocational qualifications. They look for candidates with specific practical skills and work experience. Even so, the relevance of education and training is a top priority for most employers when recruiting new employees (NEA, 2018), as the skills and knowledge obtained through formal education and training might not meet their expectations. Consequently, employers have to use different hiring tactics and recruitment methods to attract talented employees. Most employers are keen on an optimal method for recruiting new employees or promoting existing employees and conforming with corporate business and human resource strategies (Lepak & Snell, 1999).

RESEARCH METHODS

This research applied case study methodology to understand how companies or employers perceive the skills and knowledge of their workforce in relation to the skill needs required for a certain level of transformation within manufacturing companies

Data collection

This study used data gathered from 36 qualitative face-to-face interviews with 18 firms with senior managers and a production head or representative in each firm. The participants were purposively sampled for their comprehensive knowledge of their firm's practices and experience, especially in the areas of hiring and training, growth and transformation, and TVET programs. The heterogeneous sample consists of three industries: garments, electrical & electronic (E&E), and food processing. The companies were selected to cover a range of characteristics, such as firm size and type.

Data analysis

This study used Nvivo 12 for coding. The main codes and subcodes were created based on the interview question structure and emerging themes. The themes have also been coded to compare and contrast with case numbers.

FINDINGS

Transformation in production technology, products and work organization took place in a variety of forms in the interviewed companies, and was believed to be intertwined with human capital, specifically the skills and knowledge of employees. The direction of the relationship between transformation and skills is not clear, because it is difficult to identify whether employees' skills and knowledge enabled transformation or vice versa. In other words, the changes in production technology, products and work organization require a set of new or additional skills and knowledge, or that having a skill set allows for or even drives transformation.

Technological change and its implications for skills

Almost all respondents viewed employees with TVET qualifications positively in terms of facilitating changes in technology, but some companies seemed to indirectly report their changes in technologies. Not all changes in technology led to new or additional skills and knowledge of the employees. Those changes were also different depending on the type, size and ownership or the location of companies. For example, several E&E and food processing companies reported that the introduction of new, advanced technologies or machines helped reduce the number of production line workers, while most garment companies did not mention anything about labor reduction. One crucial implication of this transformation in production technology in relation to skill utilization is that in some company's manual work or labor was replaced with new or advanced fully or semi-automated machines, allowing those companies to allocate the remaining employees and resources to other tasks.

Upgrading technology or machines generally helped companies reduce the number of manual operators or employees on production lines, but that did not mean the total number of employees in those companies has decreased. For example, company CFE45EE, where technological change took place, the number of employees remained the same, but losses related to defects and waste were reduced, therefore the company was able to efficiently use its employees and other resources to improve production. In another example, machine upgrading in company CE5913F reduced the workload of production line operators, and the leftover remaining employees from the production section were assigned to other tasks. As such, the installation of automated machines has not only helped reduce manual labor but also improved the quality and quantity of the products.

While technology upgrading was reported as a main reason for reducing labor and costs in some interviewed companies, the installation of new or additional machines did not reduce the number of production line workers as those companies needed workers to operate the new machines in order to fulfill orders. Only a few companies said they recruited more employees for new machines or new production lines. Most companies relied on their existing workforce and did not hire new or extra employees for new machines or technology upgrading. Instead, most of them seemed to rely on machine experts from outside the company when they upgraded or changed their technology.

When adopting advanced machines or technologies, most firms relied less on their employees' skills and experience or local experts. Companies were dependent on outside specialists or technical experts from abroad if any technology changes occurred, except for a very few cases in which the respondents mentioned that their companies considered the skills and knowledge of their existing employees before introducing any major changes in production technology. Furthermore, most companies did not require their existing employees to have a completely new skillset as they could rely on technical and human resource support from their parent companies abroad.

One stand-out finding is that most technological changes in the interviewed companies were smoothed by specialists or experts from parent companies abroad or from machine suppliers. This suggests that the roles of internal technicians, mechanics and engineers were not that important for technology upgrading. Instead, the companies were merely followers or recipients of skills and knowledge transferred to them by outside experts, and that those transferred skills and knowledge were usually limited or operations-related. The skills and knowledge related to operation and safety were transferred to operators by technicians, mechanics and engineers through peer learning or on-the-job training.

In the food processing sector, respondents indicated that the introduction of new machines meant their companies had to improve the skills and competencies of the workforce, not only to ensure that employees could operate the machines, but also to produce better quality products and increase productivity. In short, they needed to upskill their workforce in order to get the most out of their investments in technology. In general, technicians and mechanics encountered more difficulties than operators when getting to grips with completely new machines or technology; to do so, it required more time to learn and observe. The same result shows for other sectors.

In the garment sector, new modern semi-automated machines required additional skills and knowledge. However, the operators in most garment companies faced few or no problems operating those new machines as they had worked in the sector for years and used various types of machines. Because they already had relevant practical skills and knowledge, and because the new machines were not completely different, the operators were able to learn and adapt

quickly. Sometimes, garment sector workers resisted change because having worked in the sector for many years they were familiar with the old ways of operating. Companies sometimes had to force their workers to use new, advanced machines.

Although almost none of the interviewed companies said anything about the introduction of new technologies requiring employees to acquire new or additional skill sets from the outset, they point out that changes in technology could eventually lead to new skills and knowledge. In practice, employees learned new skills or knowledge through working with their peers or operational processes when new machines were adopted. Thus, to some degree, changes in production technology had an impact on existing skills and knowledge, employees had no option other than to adjust to those changes as required.

Product change and its implications for skills

In this study, only the E&E companies had many employees with TVET qualifications, whereas most of those in the other sectors did not. In fact, it seems that the garment companies did not require employees with higher TVET qualifications for their product changes. For E&E companies, employees' skills and knowledge changed depending on product type, meaning new product types resulted in changes in existing skills and competencies. Employees' skills and knowledge were gradually improved over time through the work process. Improving the skills of E&E employees, and especially less-educated operators, often faced difficulty in making those products, but the introduction of new product types and technology allowed existing employees to gradually gain specific skill sets to improve their overall skills and knowledge over time.

Likewise, food processing companies reported that product changes caused difficulties for production employees in terms of complexity and workload, but their employees could adapt to those changes over time with support from higher-level employees (e.g. supervisors and leaders) who had practical skills and experience. Ultimately, with the skills transfer and practical training from experts and technicians, the employees could learn and perform better due to their increased skills, knowledge and experience with the products. For example, employees gained skills and experience from making new product types.

Garment companies also reported that their employees had to improve their skills and knowledge to meet the complexity of new styles or fashions. However, those changes were manageable for the employees because they had to develop their sewing skills using various machines and amassed work experience in producing diverse styles of clothing. Additionally, creating new styles were not much different; workers improved their skills and then they were able to produce good quality products.

According to some long-established garment companies, the skills and work experience of their employees have improved over time, even though they have employed many workers with low education and skills in the beginning. This could be because those companies invested time and resources in employee training when they first began operating in Cambodia. This shows how low-skilled workers have learned and improved their skills and competencies through on-the-job training.

In most garment companies, higher-level employees, including (foreign) supervisors and some leaders, were the key enablers of product change. They were at the forefront of testing products or making samples with guidance from experts or machine technicians, and they made sure their teams knew what the product should look like and what the quality should be. Therefore, product changes were possible due to the practical skills, knowledge and experience of those supervisors and leaders as the front-line force. This also shows that most garment companies did not recruit supervisors or leaders from outside when introducing new products, since their internal employees could deal with the changes.

Work organization change and its implications for skills

Changes in work organization are usually related to changes in production technologies and products as all production arrangements complement one another in response to company goals and customer demands. In this study, as work and tasks were re-organized to meet those needs; changes were made to the skills, knowledge and experience of existing production employees. When new advanced machines were introduced, production line workers were required to gain new skills and knowledge to operate them and any remaining workers were moved to another task. In tandem with this labor reduction, the workload of higher-level employees increased, also a result of the changes in the work process.

In the garment sector, some companies re-arranged or created new high-level positions, such as production line supervisors, to manage and support line leaders and operators because their products were always changing and orders were increasing. A major change was the transfer of leadership and management positions from foreign to high-level Cambodian employees. This demonstrated that Cambodian employees had gained and improved their practical skills and experience in leadership and management. The Cambodian supervisors were able to communicate well with line operators and other workers.

In E&E companies, changes in work organization also contributed to reducing employee resignations and increasing employee productivity and skills. New working arrangements with automated machines was important for saving time and resources in production. Likewise, in food processing companies, new working arrangements led to improvements in employee work performance due to the more efficient use of employees in production.

In some companies, it was important to have contingent employees with the required skills and knowledge who could lead the production lines when mid- or high-skilled employees might leave unexpectedly. This work arrangement could happen across the sectors as companies prepared for skills transfer and work rotation. However, such task or workstation rotation most often happened in garment companies with more experienced, skilled operators and leaders who could perform multiple tasks and work roles on the production line. In contrast, operators and other employees in E&E and food processing companies were rather new to the work and production processes, meaning it took time and effort for them to learn how to rotate production line tasks and work roles.

In the garment sector, aided by incentive schemes and target setting, new working arrangements helped improve employees' performance, leading to productivity growth, skills upgrading, and mindset change in many garment companies. The incentive or reward system was an important stimulus to motivate all employees to work as well as possible in order to meet targets in exchange for a monetary bonus. In fact, this practice was applied across all three sectors, where product quality and quantity were the ultimate goals of the companies and buyers.

DISCUSSION

As the literature shows, human capital is key to industrial productivity growth and to the success of firms (Becker, 1994; Benson et al., 2013; Schultz, 1960). The linkage between that transformation and the skills and qualifications were illustrated by companies, but not many companies explicitly stressed the importance of their employees' skills and qualifications as a main factor for consideration when introducing changes in technologies, products, or work organization. A few E&E and food processing companies emphasized the contribution of their employees' skills and knowledge to company transformation, while the rest of the companies, particularly in the garment sector, did not consider the existing skills and knowledge for their company transformation.

Most changes were dependent on their company headquarters abroad, machine suppliers or buyers offering technical support to make all the change processes possible. This indicates that technicians, mechanics for engineers, and the existing skills and knowledge within the companies, were not the main determinants of technology upgrading or product changes. High and mid-level employees were merely recipients of the skills and knowledge transferred by the technicians and experts from outside, while general workers and operators were the followers of those high- and mid-level employees.

Changes in technology, product types or work arrangements required a certain change in employees' skills and knowledge. In the long run all the employees were involved in the change process and had to adapt to those changes to improve their skills and knowledge. However, only a few companies in the E&E, garment and food processing sectors clearly indicated improvement in their employees' skills and knowledge, and the employees learned new skills or knowledge when they worked with their peers or operational processes.

CONCLUSION

Transformation happened to some extent in most companies, driven by different factors such as market factors, increased product quality and quantity, skills and knowledge improvement, labor and cost reduction. Most importantly, the transformation in most companies depended on their parent companies abroad, machine suppliers or main buyers for technical support and expertise, due to the lack of high skills and knowledge in their companies or the

Cambodian labor market. The changes in technology, product types or work arrangements required a certain change in employees' skills and knowledge. The existing employees were also affected physically or emotionally depending on the magnitude of the changes. Noticeably, while depending largely on outsourcing in terms of technology and skills, most firms in all the sectors adopted in-house training as a major skill transfer mechanism; additionally, high and mid-level employees including managers, supervisors and some experienced team leaders were the key players in this skill transfer process.

RECOMMENDATIONS

TVET institutions ought to improve their recruitment and training of technicians for mid- and high-level employment. In this study, most companies tried to recruit the workforce with industry- or company-specific skills and knowledge. Thus, training providers should fulfil this skilled labor needs. The best model could be collaborations between industries, or even companies, and institutions in developing training programs. Future-minded industry associations should reach out to traditional TVET institutions for cooperation. Likewise, it is urgent that the Ministry of Labor and Vocational Training and other line ministries increase the quantity of technicians and improve the quality of TVET institutions so that Cambodia can achieve its visions 2030 and 2050.

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Outcome-Based Feedback: Collaborating with Students for Curriculum Review

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The assessment of learning outcomes is vital in ensuring educational quality in the "fitness for purpose" model. The paper reports on the reliability and validity of the Outcome-Specific Questionnaire (OSQ) as a tool to improve learning outcomes. Survey data were collected from 1,210 undergraduate students and assessment data from three prominent institutions in Cambodia. Calibrated paired t-test results show significant increases of student learning from term start to end, and Cronbach's alpha results confirm high levels of reliability of all OSQs. There is strong evidence that the post-OSQ data for almost half of the courses correlate positively with the faculty assessments although most were conducted online during the COVID-19 pandemic. Together with qualitative data, it can be concluded that the OSQs tend to be valid as long as the assessments by faculty are valid and that their validity cannot be established when the assessments, as benchmarks, are not evidently valid. The study contributes to the minimal literature on and understanding of the rare practice of outcome-based evaluation and improvement of courses collaboratively by students and faculty in an outcome-based education system.

Keywords: *Learning outcomes, self-ratings, curriculum development*

INTRODUCTION

To provide context for the research study, outcome-based education will be introduced. Then, the rationale for the study will be provided. Next, two similar key terms will be defined. To complete the introduction to the study, the research objectives and questions will be laid out.

External quality assurance and accreditation agencies across the world are increasingly requiring outcome-based approaches to education (Kember & Ginns, 2012). This has occurred in a context of regional integrations and international mobility. The ASEAN University Network-Quality Assurance network was founded in 1998, and the first guidelines were published a few years afterwards (AUN-QA, 2016). The researcher was involved in developing the Quality Management of Educational Programs in Royal University of Phnom Penh and Royal University of Law and Economics manual published by the ASEAN University Network (Bin et al., 2016) to be handed to other universities in Cambodia aspiring to become members of the regional network. Cambodia's National Qualifications Framework was sub-decreed in 2014 by the Royal Government of Cambodia, and higher education institutions are working to ensure their curricula comply with the policy.

Spady (1994) is credited with coining the term "outcome-based education" (Willis & Kissane, 1997) and the associated movement (Glatthorn, 1993). Spady (1994) defined outcome-based education as

> … clearly focusing and organizing everything in an educational system around what is essential for all students to be able to do successfully at the end of their learning experiences. This means starting with a clear picture of what is important for students to be able to do, then organizing curriculum, instruction, and assessment to make sure this learning ultimately happens. (p. 1)

This definition comprises two main features: "backward design" of curriculum whereby expected learning outcomes are specified first before other curriculum components are developed (Wiggins & McTighe, 1998) and "constructive alignment" of curriculum contents, teaching and learning strategies, and student assessments to the specified outcomes (Biggs, 1999, 2014).

Rationale for the study

Evaluation or feedback is a key component of a continuous quality improvement cycle (Deming, 1982); however, in practice evaluation or feedback reports are often perfunctory, superficial, and ignored

(Newton, 2002). Thus, formal feedback systems need to be improved for curriculum development purposes. As part of the "fitness for purpose" quality model, an outcome-based curriculum must be evaluated to measure and improve its effectiveness in meeting its stated objectives. Yet, most course evaluation or feedback questionnaires are standard (generic) across courses, programs, and even institutions in the case of national surveys. Course evaluation usually seeks student feedback on inputs—resources, hours, facilities, textbooks, and other materials—and process—teaching and learning methods and activities. Banta (2008) remarks that there is barely any research on the linkage between process-based evaluation systems and the enhancement of learning outcomes. On the other hand, "Output measures increasingly dominate international quality frameworks as they speak to the dominant quality narratives of accountability …" (Marshall, p. 222). However, even so-called "outcome-based" questionnaires consist of generic competencies not specific to any discipline. As Schiekirka et al. (2014) found, "few evaluation tools directly assess learning outcomes for specific learning objectives" (p. 1).

Quality standards, such as those of the European Association for Quality Assurance in Higher Education, give significant weight to the engagement of stakeholders (Marshall, 2018). Stakeholders include faculty and students (Marshall; Reavill, 1998), but in university practice their inputs or feedback are usually not collected widely and systematically for curriculum review purposes. Typically, only a few instructor and student representatives are invited occasionally on an ad hoc basis. The formal process of collecting student feedback is often distilled from the day-to-day experiences of students and faculty (Harvey, 2011). The weights given to stakeholder groups need balancing, and "[t]he salience of the student as the definitive stakeholder needs to be genuinely valued" (Marshall, p. 345).

Definition of key terms

"Expected learning outcomes" are the knowledge, skills, and attitudes that the learners will be able to demonstrate (Anderson et al., 2005; McDonald, 1993). Each expected learning outcome must begin with an active verb to indicate an observable and assessable activity, not general verbs such as learn, have, be, know, and understand (Spady, 1994).

Program, course, teaching, or learning "objectives" are the knowledge, skills, and attitudes that the program, course, or teacher intends to provide, build, and cultivate. This paper uses the term objectives to refer to expected learning outcomes as stated on the course syllabus, while outcomes refers to the end-of-term achievements as perceived by the students themselves or assessed by the faculty.

Research objective and questions

This study assesses the reliability and validity of students' self-measures of learning outcomes in relation to course expected learning outcomes (CLOs):

1. Do students' perceptions of their beginning abilities against CLOs change after exposure to the course? If so, do their self-ratings increase or decrease? (reliability)
2. Do students significantly improve, during the course period, their self-reported outcomes against CLOs? If so, to what extent do they improve? (reliability)
3. Are students' post-test self-ratings correlated to the assessment by faculty? If so, how correlated are they? (validity)

LITERATURE REVIEW

The review of empirical literature will relate outcome-based education and higher education quality to the fitness for purpose model of quality and discuss the purposes of collecting student feedback.

Outcome-Based Education as fitness for purpose

Outcome-based education can be associated with a utilitarian purpose of education, which focuses on the usefulness or application of learning in the economy (Cheng, 2016) and relevance to professional practice (Harden et al., 1999) and everyday lives (Spady, 1994). Educational quality under this approach "refers to the degree of utility or impact" (Marshall, 2016, p. 215). Culminating outcomes must be purposeful (Willis & Kissane, 1997) and reflect adult life roles beyond schooling (Spady, 1994). Thus, outcome-based education can be linked to the fitness for purpose model of educational quality. The model is compatible with the backward design and constructive alignment features of outcome-based education—"the alignment of courses and programs to specific learning objectives and graduate attributes" (Marshall, 2018, p. 331). With the rising need for institutional accountability of resource allocations, outcome-based higher education is justified by assessing its quality against its utilitarian purpose.

Quality of higher education as fitness for purpose

Although definitions of quality in higher education vary (Harvey & Green, 1993; Marshall, 2016, 2018), the fitness for purpose model is "the most inclusive and least confronting" (Marshall, 2018, p. 331) and the most internationally upheld approach (Woodhouse, 1996). The model has spread to Southeast Asia, as evidenced by the adoption of outcome-based education by the ASEAN University Network Quality Assurance Network's Guide to AUN-QA Assessment at Program Level (Bin, 2015).

The fitness for purpose approach to quality assurance in higher education is rooted in business academia, including "management by objectives" (Cheng, 2016, p. 2). Higher education quality as fitness for purpose means that each institution must fulfil its own established purpose (Woodhouse, 1996) and serve the needs of all stakeholders (Cheng, 2016; Reavill, 1998). As stakeholder needs change over time, the purpose of education also changes, allowing for curriculum revisions.

Purposes of collecting student feedback

The purpose of student feedback has evolved from administrative utility to teaching and learning improvement (Leckey & Neill, 2001; Nair & Mertova, 2011). The former focuses on quality assurance or control of teaching performance, whereas the latter aims at the continuous enhancement of teaching and learning quality (Kember & Ginns, 2012; Harvey, 2011; Nair & Mertova, 2011) and the promotion of reflective practice for professional development among faculty (Leckey & Neill, 2001). Improving teaching and learning includes increasing the likelihood of students achieving the expected learning outcomes, and another purpose of student feedback is to support curriculum reviews (Kember & Ginns, 2012). In brief, evaluation or feedback is vital in closing the loop of any quality assurance or improvement cycle.

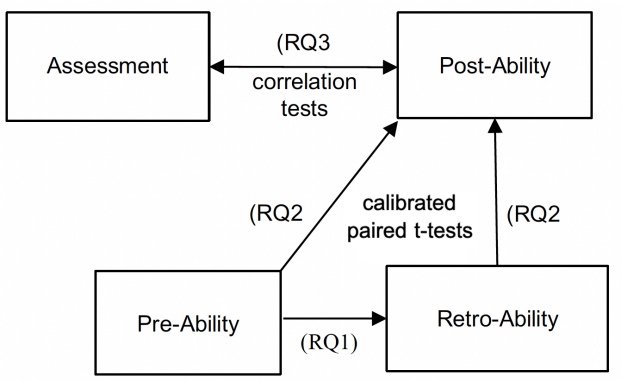
METHODOLOGY

Research design

The study utilizes calibrated paired t-tests and correlation tests. The research design and variables are displayed in Figure 1 and elaborated below.

Figure 1

Research Design and Variables



In each course, student abilities were derived as part of the calibration process to be explained in the Data Analysis section. Paired t-tests were conducted between Pre-Abilities and Retro-Abilities to determine whether students had changed their perceived beginning abilities after course exposure and to answer research question 1. Paired t-tests were conducted between Pre-Abilities and Retro-abilities against Post-Abilities, respectively, to identify whether there was significant learning over the term. The results help answer research question 2. To answer research question 3, students' post-ratings or Post-Abilities were correlation tested against the faculty assessment of those students' work to determine the content validity of the OSQ.

Content validity is indicated by correlation with other measures with "known or assumed" validity (Biggs & Telfer, 1987, p. 470). In this study, faculty assessments were assumed to be valid benchmarks for measuring the content validity of students' post-test self-ratings and, therefore, the Outcome-Specific Questionnaire (OSQ) instruments. For the correlation tests, the researcher developed Outcome-Specific Assessment Tools (OSATs) for the faculty members to align each part of their assessment tasks with the CLOs.

Data collection

Survey data were collected—mostly online during the COVID-19 pandemic—from 1,210 undergraduate students of eight courses at three prominent institutions in Cambodia. Assessment data were obtained from seven of the courses. The purposive sampling criteria include large enrolment per course for statistical purposes and assessable course-specific learning outcomes, i.e. knowledge and cognitive skills as classified by Cambodia's National Qualifications Framework. The reason for sampling

100- and 200-level courses with at least 100 students was to aim for sample size sufficiency per course. Furthermore, courses with objectives identified as rateable and assessable were sampled so that students would be able to rate their own abilities against the objectives and assessment tasks could be aligned to the objectives for correlation tests.

Instruments

The researcher developed the Outcome-Specific Questionnaires (OSQs) based on the expected learning outcomes of each course and were administered at the beginning (Pre-OSQ) and by the end of the term (Post-OSQ). Each OSQ began with informed consent and ended with demographic items. In the main part, the items were course-specific knowledge and cognitive skills from each course syllabus. The Pre-OSQ asked students to rate their own abilities at the time of survey, whereas the Post-OSQ asked them to rate their abilities retrospectively at term start (Retro items) and at the time of survey (Post items). The same rating scale was used in all OSQs: weak, moderate, good, and strong. An extract of a Post-OSQ is displayed in Table 1.

Table 1

Extract of a post-OSQ (Introduction to Environmental Science Course)

Please honestly rate your abilities at the semester start and now.	weak	moderate	good	strong
1a. describe rapid human growth as a fundamental environmental issue. (at term start)	○	○	○	○
1b. (now)	○	○	○	○
2a. identify sustainability concepts & its importance in conservation of resources. (at term start)	○	○	○	○
2b. (now)	○	○	○	○
…	○	○	○	○

Data analysis

Software applications utilized in data analysis include Excel, SPSS, and RStudio. The researcher completed the following data analysis stages per course:

1. Coding
2. Principal Component Analysis (PCAs) to determine items for each Principal Component to meet the unidimensionality assumption for calibration
3. Scale reliability (Cronbach's alpha) analyzes
4. Calibration of the items of each Principal Component with the Graded Response Model (GRM)
5. Calibrated paired t-tests to answer research questions 1 and 2
6. Pearson or Spearman correlation tests to answer research question 3

RESULTS

PCA results

Only accessible course-specific objectives were selected for the Outcome-Specific Questionnaires (OSQs). Principal Component Analysis (PCA) results confirm that all OSQ items of each sampled course belong to one Principal Component and, therefore, can be calibrated. Particularly, the first component was found to be the only one whose Eigenvalue is higher than 1.0 and the inflection point in the scree plot. The following figure and table display some PCA results of a sampled course (Khmer & Regional History).

Figure 2

Sample scree plot of pre-learning outcome components

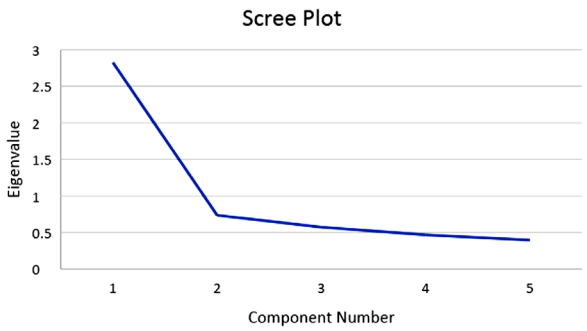


Table 2

Sample component matrix of pre-learning outcomes

Variable	Component 1
Pre3	0.78
Pre5	0.78
Pre2	0.77
Pre4	0.77
Pre1	0.66

Scale reliability results

Cronbach's alpha results below range from .72 to .96, which indicate high levels of scale reliability of the Outcome-Specific Questionnaires.

Table 3

Cronbach's Alpha results

Course	Items	Pre	Retro	Post
Khmer & Regional History	5	.81	.89	.79
English Reading & Composition I	18	.93	.95	.93
English Reading & Composition II	11	.89	.88	.89
Introduction to Environmental Science	10	.88	.93	.90
Cultural Anthropology	6	.90	.93	.91
Health Education & Fitness	4	.86	.83	.72
Introduction to Computers	11	.94	.96	.95
English for Academic Purposes 1	10	N/A	.92	.88

Paired T-Test results

Calibrated Pre- vs. Retro-Abilities

The calibrated paired t-test results indicate that in a simple majority of sampled courses there are non-significant differences between pre- and retro-perceptions. In two courses, there are significant decreases from pre- to retro-ratings with medium effect sizes. In one course, there is a significant increase from pre- to retro-ratings with a small effect size.

Calibrated Pre-/Retro- vs. Post-Abilities

The results show that in all sampled courses there are significant increases from retro- to post-abilities with three large, four medium, and one small effect sizes. Similarly, in almost all of the courses there are significant increases from pre- to post-abilities with one large, three medium, and two small effect sizes. Only in one course is there a non-significant increase from pre- to post-abilities. Due to space limitations, only typical results of the calibrated paired t-tests are shown in Table 4 (Introduction to Computers course).

Table 4

Sample Paired T-Test results

Statistic	Pre-Ability Z	Retro-Ability Z	Pre-Ability Z	Post-Ability Z	Retro-Ability Z	Post-Ability Z
Mean	-0.08	-0.15	-0.08	0.53	-0.09	0.55
Variance	0.98	1.22	0.98	0.81	1.23	0.79
Observations	107	107	107	107	140	140
Pearson Correlation	0.48		0.4		0.53	
t Stat	0.69		6.05		7.78	
P one-tail	0.25		0	sig. inc.	0	sig. inc.
P two-tail	0.49	non-sig. dif.	0		0	
Cohen's d effect size	0.07	small	0.58	medium	0.66	medium

Correlation results

The third research question asks whether students' post-test self-ratings are correlated to the assessment by faculty. Correlation tests result in either non-significant or inverse correlations in four of the seven courses whose assessment data were provided. In three courses, in contrast, the tests find positive correlations between Post-OSQ ratings and academic assessments. In the English Reading & Composition II course, there is a correlation with a Pearson r coefficient of 0.41 at the 5% significance level. The Pearson correlation test of the English for Academic Purposes 1 course results in a coefficient r of 0.27 at the 1% significance level. A Spearman correlation test had to be used in the Introduction to Environmental Science, and the result is a rho coefficient of 0.22 at the 5% significance level.

DISCUSSION

The calibrated paired t-test results add evidence of the reliability of the OSQs and indicate that the Post-OSQs (including retro- and post-items) can be used without the Pre-OSQs. Likewise, Schiekirka et al. (2014) compared and found no significant difference between pre-post gains and those from then-test (retrospective-test) to post-test.

In terms of the content validity of the OSQs, Post-OSQ self-reports and academic assessments are positively correlated at the 95% confidence level in two courses and 99% confidence in another course. Although over half of the courses see non-significant correlations, many lecturers expressed concerns that their assessments were unlikely valid because they were teaching and assessing students online for the first time. For instance, they were afraid that students could cheat during online tests and exams. The researcher had to remind the lecturers many times before they finally provided the assessment data. In the worst cases, one lecturer did not give any assessment data, and another lecturer withdrew from the study (the withdrawn lecturer's course

and his students are not reported in the course and participant counts).

It is also worth noting that most of the faculty members developed their own assessment tasks even if they taught the same courses. As outcome-based education was a recent reform in Cambodia, lecturers' experience and skills in developing course objectives and constructively aligning assessments with the objectives were limited; thus, their individually designed assessments might not have been as valid as assumed to be. As Fields (2019) points out, the lack of training in the science of assessment affects the reliability and validity of teacher-made tests.

The faculty members whose assessments were correlated with their students' self-ratings were the exceptions. One of the lecturers of the English Reading & Composition II course gave me access to his Google Forms exams, in which items had been well developed with objective item scoring. Conscious of the course's expected learning outcomes (CLOs), he aligned the items of his exams to specific CLOs. He was a member of an English teachers organization's leadership team responsible for placing international teachers in developing countries. The organization provides new and experienced teachers with ongoing professional development. The Introduction to Environmental Science professor sent me her exam paper and was able to align the exam items to specific CLOs. Her exam scores of 112 students were differentiated from 12 to 29 (out of 30) points, which I ranked into 16 categories of ordinal data paired with 81 students' calibrated self-rating data. None of the participating lecturers have access to students' self-rating data, so it is impossible for them to try to match the assessment and self-rating data in any way.

In the course with correlation at the 1% significance level, Cambodian and international faculty members held team meetings in which they actively discussed exam contents and rubrics to be used across all classes of the English for Academic Purposes 1 course. In the debates, they even referred to the course-specific objectives, e.g. when deciding whether to include sections other than essay writing in the exams. The internal quality assurance division of the school required that each exam section show alignment to specific CLOs. It is not surprising that this institution has earned recognition from many international quality assurance agencies.

Constructively aligning assessment tasks to CLOs means proactively matching them while designing the assessment tasks. This will increase the content validity of the assessments (Davidson & Lynch, 2002). Conversely, aligning assessment tasks to CLOs after the tasks are set will not improve the assessment validity or lack thereof. Despite being aware that the Pre- and Post-OSQs focus on CLOs, most participating faculty members did not offer evidence of their assessment tasks being already aligned to CLOs, for example on their course syllabi as required by the Department of Higher Education of the Ministry of Education, Youth and Sport. Many of them completed the Outcome-Specific Assessment Tools (OSATs) for the study only after many reminders, and some of them did not return the OSATs at all. In brief, the validity of most assessment tasks and scores provided cannot be established.

Chen and Foung (2019) experimented with structural equation modeling to evaluate lecturer-made assessments in terms of their alignment to course objectives. Contrasting a model created by exploratory factor analysis and hypothesized models created with input from course coordinators, they found the latter to directly and better illustrate the assessment-objective alignment. Similarly, in the current study, all participating lecturers were consulted for assessment-objective alignment with the OSAT forms. However, many of them offered qualitative judgements on the lack of validity of their online assessments.

Students must clearly understand the learning outcomes expected of them in order to give valid self-ratings. Even teachers themselves need to understand educational objectives so that "they will judge their students' learning more validly and reliably" (Willis & Kissane, 1997, p. 6). This lack of understanding of course objectives may explain the lack of correlations between self-reports and academic assessments in many courses.

Students' lack of experience assessing themselves might also account for the discrepancies. Students need practice in self-assessment as a grading mechanism (Tait-McCutcheon & Knewstubb, 2018) and in general, i.e. not linked to course grades. They need to develop skills in assessing their own abilities (Boud & Falchikov, 2007), as well as their progress (Cassidy, 2007). Boud and Soler (2016) argue that these methods of self-judgements are some practical forms of sustainable assessment habits for learning purposes beyond the course.

Although overall grades are insufficient in assessing and documenting actual learning outcomes (Anderson et al., 2005; Mabin & Marshall, 2012), this

research study does not rely on overall course scores. On the contrary, assessment tasks were selected based on individual student (not team) assessment type and alignment to course-specific objectives. In other words, data from only those qualified assessment tasks were used in correlation tests.

Some literature does not support a strong correlation between students' self-assessment and the lecturer's assessment of the students. According to Tait-McCutcheon and Knewstubb's (2018) study, for example, about 25% of students assessed their own work differently from their lecturer's assessment. In the larger population, however, students' grade expectations are generally close to the actual grades they get from the teachers (Marsh & Roche, 1997). Moreover, self-assessment is different from self-report. In self-assessment, students know their self-scoring may affect their overall grades. In the current study, in contrast, the questionnaires stated that self-ratings would not affect their grades and asked the participants to honestly rate their abilities.

Harvey (2011) suggests that feedback collection be customized to each course by the course team, that student feedback focuses more on the learning than teaching, and that doing these will encourage faculty to be less centered on their inputs and perspectives and more considerate of student activities and learning. A few researchers have acted in parallel to these recommendations. Measuring the correlation between student self-reports on their outcome-based questionnaire and those on a traditional course evaluation questionnaire, Raupach et al. (2012) conclude that an outcome-based instrument is "less heavily confounded by construct-irrelevant factors" (p. 8) than the generic—input- or process-based—student feedback tool. A similar statement can be made about the OSQs used in the current study: Principal Component Analysis (PCA) results confirm that all OSQ items of each sampled course belong to one Principal Component or construct, i.e. course-specific outcomes in the cognitive domain of Bloom's Taxonomy.

However, the OSQs are unique as they apply a rating scaling from weak to strong rather than a 7-point scale as used by Combs et al. (2008), the 6-point scale from fully agree to completely disagree as used by Raupach et al. (2012), or a 5-point Likert scale as used by Kaliannan and Chandran (2012). The reason is cultural context: Cambodians rarely express strong disagreement words such as completely disagree or strongly disagree so they can show a more balanced mentality—called upekkha (equanimity) in a Buddhist ethic of care.

Although Kaliannan and Chandran (2012) conducted pre- and post-surveys based on course outcomes, they reported only descriptive statistics without discussing the validity of their instrument. Raupach et al. (2012) and Schiekirka et al. (2014) used mean ratings in calculating comparative self-assessment gains from pre- to post-tests. Schiekirka et al. (2014) summarize, "Estimating learning outcome from comparative student self-ratings is a reliable and valid method" to determine strengths and weaknesses in undergraduate courses (p. 1). However, both research teams treated ordinal data as numerical data without any calibration. The current study contributes to the literature on the reliability and validity of outcome-based questionnaires by applying calibration of rating data after running PCAs to assure fit of the Graded Response Model.

CONCLUSION

The study contributes to course development and quality assurance. The evaluation of a course rarely focuses on the outcomes. When learner feedback is utilized to improve course objectives, in an outcome-based curriculum all other course components must be aligned accordingly to improve learning and, therefore, better meet the needs of students, faculty, and the program. In brief, valid feedback is necessary in the evaluation of a course as it closes the gap of course-level curriculum development.

In terms of internal quality assurance, a feedback instrument facilitates sustainable, systematic inputs for outcome-based curriculum reviews in continuous quality improvement cycles. Evaluation is a key component of a continuous quality improvement cycle (Deming, 1982). This study demonstrates how an instrument may improve formal feedback systems. Such improvement also provides documentation for external quality assurance purposes such as accreditation and accountability.

RECOMMENDATIONS

All internal and external stakeholder groups should be involved in the outcome-development process, which will enable them to have shared understanding of and commitment to the educational objectives (Darling-Hammond, 1993). Faculty must ensure that their students understand the expected outcomes from their first session. Program administrators and training providers could customize the Outcome-

Specific Questionnaires to various courses and workshops by substituting the expected learning outcomes and, if they prefer, the rating scale. Survey data analysts must calibrate rating data, and the Graded Response Model fits this psychometric purpose.

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Challenges Faced by Entrepreneurs

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Entrepreneurship is an essential factor in any country's growth and development opportunities. A country may contain valuable material resources, but only the entrepreneurs can use the resources for productive use. So, it is crucial to promote and develop an entrepreneurial mindset. Entrepreneurs also create job opportunities for the young generation. This paper examines the main challenges faced by entrepreneurs in starting their businesses. The main problems faced by entrepreneurs are financial, production problems, labor, and government-related problems. This paper discusses how entrepreneurs overcome barriers while starting their businesses. Data was collected using a questionnaire.

Keywords: *Startup, Challenges*

INTRODUCTION

Entrepreneurship is one of the crucial factors in a country's economic growth. It starts with individual creative thinking to solve a business problem and motivation, allowing them to create their own business. Entrepreneurship requires an enthusiastic entrepreneur who faces challenges and learns from failures in the pursuit of goals. Entrepreneurs play a significant role in creating jobs and innovating new products and services. A successful entrepreneur tends to be forward-looking, independent, and passionate.

Entrepreneurs face many challenges in starting their businesses, including financial, customer, production, customer-related problems, and many other issues discussed in the literature review below.

LITERATURE REVIEW

The word 'entrepreneur' is defined as an individual who wants to achieve their goal of economic survival and advancement. The people who create a business are known as entrepreneurs, and they also develop goods and services for daily use (Lowrey, 2003). Entrepreneurs are responsible for improving customers' lifestyles and creating products according to changing market conditions (McKenzie et al., 2007).

Entrepreneurial skills are essential to learning in the classroom. Instead of focusing on specific management course content, the emphasis should be on enhancing the development of entrepreneurial skills and the significance of gaining the skill to learn as an ongoing process (Dana, 1987). Entrepreneurship creates value by devoting the necessary skills, time, and effort. It also carries financial and social risks. The importance of entrepreneurship is rising today. The entrepreneurial process, including its inspiration, invention, continuity, and expansion, is influenced by various personal, societal, and environmental elements (Hisrich & Peters, 1992). A framework developed by Hood & Young (1993) revealed that successful entrepreneurs must originate in content, skills & behavior, mentality, and personality. The knowledge of recent development, leadership, and organizational transformation should be obtained to study entrepreneurship (Harrison & Leitch, 1994).

According to Vishwanath (2001), one of the main challenges for entrepreneurs is getting sufficient funds. The author also mentioned that entrepreneurs use bank loans and personal savings to start their businesses. Mambula (2002) revealed the significant issues faced by entrepreneurs. He researched small businesses, and the data shows that most business owners faced financial problems. The researcher suggested that businesses collaborate and that financial institutions provide training for small businesses. Tagoe et al. (2005) examined the financial challenges faced by entrepreneurs. He found that entrepreneurs' main challenges are finding affordable credit over a reasonable time, but the availability of collateral improves access to the required funds. Another study by Kumar (2006) also shows main issues faced by entrepreneurs are access to funds, lack of related education, and lack of motivation. Education and professional experience are two main factors for setting up a company, and it is also significant for a company's growth and

performance (Mizgajska & Wściubiak, 2016). Even though micro-credit facilities are available in some regions, without proper entrepreneurial education, it is challenging to develop a business (Afza et al., 2010). Another researcher also suggested that entrepreneurs also required access to technology, vocational training, and access to finances (Reshma, 2019). A study by Nayyar et al. (2007) suggested that intense competition from larger firms and the non-availability of raw materials are the significant challenges entrepreneurs face. Other challenging factors include a tight work schedule and not being popular in the market. Another study revealed many challenges for new entrepreneurs, including motivation, patience in solving problems, developing an effective business model, funding, the right location, finding good customers, and outperforming rivals (Kanchana et al., 2013). There are significant challenges to entrepreneurs in Cambodia, including legal and economic constraints, a need for policies to help SMEs, and Cambodian consumer culture and preferences (Panthamit et al., 2018).

Rizvi & Gupta (2009) found that startup-related activities and schemes only benefited a small number of entrepreneurs from the urban middle class, and this is due to their level of education and support from their families. KumarAmlathe & Mehrotra (2017) also find that entrepreneurs are often unaware of startup-related activities from the government. The government should formally announce startup-related activities and provide financial support to entrepreneurs (Mukharjee, 2022). The study by Balhara & Singh (2015), Barman & Chanu (2017), and Pandey (2013) revealed the motivating factors as educational qualification, supplementary income, family motivation, government policies & schemes, freedom in taking decisions, self-satisfaction, innovative thinking, and change in the business environment which are responsible for encouraging individuals to become entrepreneurs.

Successful men and women entrepreneurs share very similar motivations toward startups, and they also face a common challenge: access to sufficient funds (Cohoon et al., 2010). Family members' Motivations are a significant contributor to startups (Antony Jesurajan & Gnanadhas, 2011). Another study also supported that family motivation is one of the main challenges to starting a business (Dierberger et al., 2020). Families were discovered to be the primary motivating factor for starting a business. Family members are a good source of motivation (Antony Jesurajan & Gnanadhas, 2011).

OBJECTIVES OF THE STUDY

There are two main objectives of the study as follows:

1. To analyze the various problems and challenges of entrepreneurs.
2. To suggest ways to overcome the challenges faced by entrepreneurs.

RESEARCH METHODOLOGY

This study focused on successful and attempted startups in Cambodia. The information used in the study derives from the primary data. A well-structured questionnaire was prepared to collect the primary data.

ANALYSIS

Demographics profile

Table 1

Demographic profile

Particulars	Variables	Respondents	Percentage
Gender	Male	9	16%
	Female	16	64%
Age	Below 20 years	5	20%
	21-30 years	20	80%
	31-40 years	-	-
Educational Qualification	High School	-	-
	Bachelor Degree (Graduated)	17	68%
	Master Degree (Graduated)	-	-
	Current Bachelor Degree Student	7	28%
	Current Master Degree Student	1	4%
State of the Startup	Attempted to start a business	10	40%
	Successfully started a business	4	16%
	Formulated the idea but did not start the business	10	40%
	Others	1	4%

64% of the respondents are female, and 80% are between 21-30 years old. Table 1 shows that 68% of the respondents graduated from a Bachelor's degree program. Only 16% of the respondents successfully started a business, and the remaining attempted to start a business or formulated an idea but did not start the business.

Motivation, strengths & weaknesses of the respondents

Table 2

Motivation, strengths & weaknesses

Particulars	Variables	Respondents	Percentage
Strength of the respondents	Family supports	25	100%
	Partner supports	9	36%
	Self-confidence	20	80%
respondents	Lack of management skills	13	52%
	Lack of education	7	28%
	Lack of entrepreneurial skills	14	56%
	Fear of failure	16	64%
Motivation	Self-confidence	16	64%
	Interest	20	80%
	Government schemes	1	4%

Table 2 shows that the biggest strength of the respondents is family support 100%, followed by self-confidence, which is 80%. 64% of the respondents are afraid of failure, and the primary motivation is the respondent's interest in starting a business.

Source of funding

Table 3

Source of funding

Particulars	Variables	Respondents	Percentage
The primary source of the finance	Loans	8	32%
	Personal savings	13	52%
	Seeking help from friends	4	16%
	Family supports	14	56%

56% of the respondents received the finance for starting a business from their family.

Challenges faced by the respondents during a startup

Table 4

Startup challenges

Particulars	Variables	Respondents	Percentage
Business related challenges	Market conditions	19	76%
	Legal or regulatory conditions	14	56%
	Financial related difficulties	14	56%
	Production problem	14	56%
Financial-related problems	Shortage of working capital	16	64%
	Shortage of funds for expansion	13	52%
	Repayment of loan	8	32%
	Improper budget plan	13	52%
	The problem of getting a loan	9	36%
	Poor financial management	10	40%
Production-related problems.	Raw materials related	17	68%
	Labor-related	18	72%
	Machinery related	16	64%
	Marketing related	10	40%
	Inadequate availability of land	9	36%
Labor-related problems.	Unavailability of skilled labor	14	56%
	Increase in cost of labor	9	36%
	Lack of experience	21	84%
	Irregular in work	1	4%
	The problem of working hours	10	40%
	Problem of turnover	7	28%
Internal problems for the startup.	Lack of motivation and confidence	14	56%
	Lack of leadership quality	8	32%
	Finance	19	76%
	Poor self-image	7	28%
External problems for the startup.	Training opportunities	10	40%
	Access to the required technology	12	48%
	Lack of information	16	64%

Table 4 reveals that 76% of the respondents faced challenges related to the marking condition, 64% faced a shortage of working capital, 72% had production-related problems, especially with labor, and 84% said that the potential laborers did not have adequate experience. Startups also faced internal and external problems; 76% faced financial issues, and 64% did not have access to the proper information.

Ways to overcome the challenges and keys to a successful startup

Table 5

Ways to overcome the challenges and keys to a successful startup

Particulars	Variables	Respondents	Percentage
Ways to overcome the challenges	Practical knowledge of the business	18	72%
	Proper business plan	24	96%
	Good management in place	16	64%
	Proper validation of the business assumptions	15	60%
	Guidance from a mentor	23	92%
Keys to a successful entrepreneurial venture	Access to enough finance	20	80%
	Good Idea	22	88%
	Luck	10	40%
	Hard Work	24	96%

Table 5 shows that 96% of the respondents preferred a proper business plan to overcome the challenges. The most important key factor in succeeding in an entrepreneurial venture is hard work said by 96% of the respondents.

CONCLUSION

Entrepreneurs are needed in society to increase the country's economic value and provide jobs for young people. Entrepreneurs should be positive and open-minded and have enough knowledge about the business. The market conditions and technology should be updated regularly, which may help them succeed in the business.

Entrepreneurs face various problems while starting a business, and there are solutions for every situation. Finance is the major problem many entrepreneurs face while starting their entrepreneurial ventures. This problem can be rectified by personal savings and getting a bank loan. They must have enough strength to meet the challenge and succeed in their business.

According to this study, it has been concluded that the main challenges faced by entrepreneurs are competition in the market, financial challenges, lack of experience, labor-related issues, marketing challenges, etc. They used to overcome the barriers through hard work and having a proper business plan in the startup. The main strength of entrepreneurs is family support & self-confidence, and their weakness is the fear of failure they have while starting their business. Thus, they have confidence in their capacity to deal with the world and take practical steps to attain their goals.

RECOMMENDATIONS

- Government agencies can conduct entrepreneurial programs, like talks by successful entrepreneurs, their success stories, how to create a proper business plan, the challenges they faced by them and how bravely they overcame, etc.
- Many entrepreneurs face the problem of finance. Government shall play an active role in providing loans to needy entrepreneurs through nationalized and cooperative banks. Bank loan procedures shall be less complicated and less time-consuming.
- Separate entrepreneurial organizations can be formed to help entrepreneurs by providing financial assistance, marketing materials, obtaining subsidies, technical know-how, raw material assistance, conducting market surveys to assess feasibility counseling, follow-up guidance, etc.
- Adequate data regarding the marketing situation should be made available to entrepreneurs.
- Government or entrepreneurial organizations also should look at opportunities for developing skilled labor for emerging market needs.

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Analyzing Interrelationships of Critical Barriers to University Technology Transfer: Multi-Stakeholder Perspectives from Vietnam

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Universities have been tasked with generating and disseminating knowledge in an innovation system over the past few decades. However, university technology transfer (UTT) is regarded as a barrier to the commercialization and community application of innovative technologies. Consequently, identifying the obstacles and their complex interrelationships that impede the successful implementation of UTT provides a better understanding of the process, which may be considered as inputs for important decision-making initiatives. This study proposes an integration of Decision-Making Trial and Evaluation Laboratory (DEMATEL) method and Grey theory to identify the critical barriers by comparing the perspectives of key stakeholders, including university scholars, entrepreneurs, and technology transfer offices, and examines the interrelationships between proposed barriers. These findings aim to assist various stakeholders in comprehending the impact of barriers on formulating strategies and initiatives to carry out the UTT process in Vietnam effectively.

Keywords: *MCDM, university technology transfer, DEMATEL, Grey Theory*

INTRODUCTION

Universities are increasingly involved in technology transfer, in addition to education and research, to contribute to the socioeconomic development of their regions and countries. Technology transfer reflects transactions or long-term collaborations between technology acquirers and suppliers (Pagani et al., 2020). Technology transfer occurs in an academic setting between firms as acquirers and universities as suppliers of technologies. These collaborations, known as university-industry collaborations on technology transfer, are critical in fostering innovation (Hoc & Trong, 2019). Universities generate a large amount of knowledge, making university technology transfer (UTT) a critical process in unlocking the economic potential of innovative technologies (Pagani et al., 2020). The efficacy of UTT in innovation has been demonstrated in the domain literature (Munari et al., 2018; Shen, 2017; Singh et al., 2021; Stander & Broadhurst, 2021; Xia & Ruan, 2020).

As indicated by (Das, 2011), technology transfers are usually categorized into three types: (i) the host institution develops or innovates a technology with foreign institutions' collaboration. This type is advanced level and known as know-why. (ii) host parties import technology and/or equipment with some in-house technological efforts by the importer. This type is intermediate level and known as know-what. (iii) constitutes import technology and/or equipment, and also training on operation from another country, as the basic level of operational knowledge. This is the basic level and is known as know-how.

Universities and industry are both important components of any country's national innovation system (NIS) (Proksch et al., 2019). Not only does the university or industry contribute to knowledge production and transformation in the NIS as an individual actor, but collaboration between these two institutions is becoming an increasingly important component of the NIS (López-Rubio et al., 2022). Vietnam has experienced significant growth and moved from a centrally planned economy to a market economy, becoming a lower-middle-income country in 2010. Vietnam recognized the necessity to restructure its economy and become an industrialized country. Education and Science and Technology (S&T) policies must play critical roles in realizing industrialization. To that end, the National Assembly and the Government of Vietnam established a comprehensive legal framework for the development of S&T activities. The Law on Science and Technology,

enacted in 2000, served as the foundation for the country's innovation (Thuvienphapluat, 2020). A variety of other regulations are in place, including the Law on Intellectual Property (Thuvienphapluat, 2005)and Amendments to and Additions to Some Articles of the Law on Intellectual Property (Thuvienphapluat, 2009); the Law on Technology Transfer (Thuvienphapluat, 2006) and the Law on High Technology (Vanbanphapluat, 2008). These laws and regulations established the necessary framework for the NIS. More recently, the Science and Technology Strategy 2011-2020 was approved, outlining specific targets for the future development of Vietnam NIS over the next ten years (MOST, 2011).

However, the government and various institutions have put in place the fundamentals of a comprehensive NIS. Vietnam's NIS is still in its early stages and faces numerous challenges and weaknesses (Anh et al., 2017). Among them are the isolation of research institutions, including universities, from the productive sectors of the economy, and the fact that the higher education sector is not yet fully operational as a source of knowledge creation and transfer. Furthermore, inherent in the complexity are the barriers of the technology transfer process that prevent industries and universities from achieving practical application of those developed technologies (R. S. Quiñones et al., 2020a). Recognizing the presence of numerous barriers aids in the discovery of salient potential issues and problems that may arise during the technology transfer process, guiding stakeholders in decision-making (Munari et al., 2018).

Despite significant efforts in understanding university-industry collaborations on technology transfer, little effort has been reported in the current literature in identifying and establishing the various barriers of UTT. While previous studies found that these barriers not only impede university technology transfer but also have an impact on one another, empirical research on their cause-and-effect interrelationships is still lacking. Determining and comprehending such relationships allows for a better understanding of how to address the complexities of the UTT process and devise strategies to overcome them. Furthermore, given the barriers that exist in university technology transfer, only a few studies focus on different stakeholders, i.e. university scientists, university technology transfer offices, and entrepreneurs, throughout the process to account for their various motives, behaviors, and cultural environments. Firstly, the primary goal of university scientists is to gain recognition in the scientific community through academic publications in prestigious journals, presentations at prestigious conferences, and government research grants. Faculty members may also be motivated by personal financial gain or an expectation to secure additional funding for their research groups and laboratory equipment. Secondly, the primary motive of university technology transfer offices is to safeguard the university's intellectual property but market the intellectual property to firms at the same time. University technology transfer offices' secondary goals include securing additional research funding for the university through royalties and licensing fees, sponsored research agreements, and an intrinsic desire to disseminate university innovations. Thirdly, entrepreneurs seek to profit financially from the commercialization of university-based technologies. As a result, to maintain control, they request exclusive rights to these technologies. They are also concerned about "time to market," because profits from innovations may be contingent on the rapid development of new products or processes.

Consequently, various stakeholders perceive corresponding barriers in the entire process of university technology transfer. The cause-and-effect interrelationships among barriers from various stakeholder perspectives must thus be clarified in order to identify the key barriers to future policy planning. Therefore, this study aims to bridge the research gap by comparing different stakeholders' perspectives on the interrelationship between the barriers. A picture of the interdependence of these barriers can help policymakers make better decisions, which can improve the effectiveness of technology transfer from universities to industries.

The Decision-Making Trial and Evaluation Laboratory (DEMATEL) method is used in this study to visualize the interrelationship among the barriers to university technology transfer in Vietnam. This method aims to convert the relationships between the causes and effects of factors into a network relationship map of the system (Gabus and Fontela 1973; Fontela and Gabus 1976). However, the agenda of uncertainty and vagueness in the elicitation of decision-maker judgments within the DEMATEL process was not addressed. Besides, the Grey set theory is an important tool for supporting uncertain decisions. It can make the decision results closer to reality by constructing a flexible decision model using gray interval numbers. In reality, the evaluation given by

experts or decision-makers on related fields is always expressed in linguistic expressions instead of crisp values. The Grey set theory can be implemented to measure the ambiguous concepts associated with human subjective judgments by combining linguistic variables. In particular, when experts make judgments using incomplete or conflicting information, or when they are aware of the lack of expertise in some situations, the contributions of the gray set theory will increase. To take advantage of the benefits of both the DEMATEL method and the Grey set theory, the Grey DEMATEL or fuzzy DEMATEL method was proposed by combining the DEMATEL method and the gray/fuzzy logic. The extended method has been widely used to address complicated and intertwined problems to assist researchers with better decision support in an environment of imperfect information characterized by linguistic expressions and incomplete/inaccurate expert personal judgments. As a result, in this study, the Grey DEMATEL method was used to obtain a more accurate analysis for identifying intertwined relationships of UTT barriers while addressing uncertainty in decision-making.

LITERATURE REVIEW

In Vietnam, Hanoi University of Science and Technology, also known as Vietnam France University, Post and Telecommunications Institute of Technology, Military Technical Institute, FPT university, University of Information Technology- Vietnam National University Ho Chi Minh City, University of Technology - Vietnam National University Ho Chi Minh City, and University of Natural Sciences - Vietnam National University Ho Chi Minh City are the leading multidisciplinary technical universities. In this study, a panel of various experts with over ten years of experience are involved in university-industry linking activities from these leading universities. The experts interviewed are asked to determine whether the barriers reflect UTT in the context of Vietnam. Table 1 presents the list of critical barriers (Hayter et al., 2020; Hoc & Trong, 2019; Pagani et al., 2020; R. Quiñones et al., 2019; R. S. Quiñones et al., 2020b; Ravi & Janodia, 2022; Shen, 2017; Stander & Broadhurst, 2021).

Table 1

List of critical barriers

Barriers	Definition
Lack of appropriate partners	University engagements to industry perceived difficulties with industrial network actors due to unwilling industrial organizations
Time constraints	Technology transfer for commercialization causes time pressures for research scholars, academic works (e.g., publications and research papers), and other
Lack of resources	Lack of financial resources to support the development of these industrial liaison activities, lack of R&D human resources that conduct research works
Risk of information leakage	Undesirable spill-over, to partners and/or competitors
Knowledge being too theoretical for practical purposes	The industry has a lower dependency on academic sources of knowledge because universities specialize in basic research than applied research
Insufficient Rewards for university researchers	Discrepancies in the incentive and reward systems for faculty involvement and the commercialization goals for university technology transfer
Poor marketing / technical / negotiation skills of Technology Transfer Office (TTO)	TTOs recruit more individuals with expertise in patenting, licensing, and technical areas than hiring individuals with marketing skills
University proponents have unrealistic expectations regarding the value of their technologies	Academics are sometimes too confident of the value of their product which, as a result, may discourage firms from adopting their IP assets
Lack of recognition for university–industry linkages	Professors have few connections from the other environments and lack of recognition for university–industry linkages is also a challenge to create suitable partners and contact people
Inconsistent rules and regulations	Rules and regulations imposed by universities, industries, and even government funding agencies also hinder university technology transfer due to its inconsistencies

Lack of venture capital	Universities could not get access to funding and guidance due to the lack of access to venture capital
High costs of managing joint research projects in terms of time and money	Time pressure that the two organizations will experience Technologies represent a unit character which means that production is costly
Cultural differences between academia and enterprises	Universities and industries have differences in motivation, timeframe, communication modes, and attitudes
Misalignment between research and commercialization objectives	The objective of enterprises is to gain economic benefits from technology transfer while universities prioritize on disseminating new knowledge
Complex organizational structure	The complex flow of communication due to the imperfection of the transmission of information evident between R&D organizations and the technology user
Institutional bureaucracy	Key decision-makers are in control of the decisions to be made in the university regarding the technology transfer
Lack of personal motivation	The University is unwilling to commit time and resources to technology transfer since it will hinder faculty members and students from their academic work
Process complexity	The collaboration and innovation network is a complex system that contains multiple types of network structure
Geographic distance	Technology cannot move freely when participants who must learn together are geographically separated from each other
Lack of national benchmark to evaluate successful collaboration	Lack of accurate evaluation to assess the success of technology transfer. Further, for every growing technology transfer program
Prototype technology is not compatible with the demands of mass production	Difficult or impossible to change to be suitable for the requesting production/market because technology is too sophisticated
Problems concerning intellectual property rights	Difficulties-other than delays-in dealing with universities over intellectual property
Procurement process	Technologies developed are highly technical which raises problems concerning the acquisition of its potential producer
Lack of sales distribution centers within university premises	Industrial partners responsible for commercialization and marketing aspects in the university technology transfer

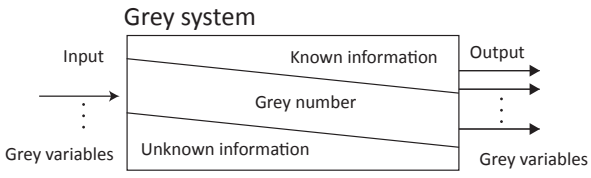
METHODOLOGY

Introduction to Grey Theory

Deng (1982) pioneered the concept of a gray system in response to insufficient knowledge, unquantifiable information, and partial ignorance. The gray theory is often used to resolve issues in an unpredictable world. This study establishes a foundation of gray numbers, gray sets, and gray theory. Figure 1 illustrates the definition of a gray scheme. In the following, this research briefly reviews some essential definitions of gray theory. The gray theory can be applied to any method that involves imprecise decision-making. Gray values can be quickly transformed to crisp numbers using the fuzzy value to crisp score conversion system.

Figure 1

The concept of the gray system



Definition 1: A gray system is a system containing uncertain information presented by a gray number and gray variables, as shown in Figure 1.

Definition 2: Let X be the universal set. Then a gray set G of X is defined by its two mappings L_G (x) and R_G (x)

$$\begin{cases} L_G(x): x \rightarrow [0,1] \\ R_G(x): x \rightarrow [0,1] \end{cases} \quad (1)$$

L_G (x)≥R_G (x),x∈X,X=R,L_G (x) and R_G (x) are the upper and lower membership functions in G, respectively.

When L_G (x)=R_G (x), the grey set G becomes a fuzzy set. It shows that grey theory considers the condition of the fuzziness and can deal flexibly with the fuzziness situation.

Definition 3: The gray number can be defined as a number with uncertain information. For example, the linguistic variables describe the ratings of attributes; there will be a numerical interval expressing it. This numerical interval will contain uncertain information. Generally, the gray number is written as ⊗G, (⊗G= ⊢ G⊣ |_R^L)

Gray Operations:

(1) Additive operation

$$\otimes G_1 + \otimes G_2 = [G_1^L + G_2^L, G_1^R + G_2^R] \quad (2)$$

(2) Subtraction operation

$$\otimes G_1 - \otimes G_2 = [G_1^L - G_2^L, G_1^R - G_2^R] \quad (3)$$

(3) Multiplication operation

$$\otimes G_1 \times \otimes G_2 = [min(G_1^L G_2^L, G_1^L G_2^R, G_1^R G_2^L, G_1^R G_2^R), max(G_1^L G_2^L, G_1^L G_2^R, G_1^R G_2^L, G_1^R G_2^R)] \quad (4)$$

(4) Reciprocal operation

$$\otimes G^{-1} = \left[\frac{1}{G^R}, \frac{1}{G^L}\right] \quad (5)$$

(5) Division operation

$$\otimes G_1 / \otimes G_2 = \otimes G_1 \times \otimes G_2^{-1} = \left[G_1^L, G_1^R\right] \times \left[\frac{1}{G_2^R}, \frac{1}{G_2^L}\right] = \left[min\left(\frac{G_1^L}{G_2^L}, \frac{G_1^L}{G_2^R}, \frac{G_1^R}{G_2^L}, \frac{G_1^R}{G_2^R}\right), max\left(\frac{G_1^L}{G_2^L}, \frac{G_1^L}{G_2^R}, \frac{G_1^R}{G_2^L}, \frac{G_1^R}{G_2^R}\right)\right] \quad (6)$$

(6) Scalar multiplication

$$k.\otimes G = [k.G^L, k.G^R] \quad (7)$$

(7) Scalar power

$$\otimes G^k = \left[\left(G^L\right)^k, \left(G^R\right)^k\right] \quad (8)$$

DEMATEL-Based Grey Theory (Grey-DEMATEL)

In this study, the DEMATEL approach, known as a structural modeling approach, is applied to analyze the cause and effect relationships in numerous studies (Khan et al., 2020; NGUYEN et al., 2020; Singh et al., 2021; Xia & Ruan, 2020). Despite its advantages, it lacks significant implications in uncertain, insufficient information contexts. To overcome this drawback, the Grey DEMATEL approach is applied in this case. The process of the Grey DEMATEL approach is presented as follows:

Step 1: Considering and defining the relationships between the critical barriers based on experts' opinions. A matrix of direct relationships is constructed in Equation (9):

$$\otimes A = \begin{bmatrix} \otimes G_{11} & \cdots & \otimes G_{1n} \\ \vdots & \ddots & \vdots \\ \otimes G_{m1} & \cdots & \otimes G_{mn} \end{bmatrix} = \begin{bmatrix} [G_{11}^L, G_{11}^R] & \cdots & [G_{1n}^L, G_{1n}^R] \\ \vdots & \ddots & \vdots \\ [G_{m1}^L, G_{m1}^R] & \cdots & [[G_{mn}^L, G_{mn}^R]] \end{bmatrix} \quad (9)$$

Table 2

Linguistic Grey Assessment

Values	Linguistic assessment	Grey values $(G_{(x)}^L, G_{(x)}^R)$
0	No influence	(0.0,0.1)
1	Very low influence	(0.1,0.3)
2	Low influence	(0.2,0.5)
3	Medium influence	(0.4,0.7)
4	High influence	(0.6,0.9)
5	Very high influence	(0.9,1.0)

Step 2: Critical barriers are evaluated by using grey linguistic scales in Table 2.

Step 3: Normalize the lower and upper bounds using the grey values as given in Equation (10)-(12):

$$\Delta_{min}^{max} = \max G_{ij}^R - \min G_{ij}^L \quad (10)$$

$$X_{G_{ij}^L}^* = \frac{G_{ij}^L - \min G_{ij}^L}{\Delta_{min}^{max}} \quad (11)$$

$$X_{G_{ij}^R}^* = \frac{G_{ij}^R - \min G_{ij}^R}{\Delta_{min}^{max}} \quad (12)$$

Step 4: Computing the total normalized crisp value using Equation (13)-(14):

$$Y_{G_{ij}}^{Crisp} = \frac{\left(X_{G_{ij}^L}^* x \left(1 - X_{G_{ij}^L}^* x\right) + \left(X_{G_{ij}^R}^* x X_{G_{ij}^R}^*\right)\right)}{1 - X_{G_{ij}^L}^* x + X_{G_{ij}^R}^*} \quad (13)$$

$$Z_{G_{ij}}^* = \min X_{G_{ij}^L}^* + Y_{G_{ij}}^{Crisp} x \Delta_{min}^{max} \quad (14)$$

Step 5: Hence, kth direct-relation gray matrices (Z1, Z2,.., Zk) of kth expert are obtained. Then the average gray direct-relation matrix is taken by Equation (15):

$$Z = \frac{\sum_{i=1}^{k} Z^{*}_{G_{ij}}}{k} \qquad (15)$$

Step 6: Normalize the initial direct-relation matrix. D is denoted as a normalized initial direct relation matrix, and S is denoted as the auxiliary parameter for normalizing the initial direct-relation matrix as given in Equation (16)-(17):

$$S = max\left[max_{1<i<n} \sum_{1<j<n}^{n} Z_{ij}\,;\, max_{1<j<n} \sum_{1<i<n}^{n} Z_{ij}\right] \qquad (16)$$

$$D = Z/S \qquad (17)$$

Step 7: Calculate the total relation matrix T. The powers of D represent the indirect effects between any two barriers. T is denoted as the total relation matrix, I is denoted as the identity matrix. Then the total relation matrix T can be calculated by Equation (18)-(22):

$$T = \left[T_{G_{ij}}\right]_{nxn} = \left[T^{L}_{G_{ij}};\, T^{R}_{G_{ij}}\right]_{nxn} = D + D^2 + D^3 + .. + D^{\infty} \qquad (18)$$

$$T^{L}_{G} = \left[T^{L}_{G_{ij}}\right]_{nxn} = D^{L}x(I - D^{L})^{-1} \qquad (19)$$

$$T^{R}_{G} = \left[T^{R}_{G_{ij}}\right]_{nxn} = D^{R}x(I - D^{R})^{-1} \qquad (20)$$

$$D^{L} = \left[d^{L}_{G_{ij}}\right]_{nxn} \qquad (21)$$

$$D^{R} = \left[d^{R}_{G_{ij}}\right]_{nxn} \qquad (22)$$

Step 8: Determine the prior sequence of the proposed barriers from most to least important, and identify the cause-effect relations. The total effect that is directly and indirectly exerted by the ith factor, is denoted by R_i. The total effect, including direct and indirect effects received by the jth factor, is denoted by D_j. The value of (Ri+Dj), (Ri−Dj) is established using Equation (23)-(24):

$$R_i = \sum_{j=1}^{n} T_{G_{ij}} \qquad (23)$$

$$D_j = \sum_{i=1}^{n} T_{G_{ij}} \qquad (24)$$

The sum (Ri+Dj) represents the total effects given and received by the ith barriers. In other words, (Ri+Dj) is a measure of the degree of the importance of the ith barrier in the system. The prior sequence of the n barriers could be determined based on the value of (Ri+Dj). The bigger the value of (Ri+Dj) the more important the barrier is. The difference (Ri−Dj), is called relation. It shows the net effect that is contributed by the ith barrier to the system. When (Ri−Dj) > 0, the ith barrier is a net cause, which means the barrier belongs to the "cause group". On the contrary, when (Ri−Dj) < 0, the ith barrier is a net receiver/result, which means the barrier belongs to the "effect group". The gray numbers were converted to crisp values by taking the average. The results were validated through multi-stakeholders' perspectives, including university scientists, university technology transfer offices, and entrepreneurs. The causal relationship diagram will then be used to illustrate the influencing aspects.

EMPIRICAL ANALYSIS

The prominence and relation values of each barrier can then be calculated, as described in Step 8. The degrees of prominence and relation values of the three stakeholders are presented in Table 3-5. The barriers with high prominence values significantly affect other barriers or they are greatly affected by other barriers. These barriers should be addressed by managers or policy makers. The barriers with high and positive relation values, i.e. the dispatchers, indicate that they are the basic causal factors that need to be overcome.

Table 3

The degrees of prominence and relation values of barriers – university scientists

R_i		D_j		R_i+D_j		R_i-D_j		Crisp R_i+D_j	Crisp R_i-D_j
2.118	3.301	2.165	3.348	4.283	6.648	-1.230	1.136	5.466	-0.047
2.139	3.330	1.914	3.112	4.054	6.442	-0.973	1.415	5.248	0.221
2.264	3.463	1.703	2.905	3.967	6.367	-0.640	1.759	5.167	0.560
1.930	3.132	1.619	2.815	3.549	5.948	-0.885	1.513	4.749	0.314
1.621	2.817	2.482	3.674	4.103	6.491	-2.053	0.336	5.297	-0.859
1.924	3.119	1.685	2.876	3.609	5.995	-0.952	1.434	4.802	0.241
1.895	3.084	1.7373	2.9434	3.633	6.027	-1.048	1.347	4.830	0.149
1.824	3.020	2.142	3.346	3.966	6.366	-1.522	0.878	5.166	-0.322
1.529	2.739	2.060	3.244	3.588	5.983	-1.715	0.679	4.786	-0.518
1.472	2.669	1.743	2.947	3.215	5.616	-1.475	0.925	4.416	-0.275
1.458	2.658	1.419	2.617	2.878	5.274	-1.158	1.238	4.076	0.040
1.974	3.153	1.743	2.932	3.717	6.085	-0.958	1.410	4.901	0.226
1.549	2.752	2.071	3.267	3.619	6.019	-1.719	0.681	4.819	-0.519

1.785	3.006	1.831	3.025	3.615	6.031	-1.240	1.176	4.823	-0.032
1.410	2.610	1.762	2.954	3.171	5.564	-1.545	0.848	4.368	-0.348
1.771	2.967	2.228	3.422	3.999	6.389	-1.650	0.739	5.194	-0.455
2.048	3.251	1.511	2.710	3.559	5.961	-0.662	1.740	4.760	0.539
2.610	3.795	1.604	2.805	4.214	6.600	-0.195	2.191	5.407	0.998
1.970	3.152	2.470	3.666	4.440	6.818	-1.695	0.682	5.629	-0.507
1.939	3.144	1.828	3.022	3.767	6.167	-1.083	1.316	4.967	0.116
1.952	3.154	2.135	3.341	4.087	6.495	-1.389	1.019	5.291	-0.185
1.706	2.892	1.921	3.133	3.628	6.024	-1.426	0.970	4.826	-0.228
2.071	3.266	1.955	3.142	4.026	6.408	-1.071	1.311	5.217	0.120
2.881	4.072	2.115	3.298	4.996	7.370	-0.417	1.957	6.183	0.770

According to the university scientists, rules and regulations imposed by universities or government funding agencies and the lack of mutual understanding about expectations and working practices are regarded as significant barriers with the highest and second highest prominence values, as shown in Table 3. For example, the MOST's University-Industry Collaborative Research Programme requires researchers to find industrial partners before conducting collaborative research. If the researchers lack such connections, it will be difficult for them to contribute to the university-industry collaboration. Furthermore, the disparity in working practices between universities and industries is reflected in the lack of mutual understanding. University researchers, for example, seek publication in peer-reviewed journals, present at discipline-related conferences, and receive government research grants, whereas practitioners seek patents only.

The important barriers with the highest and second highest relation values are time constraints and rules and regulations imposed by universities or government funding agencies. A university's primary mission is fundamental research and education. Furthermore, the academic output is emphasized in Taiwan's promotion and tenure criteria for university scientists. However, because university researchers must publish their scientific research while also participating in coursework, their time for university-industry collaborations can be extremely limited.

Table 4

The degrees of prominence and relation values of barriers – UTT offices

Ri		Dj		Ri+Dj		Ri-Dj		Crisp Ri+Dj	Crisp Ri-Dj
1.142	5.893	1.452	6.875	2.594	12.767	-5.732	4.441	7.681	-0.645
1.142	5.892	1.149	5.916	2.292	11.808	-4.773	4.743	7.050	-0.015
1.198	6.070	0.878	5.055	2.077	11.126	-3.857	5.192	6.601	0.668
0.943	5.259	1.067	5.654	2.010	10.913	-4.711	4.192	6.462	-0.260
0.823	4.878	1.283	6.338	2.105	11.216	-5.515	3.595	6.661	-0.960
1.069	5.659	0.975	5.362	2.044	11.020	-4.293	4.684	6.532	0.195
0.998	5.435	0.9335	5.2301	1.932	10.665	-4.232	4.501	6.298	0.135
1.177	6.002	1.042	5.574	2.219	11.577	-4.397	4.961	6.898	0.282
1.098	5.753	1.156	5.937	2.255	11.690	-4.839	4.596	6.972	-0.121
1.106	5.776	0.990	5.411	2.096	11.186	-4.305	4.786	6.641	0.240
0.895	5.109	0.818	4.862	1.713	9.971	-3.967	4.291	5.842	0.162
1.098	5.752	0.998	5.434	2.096	11.185	-4.336	4.754	6.641	0.209
1.347	6.544	1.174	5.993	2.521	12.536	-4.645	5.370	7.529	0.362
1.292	6.367	1.058	5.624	2.350	11.991	-4.332	5.309	7.171	0.488
0.986	5.395	1.153	5.925	2.138	11.320	-4.940	4.242	6.729	-0.349
1.060	5.631	1.268	6.291	2.328	11.922	-5.231	4.363	7.125	-0.434
1.131	5.857	0.977	5.366	2.107	11.223	-4.236	4.880	6.665	0.322
1.347	6.541	1.228	6.166	2.575	12.707	-4.819	5.313	7.641	0.247
1.030	5.536	1.379	6.642	2.408	12.178	-5.612	4.157	7.293	-0.728
1.068	5.656	1.096	5.744	2.163	11.400	-4.677	4.560	6.782	-0.058
1.137	5.875	1.285	6.346	2.422	12.221	-5.210	4.590	7.322	-0.310
1.127	5.844	1.201	6.080	2.329	11.925	-4.953	4.643	7.127	-0.155
1.141	5.888	1.128	5.847	2.269	11.735	-4.706	4.760	7.002	0.027
1.422	6.782	1.088	5.720	2.510	12.501	-4.297	5.694	7.506	0.698

Regarding university TTO perspectives, two significant barriers to university technology transfer are a lack of mutual understanding about expectations and working practices and a lack of recognition of university industry linkages (Table 4). As previously stated, each stakeholder group has its own primary motivation. For example, the concept of time in terms of goals, deadlines, and results is frequently different and a source of contention with universities and researchers having longer time horizons than businesses. Furthermore, because entrepreneurs and university scientists have few connections to the other environment, it is more difficult to identify suitable contact people to begin initial discussions. Accordingly, establishing university-industry links is difficult. TTOs play the role of an intermediary between university scientists and those who want to commercialize university innovations. As a result, TTO personnel can easily detect differences in working practices between university scientists and industrial practitioners, as well as a lack of awareness between academics and entrepreneurs. Rules and regulations imposed by universities or government funding agencies, as well as bureaucracy and inflexibility of university administrators, have the highest relation values for university technology transfer dispatchers. TTOs experience the operation of university technology transfer regulated by universities or the government, as well as bureaucracy and inflexibility embedded in organizations, because they are responsible for the operations of university technology transfer.

Table 5

The degrees of prominence and relation values of barriers – entrepreneurs

Ri		Dj		Ri+Dj		Ri-Dj		Crisp Ri+Dj	Crisp Ri-Dj
1.956	3.712	2.476	4.324	4.432	8.036	-2.369	1.236	6.234	-0.566
1.962	3.661	2.031	3.781	3.994	7.442	-1.818	1.630	5.718	-0.094
2.032	3.832	1.509	3.126	3.541	6.957	-1.094	2.323	5.249	0.615
1.585	3.188	1.511	3.086	3.095	6.274	-1.501	1.677	4.685	0.088
1.357	2.931	2.330	4.089	3.688	7.020	-2.732	0.601	5.354	-1.066
1.939	3.672	1.620	3.184	3.559	6.857	-1.246	2.052	5.208	0.403
1.937	3.649	1.6614	3.3840	3.599	7.034	-1.447	1.988	5.316	0.271
1.876	3.554	1.939	3.675	3.815	7.229	-1.799	1.615	5.522	-0.092
1.686	3.303	1.976	3.752	3.662	7.055	-2.066	1.327	5.358	-0.369
1.686	3.276	1.649	3.312	3.334	6.588	-1.626	1.628	4.961	0.001
1.349	2.913	1.362	2.967	2.711	5.880	-1.618	1.551	4.295	-0.034
1.862	3.508	1.675	3.350	3.536	6.858	-1.488	1.833	5.197	0.172
2.098	3.774	1.946	3.726	4.044	7.501	-1.629	1.828	5.772	0.100
2.129	3.845	1.774	3.467	3.903	7.312	-1.338	2.071	5.607	0.367
1.577	3.120	1.890	3.567	3.466	6.687	-1.990	1.230	5.077	-0.380
1.583	3.207	2.078	3.801	3.661	7.008	-2.218	1.129	5.334	-0.545
1.928	3.645	1.625	3.212	3.554	6.857	-1.284	2.020	5.206	0.368
2.510	4.446	1.761	3.383	4.271	7.830	-0.873	2.685	6.050	0.906
1.889	3.575	2.445	4.256	4.334	7.831	-2.366	1.130	6.082	-0.618
1.875	3.581	1.815	3.494	3.690	7.074	-1.618	1.766	5.382	0.074
1.893	3.581	2.107	3.884	4.000	7.466	-1.991	1.475	5.733	-0.258
1.649	3.263	2.057	3.775	3.707	7.039	-2.126	1.206	5.373	-0.460
1.981	3.720	1.957	3.638	3.939	7.358	-1.657	1.763	5.648	0.053
2.704	4.751	1.850	3.476	4.554	8.227	-0.772	2.902	6.391	1.065

According to the entrepreneurs, two significant barriers with the highest and second highest prominence values are a lack of mutual understanding about expectations and working practices and a lack of recognition for university-industry linkages. This outcome is consistent with the viewpoint of university TTOs. According to Table 5, the rules and regulations imposed by universities or government funding agencies and cultural differences between academia and businesses are regarded as the two most important dispatchers, with the highest and second highest relation values that affect other barriers such as i10 and i13. In other words, the findings show that entrepreneurs who have worked with universities face the same challenges that the researchers did.

Furthermore, the cultural differences between academia and enterprises identified as the most critical barrier with the second highest correlation value reveal the different cultural factors inherent in universities and firms. Universities focus on creating and disseminating new fundamental knowledge, whereas businesses frequently seek directly applicable knowledge to provide immediate economic value. Communication is essential for the development and success of university-industry links because differences in terminology, language, and communication styles are likely to stymie cooperation.

CONCLUSION

Despite its complexity, many organizations and stakeholders regard technology transfer as an essential process. The various barriers that prevent universities from completing a successful UTT process are inherent in its complexity. As a result, a plethora of studies in the literature have attempted to comprehend the existence of these barriers. However, the current literature on UTT barriers is fragmented, and little effort has been made to compile a comprehensive list of UTT barriers and their possible interrelationships. Creating a list of UTT challenges is critical for streamlining the major impediments to UTT, which will aid in planning, resource allocation decisions, policy-making, and decision-making. Furthermore, understanding the interrelationships of these barriers provides critical insights into the complexity of the situation.

First, during the interviewing process, 24 barriers (such as a lack of resources and geographic distance, among others) were identified. Then, the highly influential barrier was identified as the high costs of managing joint research projects in terms of both time and money, which impacts the barrier on the technology transfer office's poor marketing/technical/negotiation skills, the challenges on the misalignment of research and commercialization objectives, and the geographic distance barrier. As a result, the institutional bureaucracy barrier was determined to influence the barriers of information leakage risk, knowledge challenges of being too theoretical for practical purposes, and cultural differences between academia and enterprises. Furthermore, the barrier to misalignment between research and commercialization appears to be the most powerful of all. While UTT challenges are unavoidable, identifying these obstacles and their interrelationships is critical for the strategic development of achieving successful UTT. As a result, higher education institutions must prioritize UTT in terms of financial resource allocation. The allocation must be carefully designed to address primarily the improvement of marketing and technical skills for university technology transfer, as well as significant

involvement of relevant industries and other stakeholders to facilitate face-to-face interactions and socialization, which should result in better alignment of research activities encompassing both university priorities and enterprises. Furthermore, because the work was conducted in only one situation, the results would be influenced by a few contextual factors (e.g., cultural, social, and bureaucratic factors). Several modeling approaches can be used in future works to analyze the interrelationships between concepts. Formal concept analysis, for example, can be used to group concepts that have similar attributes and characteristics before developing a cognitive map to reduce redundant concepts.

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Immersive Learning Practices at SCMS School of Technology and Management, Kochi, India – A Case Study

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Immersive learning is defined as a method where the students are immersed into a learning process, where a feeling of getting immersed is created either by use of technology or by using narratives such as a book. Training industry states that immersive learning "places individuals in a learning interactive environment either physically or virtually to replicate possible scenarios or teach particular skills or techniques." Engaging students in the classroom and making them learn is a biggest problem today. Dale (1969) pointed out that the retention among students is seen to be higher where they learn by doing things. Immersive learning helps students to get a feel of the topics taught. Of late, this concept of immersive and experiential learning has gained importance and more with the introduction of India's National Educational Policy 2020. This method focuses on providing a real time experience to students with an enhanced learning.

The objective of this case study is to investigate the teaching learning processes at SCMS School of Technology and Management (SSTM). Being under the university system it has certain limitations. This study tries to understand how SSTM bridges the gap that exists in the university curriculum to provide a holistic learning experience to the students of the Master of Business Administration (MBA) program. It tries to provide a glimpse of the immersive learning practices, strategies adopted and skills students acquire during their two years program at SSTM.

This case study uses a qualitative research design. This is a single intrinsic study that focuses on immersive learning practices at SCMS School of Technology and Management. Although the study is qualitative it uses quantitative data to support and justify the study. Required data was collected from various documents such as course plans, program schedules, student reports, evaluation sheets, placement records, and feedback. Data was also collected through observations and in-depth study of relevant documents. Immersive learning practices at SSTM are uniquely crafted to provide students a greater learning experience. These practices have been found to improve the various skills of students thereby preparing them to take up managerial roles in organizations. These practices have helped the students in their holistic development, enabling them to be successful in the placements drive.

Keywords: *Immersive Learning, Experiential Learning, learning strategies*

INTRODUCTION

A brief introduction of the Indian higher education

India has the largest population with 580 million people under the age 5-24 years (Cyrill, 2022). This is a huge opportunity for growth in the education sector. The education sector has been projected to grow at 225 million US dollars by 2025. All India Survey of Higher Education (AISHE) report 2019-2020 states that India is a treasure house of 1043 Universities, 42,343 colleges and 11,779 stand-alone institutions. The total enrollment in higher education is about 38.5 million students. The Gross Enrollment Ratio (GER) is currently 27.1 percent and is projected to rise to 50 percent by the year 2035. This describes the enormous size and the growth potential of the education sector in India. MBA is one of the most sought-after programs today. There are thousands of people writing the examinations for approximately 5,500 seats.

About SCMS School of Technology and Management

SCMS School of Technology and Management (SSTM), Cochin is one among the 42,343 colleges in India that came into existence in the year 2003 under the SCMS

Group. It is affiliated to Mahatma Gandhi University, Kottayam, Kerala, India. It is one of the premier educational institutions in south India catering to the requirements of students in the higher education segment. This is promoted by the Prathap Foundation for Education and Training established in 1976 under the able and dynamic leadership of Dr. G.P. C Nayar, to impart education of the highest order at affordable costs. Started with MBA in 2003, today, SSTM is a center of excellence for many disciplines such as management, computer applications, biotechnology, psychology and commerce. It has certifications from National bodies, like National Assessment and Accreditation Council (NAAC) and National Board of Accreditation (NBA) and now Accreditation Council for Business Schools and Programs (ACBSP).

Quality in teaching and learning is something that is given utmost priority at SSTM. Whatever be the circumstances, quality is never compromised. During the pandemic, SSTM was one of the first institutions to go online. Students never missed any sessions or any activities though online. All in-house activities were modified suitably. The management and faculty were responsible and committed towards students and also the need to support them mentally during these testing times. Students were given individual support through the modified activities to ensure the quality of the teaching and learning methods.

Teaching and learning at SSTM

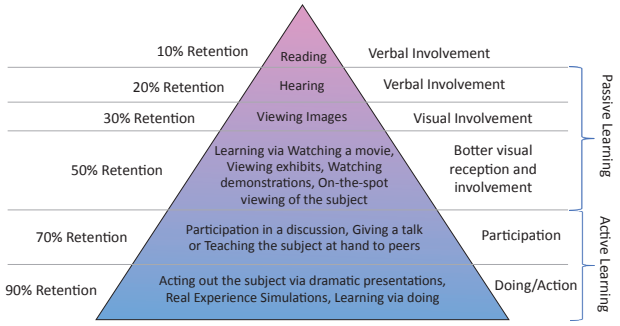
SSTM Cochin provides a greater learning experience for the students. The two year course at SSTM is cautiously and progressively crafted to provide a better learning experience to the students. Being under the affiliation of the university, it has certain limitations. It has to go by the university program and the regulations provided by the same. Without compromising the university regulations, the two-year program is so designed that it provides a boundless learning experience to students. With the introduction of National Education Policy 2020, all the more focus is on providing a better learning experience to students.

LITERATURE REVIEW

Experiential learning is one of the popular methods used in education and training. This is an immersive method that focuses on providing a real time experience to students. Wikipedia defines "immersive learning as a method by which students get immersed into a virtual dialogue, where the feeling of presence is used as evidence of getting immersed. The virtual dialogue can be created in two ways- either by use of technology or by a narrative like reading a book." According to Gartner Glossary – "immersive learning environments are learning situations that are constructed using a variety of techniques and software tools including game-based learning, simulation based learning and virtual 3D worlds." Immersive learning is one of the best ways to impart knowledge and improve the skills of students. Kumar (2021) speaks about four modes of learning – visual, auditory, written and kinesthetic that help students with a better learning experience. According to him such initiative results in better engagement and interactivity. It also helps them to learn by doing. As it is programmed using technology, it can be used repeatedly for further clarification. Kumar (2020) differentiates immersive learning with that of experiential learning. Pagano (2013) in her work on immersive learning, discusses the importance of using design principles, particularly reaction, achievement and presence in creating a learning experience. Herrington et al. (2007) discuss the use of realism and authentic learning in realistic creations to create a simulated environment. Appelman (2005) discusses experiential modes are components of a learning environment that influence learners' perception and learning experience. Shing Ip et al. (2019) explain the use of immersive learning experience through MOOC (Massive Open Online Courses). Sengupta (2019) suggests four ways of providing learning experience to learners using simulations, game-based learning, augmented reality, virtual reality and 360 videos. Further, immersive learning experiences have been explored by using various dimensions such as education field, type of immersive technologies, role of technology, pedagogical strategies, interaction techniques, evaluation methods and challenges. Dengel (2022) discusses the various perspectives of immersive learning. According to the learning pyramid by Dale (1969), 90 percent retention happens when students get a feel of the subject through dramatic presentations, simulations and while they learn by doing. That active learning happens while they learn by doing. This model has been used to explain immersive learning experiences at SCMS School of Technology and Management.

Figure 1

Learning pyramid



Source: Edgar Dale's Learning pyramid

METHODOLOGY

This case study uses a qualitative research design. This is a single intrinsic study that focuses on immersive learning practices at SCMS School of Technology and Management. Although the study is qualitative it uses quantitative data to support and justify the study.

Mostly secondary data has been used for the study. Required data was collected from various documents such as course plans, program schedules, student reports, evaluation sheets, placement records, and feedback. Data was also collected through observations and in-depth study of relevant documents.

FINDINGS

Experiential learning is one of the popular methods used in education and training. This is an immersive method that focuses on providing a real time experience to students. At SSTM, students are made to be involved in so many activities and they learn in the process. This case study shows a glimpse of the immersive learning that students undergo during their two years program at SSTM.

Broadly, the two years program can be divided into academic and non-academic programs. The academic programs are conducted as per the regulations of the university. Academic courses are enriched through various components. The faculty members are free to choose any of the components to enrich the learning. Mini projects, role plays, visits to industry, case studies, critical analysis, interviewing people and others form a part of experiential learning through academic courses. At SSTM, learning from non-academic courses are of paramount importance. A closer analysis will help in understanding the immersive learning that a student goes through during the two years course. Table 1 shows the non-academic programs that are planned for imparting a better learning experience for the students.

Table 1

List of activities

#	First year	Second year	Both
1	Foundation	Surveys / Research projects	BK (Business Knowledge Sessions)
2	ELT (English Language Training)	Konfidence walk	III (Institute – Industry-Interaction)
3	IMLP (Integrated Management Learning Programme)	AMLP (Advanced Management Learning Programme)	Conference/ seminars
4	Speakers' forum	Aptitude/ Verbal/Logical Reasoning Training	Live projects/ Internships
5	OBT (Outbound Training)	Etiquette training	Social outreach activities – Parivartana/ Lakshya
6	Club activities	Director's fireside	PDP (Personality Development Programmes)
7		Specialization Forums	Shikhar – Management Fest
8			IEDC (Innovation and Entrepreneurship Development Cell)

In this case study, some of the non-academic activities/extracurricular activities conducted at SSTM are narrated in detail indicating the various immersive learning techniques used to enrich the student exposure.

Integrated Management Learning Programme (IMLP)

IMLP is a flagship activity of SSTM directed towards skill enhancement of students. This is conceived to address the skills gap among the students at the beginning year. This ongoing process helps students

to improve their communication, interpersonal, team building, leadership as well as their organizing skills. The entire group is divided into smaller groups of 10 members. The themes are crafted by the faculty coordinators in a progressive manner. To start with, each group decides on a team name and a logo which is done as a logo launch. Here the students explain the meaning and the team's name and logo and what inspired them to do so. After this, the teams would be known by their selected names. Each year, according to the changing global scenario, different themes are suggested. Usually, the first round is named "International Markets" Each team decides on a country and presents on topics like geographical location, history, economy, currency, art and culture, cuisine, trade and business and others. This gives them an exposure to the world economy and also helps them to understand global markets. The next rounds focus on business or trending topics. Through the entire cycle, each team gets a chance to organize the event. The organizing team is responsible for planning and organizing the entire event. They prepare the invitations, arrange for the venue, invite faculty judges, maintain discipline and conduct the programme. The different roles are taken up by each team member and hence, the basic management functions of planning, organizing, directing/ delegating/staffing, coordinating are learnt. There is a 360-degree evaluation – where the presentation is evaluated by a faculty team as well as a student team.

Outbound training

This is a training given to the MBA students while doing their second semester. It is a three-day program in which the students are taken off campus, normally to a hill station, where they put into practice all the managerial skills and values they have learned in the classroom. This is done in collaboration with a third-party association. They work in groups and are given tasks that they complete as a team. For each activity, the members are different and as such they get to know each other very well. Some of the activities included in the OBT are team building activities, raft building and mountain climbing. Among these raft building and mountain climbing exercises are activities which they learn the most. In raft making, they are given a budget within which they have to source the materials for building raft-bamboos, tyre tubes, ropes and other materials. Based on this they get the materials. Then they build a raft within the limited time, which is closely monitored by the instructor. Once the raft is ready the team members sail in the raft to a certain point and return as instructed. This is an excellent exercise, where they learn to source the resources, manage funds, build the raft and effectively utilize it by sailing in the raft. Not only this, they learn to work together, motivate each other, share their fear and apprehensions and also help each other. This exercise also helps them to shed the fear and explore the immense possibilities.

Mountain Climbing – This is another important activity while in OBT. The task here is to climb a mountain. Students are split into groups and they are taken on a trekking adventure. Here the instructor gives instructions regarding the exercise to begin with. They also carry needed first aid materials. They begin trekking with a lot of enthusiasm. After climbing a certain height, the instructor cautions the students that from that point they cannot turn back, as the mountain becomes very steep from that point. He also suggests that if anyone feels that they cannot climb, they need not climb further. There is anxiety and confusion created among students. They have their own apprehensions and for a moment they are unable to decide. But peer pressure, moral support from friends and team makes the students take a decision to climb further. It is seen that students help each other, disseminate information and make them cautious of the difficulties/ obstacles ahead. When they reach the top, it is a great feeling – a sense of achievement and accomplishment.

Advanced Management Learning Programme (AMLP)

This program is solely conceived keeping in mind the placement preparedness for students in the final year. The main objective is to equip them with necessary skills to face the corporate world. This is a highly focused, well-structured and cautiously crafted program. Preparation of resume, self-introduction, group discussions, mock interviews, situational analysis and brainstorming sessions form a part of this program. All these are conducted with ample seriousness and perfection. Through these sessions, students are identified who require extra support. The training is done by both in-house faculty and a team of external experts from the industry. Alumni involvement in placement training is also ensured so that the students learn from their seniors.

Industry Institute Interaction (III)

This is another important activity undertaken at SSTM. This is a platform where experts from the industry as well as academia are invited to share their corporate experiences and latest developments in industry with

students. Students also get an opportunity to interact with these experts and enhance their knowledge. This is again a student driven program and weekly programme, where the resource person is identified and seeks approval from the faculty council. Once approved, they organize the entire activity. These activities help students to acquire practical insights from different domains and industries.

Social Immersion Project- Parivartana

Parivartana is a programme envisaged to fulfill the mission of the school "To be a center of excellence for value-based management education." Students get an exposure to be involved in different activities and projects to understand the sense of "giving back to the society."

Old Age Home/Orphanage visits – This is a program for students in the first year. This is usually undertaken during the Christmas holidays every year. Students in groups, identify an orphanage or an old age home and make the visit. They spent a day with the inmates, entertaining them with a lot of activities and also giving them gifts. The purpose of this is to make them aware that life is not rosy for many people and comparing those we are blessed with. They spend the whole day with them, enlightening them with activities and sharing happiness with the underprivileged.

Parivarthana – A yearlong program, each year a socially relevant theme is decided and students in groups visit schools/ other places, perform street plays on the allotted theme, thus creating an awareness on the topic among the young generation. Some of the earlier themes include drug abuse, violence against women, road safety, acquired immunodeficiency syndrome (AIDS) awareness, environment pollution, waste management, etc. Students are supported by the faculty team and for more clarifications, external support from the Government bodies are taken. Students imbibe these activities and also when they share, they feel a sense of commitment to the society.

Lakshya – It is an initiative of SSTM, where students and teachers impart education to school students as enrichment programs for them. Usually, the students in the final year take part in this program. Schools and their requirements are identified by the group and based on that training is provided to the school students. Some of such training provided are programs on MS Excel and Tally and LibreOffice Calc.

Unnat Bharath Abhyan – This is another initiative under the Government of India funding. Villages are adopted by the school and they are supported according to their requirements. The activities included donations, training and many more.

Shikhar – This is an annual international management fest at SCMS. This is conducted with great pomp and show. This has a pan India representation as well as international representation of colleges. This is again a purely student driven program. To begin with, committees are formed by the coordinators. Then, each committee is headed by a coordinator. The committee members plan, decide and organize their allotted set of activities. Even though it is a student driven program, there are faculty members as coordinators to support and guide them when required. From committee formation to sponsorship, media relations, event planning, invitation, registration, venue, transportation, accommodation are planned by the students and presented before the faculty members and management team for approval. Once approved, they ensure that it is executed in the above said manner. There is great learning here. Planning, organizing, controlling, budgeting etc., are done by students. Students also prepare themselves for crisis management. They enjoy as well as learn a lot in the most practicable way. Not only learning, they also improve their leadership, communication, negotiation, creative, teambuilding and collaborative skills. They also learn to manage people well. This is one of the best practical exposures to the management theories and concepts.

DISCUSSION

The findings segment explores the details of the various non- academic activities conducted at SSTM for providing an immersive learning experience to the students. This discussion section centers around three important aspects:

1. Creation of the environment - This focuses on the activity and the environment which provides an opportunity for the students to learn.
2. Feeling of experience – This is the feeling that students experience through the activity creating an intensive learning experience.
3. Intensive learning outcomes – The final outcomes that the students gain as a result of such immersive learning.

Table 2 provides a brief discussion of the various immersive learning activities at SSTM.

Table 2

The Outbound Training (OBT) Intensive Learning Experience

Creation of the environment	Feeling of experience	Intensive learning Outcomes
Rafting Experience		
Students were to build a raft and sail in the raft. They were given limited resources. They had to purchase it and use it effectively. Materials provided were: tubes, bamboo logs, ropes.	Initially the entire team started brainstorming as to how to go about. They had not only to build the raft but they had to sail in the same across the river and come back. • Safety was an important concern. • The next concern was the limited resources • Limited time for building • Limited knowledge they had. On a hit and trial basis they construct the raft and prepare for sail amidst fear, confusion and uncertainty.	• Decision making • Effective utilization of resources. • Group dynamics • Communication • Team spirit • Trust • Time bound • Empathy • Supportive • Overcoming fear • Feeling of achievement • Confidence • Conflict resolution
Trekking Experience		
Students were made to climb the mountain at Suryanelli, Munnar , Kerala	Everyone climbed to a certain height and then the instructor gave out further instructions. From that point, the mountain became steeper. Only those who could climb need to climb as one cannot return from that point. This created an anxiety among students. They had to decide for themselves whether to move forward or stay back. Lot of noise. Some stayed back and others decided to move on. For those who decided to move on further instructions were given to the students.	Improvement in: • Decision making • Leadership • relationship • Trust • Attitude • Helping each other • Empathy
Management Games		
Students were made to participate in various team building games. There were four to five games with a span time of 1 hour each.	In each game, the members were different. Each game provided a different situation where the team members deliberated and worked hard to achieve the target.	• Knowing each other better • Communication • Team building • Trust formation • Exposure of latent abilities • Critical thinking • Innovative idea generation • Leadership

Table 3

Integrated Management Learning Program (IMLP)

Creation of the environment	Feeling of experience	Intensive learning Outcomes
Performing Teams		
Learning environment is created with a series of well-planned and scheduled activities. Includes: Logo launch Global awareness Business related topics for 5 phases in a progressive manner. Students are allowed to use various formats for their presentations. It could be a role play, a debate , presentation, a panel discussion and other similar formats	• Experience is impactful. • They get to know the innovative and creative practices and would encourage each team to be innovative and creative. • Logo launch helps them to decide on a name for their team and decide a logo and a theme for the same. • Business related topics	Improvement in: • Presentation skills • Communication skills • Eradication of stage fear • Stage management • On stage Crisis management • Creativity and innovation • Team building • Attitude improvement
Organizing Teams		
Each team gets a change to organize the event- They arrange for the: • venue, • prepare invitations, • invite everyone • conduct the show – Prayer, Welcome speech, Vote of thanks, Master of ceremony • technical requirements, • seating arrangements • arrange for the judges (both faculty members and students) • arrange for evaluation sheets • Student Judges get to evaluate performance and give feedback • time keeping • all other activities required to organize the show.	Team members divide the responsibilities as well as share the responsibilities. They get a feel of organizing an event and contribute their best in doing so.	• Seek and share responsibilities • Get an awareness of the necessities required to conduct a program. • Planning skills • Learn to invite people • Organizing skills • Team building skills • Need for timeliness • Maintenance of discipline and decorum. • Evaluation and feedback skills

Table 4

Advanced Management Learning Program (AMLP)

Creation of the environment	Feeling of experience	Intensive learning Outcomes
This activity is for the final year students to prepare them for the placement drive. These set of activities make them serious towards their approach to placements • The activities involve a collective effort from faculty members, mentors, placement cell and the students. Activities decided for the include : • Preparation of resume, • Visume • Self-Introduction, • Group discussions, • Mock interviews, • Orientation on Job Description and preparation for interviews • Case Analysis • Situational analysis • Brainstorming sessions • Aptitude tests	Students experience the feel of industry. To give them a feel of real interviews, external experts, alumni, people from industry are roped in to get a feel of the industry.	Improvement in : • Aptitude • Communication • Body language • Facing interviews • Self introduction • Connecting your own skills with job requirements. • Handling situational questions • Solving case studies Awareness of current affairs • Handling stress interviews

Table 5

Industry Institute Partnership (III)

Creation of the environment	Feeling of experience	Intensive learning Outcomes
As mentioned this is an activity, where experts from different industries speak to students regarding their experience.	Students get a feel of the industry. They get to know about the opportunities and challenges, skill requirements and the way ahead. They also get to know the personal experiences, hardships faced and the efforts taken by these experts to reach the current status.	• The industry environment • Opportunities • Challenges • Skills requirements • Effort required • Experiences and hardships faced. • Networking • Global trends

Table 6

Social Immersion Projects

Creation of the environment	Feeling of experience	Intensive learning Outcomes
Old Age Home Visits – Mandatory for students to visit old age homes/ orphanages or similar organizations.	Students in groups decide on any such organization. They spend a day with them and engage them with various activities- such as talking to them, organizing some entertainment programs and games. They learn to understand them, become empathetic. This also provides an opportunity to understand how blessed the students are.	Improvement in : • Attitude • Awareness of social problems • Understanding others • Empathy • Motivation to help others • Sense of contributing to societal welfare • Understanding of the privileged life • Creating a concern for the society
Parivarthana A month long program where the students visit various schools and conduct awareness programs on any socially relevant topic. Some topics covered: • Drug abuse • Road safety • Save water • Environment • AIDS awareness • Violence against women	Students come out with street plays to engage school students. They use different formats for dissemination of information.	The purpose is to involve them in: • Creating awareness • Social commitment • Addressing social stigmas. • Imparting a value and • Ensuring that they are not involved in such social evils.
Lakshya As a part of this , they go to various schools and take sessions for school students to educate them on different skills . Some of the training topics include MS Excel, Tally, Libreoffice Calc and other relevant areas	Students teach students of other schools-peer to peer learning happens and is effective.	The purpose is to: • Making students responsible • Improving learning skills • Social Commitment • Networking
Unnat Bharat Abhyan – A government initiative through funding by AICTE	Nearby village schools are adopted and based on the requirement, they are provided with materials- like books, computers and other materials, Even training, seminars , workshops, awareness programs and others are conducted.	• Create an awareness • Social commitment • Helping the upliftment of village schools • Provide services to socially backward sector

Table 7

Shikhar – Management fest

Creation of the environment	Feeling of experience	Intensive learning Outcomes
Shikhar – is the annual management fest conducted at SSTM. A student driven program where they arrange for resources, plan and manage and organize the events in the most effective manner. A mega event where we get hundreds of participants with a pan India presence.	Students get involved in activities such as : Fundraising by way of sponsorship Decide on the events Prepare an estimate of expense. Invitation Promotions Flash mob Entertainment Campus decor Registration	Aims at improving : • 100% participation from students and faculty • Communicative skills • Attitude development • Planning skills • Organizing skills • Networking skills • Leadership skills • Creativity and innovation • Critical evaluation • Attitude improvement • Crisis management • Adaptability • Empathy

IMPLICATIONS

SSTM is an institution affiliated to Mahatma Gandhi University, Kottayam, Kerala. It strictly adheres to the regulations prescribed by the university through its operations as far as the academic curriculum is concerned. It further enriches the curriculum by way of mini projects, activities, case studies, live projects and many more. Being affiliated to the university has its limitations. To fill up the existing gaps, SSTM strives hard to fine tune its various non-academic or extracurricular activities to provide an intensive learning experience to the students. Only six among the various activities are discussed in this case study. These activities are planned in a progressive manner so as to bring about a complete development among the students both academically and professionally by the end of the two years program. Apart from the curriculum, such programs help in the holistic development in terms of various skills such as communication, networking, leadership, critical thinking, creativity and innovation, and other required skills for a business management professional. One area which is explicitly visible through these immersive learning experiences the students had is the placement. This has enabled us to improve the placement. Table 8 shows the details of the placement of the institution.

Table 7

Placement Statistics

Details of students	2018-19	2019-20	2020-21	2021-22
% of Students placed	75%	80%	85%	99%

These immersive learning experiences have helped the students to excel in their career – both in their enterprises and also in the society. These can be seen from the records of the alumni performance and feedback. As students, they have excelled in various competitions due to these practical exposures and the sense of value-based management education is instilled in them.

CONCLUSION

Immersive learning activities form an integral part of the teaching learning process at SSTM. Students get a better learning experience through these cautiously crafted activities. These activities are planned so as to fulfill the existing gaps in the university curriculum. SSTM attempts to enrich its academic program effectively. Understanding the importance of holistic development and to bring about the same, several experiential learning activities are planned. Such activities are planned as non-academic activities without disturbing the university curriculum. Only six among the various activities are discussed in this case study. But there are many more such activities of varying domains and thrust areas conducted with varied intensity depending upon the requirement. As discussed, students are made to work under a simulated environment which provides them a better learning experience that they imbibe and enjoy. The placement statistics show the efforts taken by the institute in this direction.

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Learning by Doing - Case of Catalytic Pedagogy

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ABSTRACT

All life is learning and learning is lifelong. The 21st century has mandated a global shift towards inquiry, creativity, critical thinking, and leadership skills. Experiential learning triggers the development of these qualities by transforming the learner from passive to active. Days of classroom learning are a thing of the past. The concepts explained in the class have to be experienced as this enhances metacognition, the key to an efficient learner. Managerial concepts are better understood when students experience the business environment in tandem with the consumers.The current Indian teaching-learning system lacks field exposure, reflecting their professional preparedness. The teaching-learning strategy should be aligned towards building student competencies and creating a learning-practicing environment.This paper focuses on how understanding and practicing the concepts become more efficient when students internalize the crux and pulse of the concepts through real-life interactions. Even while we understand this connection, studies prove this needs to be improved. The study identifies an interdisciplinary area where field exposure contributed to student development. This being a trial, serves as effective proof of the innovative teaching methodology 'learning by doing'. The tested methodology has to be sanctioned and adopted by the system for it to deliver efficient results from a wider perspective.

Keywords: *Learning by doing, experiential learning, Metacognition, Kirana stores, Economics*

INTRODUCTION

The student aspirations and the dream chase fuelled by the changing global scenario have put Indian management education through a significant transition. Management education is a perpetually dynamic, ever-evolving science. It has to keep up with the scenarios, technological changes, and changes in market conditions. The core competencies of schools offering management education lie in unique and innovative pedagogy, to enable meaningful learning and development of skill sets that the employers think are ideal for their employees. (Nawaz and Gomes, 2014) The pedagogical style and approach should be so fashioned to meet the needs of the management job requirements.

This places the primary onus of imparting knowledge on the faculty. The syllabus developed is drafted to meet the changing patterns of the learning process, focus, and aspirational goals. This calls for a shift from the conservative methods of teaching. Teaching-learning is now a wider canvas of providing an environment conducive to creative blending from the classroom sessions with the tasks on the work front.

Dewey (1998) argues that traditional education with set schedules, rules and procedures follows a 'pattern of organization' that inhibits student learning. Educators act as agents through which knowledge and skills from the past are passed on and rules of conduct are enforced. The current generation of millennials is used to a natural lifestyle that is in tandem with digitalisation. These students are keen on getting involved in activities that make them feel involved, help them in self-development, and are dynamic and creative (Iftode, 2019).

Millennials and Generation Z students are more technologically advanced and self-directed than the previous generations. These students are comfortable learning online, using videos, rather than reading from books. To engage this student generation, educators need to design sessions and assessments that kindle their critical thinking skills. Even though they are digital literates, they lack the foresight and skill to make use of the umpteen information available in a proper way that would help them to develop professionally. Educators should facilitate the students with a learning environment that helps them think strategically and grow (Mosca et al., 2019).

The case highlights the teaching-learning experience of students in the first trimester of the Post Graduate Diploma in Management. The students were exposed to a 'learning by doing' assessment experimentally which is simultaneously subject to an interdisciplinary situation. The experiment was done in teaching the course 'Economics for Managers', which focuses on basic Microeconomics.

"Is Economics boring or interesting?", "Is Economics Required for a Manager?", "Will we clear the paper?", "Is Economics connected to other subjects?"; students think when the Economics faculty enter the class. The first challenge of the faculty is to answer these queries and ensure that students are receptive to the session. The next challenge to the faculty is how to engage the curious minds in the right way so that students remain interested. Making the students understand and appreciate that Economics is a multifaceted task.

The challenge is to make the course learner-centric. According to Bass (2012), course structures should be designed in a manner that faculty will be empowered to approach teaching in a systematic way that will help them reach the desired instructional goals. With this model in mind, an Economics faculty of a reputed business school decided to design the course "Economics for Managers" for postgraduate management students. To ensure that the course should be conceived well by students, the faculty did a lot of research.

The term that caught attention was 'metacognition', which involves the learner reflecting and analysing thoughts and drawing conclusions from that analysis, and putting the new ideas into practice. For this to happen, learners need to understand how they remember, learn and solve problems. This form of creating a teaching-learning environment results in producing thoughtful and reflective students who are ready to engage in independent lifelong learning (Beach et al., 2020).

This gave the faculty to think about creating a course that would kindle the students to reflect and learn and create a teaching environment. The faculty got into a dilemma at this point. A general idea of the course is not enough to start designing the course together. Faculty need to have answers to which topics to be included, the best teaching strategies for this course, and the audience (Alkathiri, 2021). The designing of the course started with planning the course module, session-wise. The session-wise plan was prepared considering the teaching approach. This refinement helped the faculty to draft the course objectives and learning outcomes.

The course objectives (CO) defined by the faculty for the course were:

1. CO1: To introduce the students to the discipline of Managerial Economics.
2. CO2: To enable the students to analyze the central decision problems managers face and help them build a strong base in economics to guide these decisions.
3. CO3: To develop an economic perspective among students who aspire to manage business units.

The learning outcomes of the course were:

1. Understand the basic idea of microeconomics
2. Enable them to analyze how the economic thought process should work while managing small business units
3. To develop an idea of how economic decisions are made while considering consumer behavior, production, and markets.

The faculty used to wonder how metacognition matters in education. However, some reading about this taught the faculty that this is something that leads to self-assessment and eventually to self-correction and improvement. An appropriate pedagogy can lead the students to metacognition. The usual exercise in designing the course plan is to first set the course outcomes, develop a list of core textbooks, incorporate assessment descriptions, and evaluation rubrics, and give formative and summative assessment details. With a will to make the course better than that of the previous batch and make it more effective (every year the syllabus and assessments are upgraded), the faculty decided to send the students for a field-based assessment which will introduce them to the economic concept of markets, marketing techniques and also the concept of store management.

The objective of the assessment was to prove the advantage of the experiential learning technique and the methodology adopted was the case study method. The faculty was convinced that through the interdisciplinary assessment and learning-by-doing method, the student can develop a wider perspective of the subject and also experience the working of the theories that they had discussed in the classroom.

THE EXPERIENTIAL PROJECT

The Kirana store project was designed to introduce the students to the second course objective. This exercise was meant to give the students a basic idea about the challenges faced by the owners in managing the store. The students were asked to focus on a product- soap, detergent, etc. This was a group project and each group was asked to do an audit of a pair of stores- a Kirana store (Indian name for the local grocery store) and a Modern Trade Outlet (MTO) and make a comparison on the following aspects.

Project details

Step 1: Visit a Kirana store and a Modern Trade outlet (MTO) in the same locality.

Step 1: Choose any product (Eg: Soap/ Detergent etc.)

Step 2: Compare the chosen Kirana store with the chosen MTO for that product.

Few more points:

Aspects to compare need not be limited to, but should essentially include the following:

1. Physical characteristics of the store
2. Customer Profiling
3. Merchandise Planning
4. Product assortment decisions
5. Retail Pricing mechanism
6. Vendor management
7. Retail communication mix

Nature of assessment:

Each group must

1. Prepare a minimum 3-page case study comparing these two retail outlets from the various perspectives
2. Pick 3 aspects in the case that can be assessed from a microeconomic perspective

Assessment Pattern:

1. 15 out of the total of 70 marks earmarked for internal assessment were kept for the Kirana store project. The assessment was mapped to the CO3 of the course.
2. The assessment mark distribution of the 15 marks for the project is given below:

   Content to context application- 5 marks
   Structure in which context is presented logically- 4 marks
   Presentation style- 3 marks
   Team Cohesion- 3 marks.

The project was divided into various tasks:

1) First task- Students were to develop a story on their experience and submit it (as shown in Exhibit 1). The reflection of their experience was shared in the class individually.
2) Second task- Students did a formal presentation on the learnings (as shown in Exhibit 2) they had from the observations, interactions, and analysed the pairs of stores on the seven points listed above.

This assessment not only gave them life experience but also provided opportunities for students to visit rural and urban areas. Students were given the choice of visiting the Kirana store in the local vicinity of their stay. As the student diversity was from the different parts of the State of Kerala, India, there was a good mix of reflections from rural and urban Kirana stores.

During the presentation, the students understood that the rural area experiment experience was entirely different from the urban one. The mix of demand, that of products needed, the kind of competition, and inventory management were different for rural and urban areas. This exposure gave students a basic idea about the concept of demand, cost-benefit analysis as something completely arithmetic-free, and a faculty possessed by every thinking human being. This also introduced them to basic ideas of marketing and store management.

The andragogy that was tried out gave the students moments of self-reflection vis-a-vis their learnings of 'Economics' was concerned. They got an idea about the market structure, 'monopolistic competition'. The kind of idle participation and monotony that are associated with assignment submission could be converted into the enthusiastic involvement of students. The Course Outcome attainment of the assessment was on the higher end (81.78) (as seen in Exhibit 3) which reflects that 'Learning by doing' made the students think critically about metacognitive development.

Exhibit 1

Reflections of the one day Kirana store experience

K. E. STORES

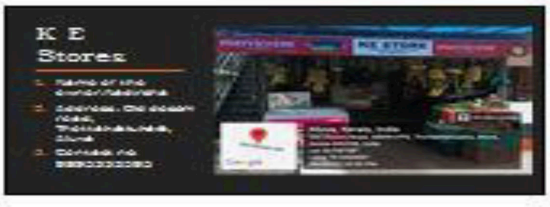
Mr. Nadirsha, the owner of K E Stores is on a hustle every single day to open his store and also help his father in the store at Paravur Kavala, Kerala. His father has been running the store for the past 55 years, Mr. Nadirsha with the help of his brother-in-law, Mr. Shamsudhin decided to continue his father's legacy, and it's been 20 years they are running K.E.Stores.

The store opens at 7 am every morning. Today I reached the store to witness the day's activity. While opening the shutter of the shop, the person delivering milk arrived with that day's stock. They have known each other for years and they share a friendly conversation. That day, they were talking about the price increase of items in the Aluva Market, Kerala.

The next customer, a couple enjoying their retirement life, had come to the shop to get milk after their morning stroll. This is a usual routine for many in the area. By 8 AM, the vegetables and fruits from the wholesale market had arrived. The employee of the store also arrived by that time and started shifting the items from the auto and arranging them. Apart from this, many local farmers started ringing in their produce. In between all this, customers started pouring in to buy various items during the working.

Exhibit 2

Powerpoint presentation displayed in the class



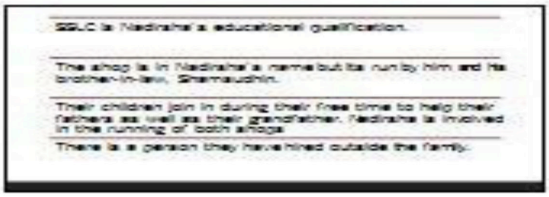


Exhibit 3

CO attainment of the class

Subject Name & Code: Economics for Management 3 Credit/EFM

CO report at node: Assessment-4

Class Strength	45
No of student mapped to at least one CO	45
Course Outcomes addressed	CO3
No of students with CO value greater than or equal to	45
Percentage of students with CO value greater than 60	100
Average	81.78
Attainment Level	3

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The Study of ASEAN-Member Higher Education Institutions' Adaptation Progress in Coping with the COVID-19 Pandemic: Practices and Case Study

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INTRODUCTION

The overview of Higher Education Institutions in association with ASEAN countries have been developing to the circumstances of their national commodity and the standard of higher education amongst other nations, most likely incorporating with international educational institutions to bring more awareness and approach to the current changes on how education industries have been transformed through many years of technological advancement and platform for online learning and referring to the E-learning process of studying, researching, and practical sources online and its shared availability for the majority of learners who have enough knowledge and understanding of technological usage and implementation.

The 2030 Agenda relies heavily on education. Universities and colleges around the world are preparing future professionals, undertaking relevant research, and collaborating with the community and stakeholders to address local, national, regional, and global concerns. These HEIs are at the forefront of the solutions needed to advance the Sustainable Development Goals, emphasizing the critical role of education in fostering healthy and inclusive societies as envisioned in the 2030 Agenda. The role of HEIs is not limited to higher education in and of itself. In practice, HEIs play an important role in creating a continuum between all levels of education by training future and current teachers, adjusting curriculum and developing, and nurturing ideas and new pedagogical approaches, instilling fundamental values through various learning methods and platforms, and cultivating innovations, including technological ones, to improve the educational experience and educational outcomes. Although the development progress has been feasibility examined and response to the challenges to provide more comprehensive approaches to sustain the HEIs platform and collective outputs for producing higher professional in each member's future development plan, there are still many challenges that have put heavy measures to secure the learning platform to become reliable and maintain knowledge and practices compromising to the global health challenge as over the course three years from 2019 till 2022 in occurrences to the CoronaVirus pandemic which have transformed the world into complete new norms and almost everything has been transformed to online reality over physical reality.

The challenges may have been really put major strain on education industries and other various industries as well, each of own national governments have been actively engaging and guiding support for all sector to be able remain slowly progress of all amidst of Covid-19 chaos through collaboration, seeking support, and marketing about the proactive measure which government have been highly imposed to implement and setting new standard for the new norm in order to secure what has already been successfully achieved and compromised to what has been affected and need precise supervision to make sure that maintaining the outcome can be mitigated and continue to progress during and post Covid pandemic in order to ensure that not just any other industries, In this research paper, we will may study on the process of education especially education ones and HEIs platform to be able to tackle the challenges head on with important consideration and management plan for maintaining the value of HEIs amongst each ASEAN's member.

METHODOLOGY

Research objectives

This study aims to give an outlook on their accomplishments, problems, and lessons learned, as well as reflect on key changes and the outcomes of HEis's progression over the past few years. The primary method for data collection was secondary, and the study target groups will be based on the numerous types of research that were previously done by universities in Cambodia. Only qualitative approaches (semi-contextual structure of analysis) were used to collect information in this study,

1. To analyze the systematic approach of HEIs being considered and offered in the majority of universities amongst ASEAN countries.
2. To find out what are best practices and recommendations for HEIs continuous development

Research question

- How have the HEIs in ASEAN nations adapted practices and changes during the COVID-19 pandemic?

LITERATURE REVIEW

Overview of Cambodian HEIs

Over the past decade, the progression of higher education institutions around the world has become increasingly interdependent to the circumstances of higher demand for reaching the potential goals of gaining a more professional outlet for everyone across nations, which in accordance study which has done by RUPP University professor which has presented such very significant study on how the national university has progressed through applicable movement and recent challenges and achievement in his teaching university, (Kea, 2014). The evolution of higher education does play such a significant role in the success of career development and influence in every field of industry which has been challenged to extract the best out of the best employment opportunities for university graduates and those who are proprietarily looking for more than skill-based profession. There are key highlights which point out important considerations about the aspect of increasing competitiveness and competency attributes of the employees through many segments such as engaging in highly market-driven, exclusively the idea of integrating regional and international tools and operations for the development of socioeconomic and domestic economy. Although, many HEIs across ASEAN had an optimistic approach to structural education and welcoming international students or neighboring countries, can be seen such as exchange programs, consultation, and training for academic staff, including the memorandum of understanding (MOU) amongst different universities in the process of designing or creating strategic implementations for increasing more enrollment of students and international cooperation, public relations such as hosting event or cross-cultural visitation (Exchange program or social gathering in specific setting), and professional recommendation from high-level experienced academic from well-known eligible universities around the world, more likely the cooperation amongst research and development during the implementation or evaluation of the connectivity and resource contributions to whether or what has become successful or indeed require more solution and recommendations.

Regarding the progression of formulating input and producing such output effectively of HEIs in Cambodia, as stated by another professor from Royal University as well, (Chet & Un, 2019), As a result of these policies, other nations the region, including Singapore, Australia, Hong Kong, and Malaysia, have developed into hubs for regional and global higher education, exporting educational services to countries like India, Indonesia, Taiwan, Thailand, Vietnam, and South Korea. In actuality, though, this has led to the commercialization of postsecondary research and education. Wealthier nations are competing more fiercely to attract overseas students as they work to establish a global image for providing top-notch higher education services to boost their export revenues (Ibid.). Since the end of a protracted civil war in the 1990s, there has been a fairly significant international influence on local HEIs in Cambodia.

ASEAN members' current progress in HEIs

Moreover, It is important to look at how the fundamentals of each higher education institution system have developed theoretically and systematically to support the learning process for students to learn effectively. Each potential structure for a study abroad program has advantages and disadvantages that go hand in hand. There are three choices to take into account: (1) a university-led initiative centered through a main and seasoned foreign study office; (2) a university-led effort; and (3) a program hosted within a school or college of education itself. In general, a consortium can offer placement chances that one university cannot, but as the program expands, severe concerns about institutional commitment, member operating standards, and resource availability arise. Such a jump to participation in a big consortium may impose an unneeded barrier for program compatibility in a smaller school with relatively few, if any, foreign relationships, (Mahon, 2007). The type of study abroad program may have specific procedures and regulations in the event of a centralized university program. This can be beneficial since it provides structure and support, but it may also impose

restrictions, such as rules regarding remuneration, site locations, and supervision. Given the culture of a given institution of education, this external rule imposition may not be viewed as advantageous or appropriate.

Finally, maximum flexibility and autonomy are typically provided by programs housed within schools or colleges. However, resources and staffing are a worry because all programmatic obligations could fall on one or two persons (who typically have other tasks as well). Due to potential conflicts with tenure and promotion obligations, this would not be considered a profitable choice at that point. The reality is that teachers who are prepared to prepare their students for 21st-century global realities are addressing the prevention of poverty—not only the economic poverty that results from a lack of skills for such an arena but also the poverty of cultural understanding that leads to domestic and international conflict, (Mahon, 2007).

Overview of Taiwanese HEIs

Interestingly enough, there are such introspective educational approaches that are likely focused on Taiwan's Academic culture also transitioning into more narrow and anatomical terms for students learning growth development. Additionally, the drive for "world-class" status contributed to the rise in demand for comparable and international research quality metrics.

Rankings and indices are given such weight in this larger context that governments have developed schemes to reward HEIs that are successful in rising in the rankings. China, Hong Kong, Japan, Singapore, and other countries in the Asia-Pacific area are home to some of the highest-ranking HEIs. The following content was obtained from All use is subject to the terms at Chuing Prudence Chou Taiwan, South Korea (Quacquarelli Symonds, 2016). This shows that the Asia-Pacific region's HEIs have implemented effective reforms to internationalize and pursue rankers' definition of "world-class" status. The quantifiable and intangible costs to HEIs and governments seeking to obtain this status, however, continue to be hidden in the media and official records. In the case of Taiwan, the HEI rankings result from the Taiwanese government's transition from "government control" to "government oversight" in terms of HE governance. This was made possible by creating procedures for quality control and encouraging a culture that rewards performance. [2]Early in the 1990s, the Taiwan Ministry of Education (MOE) hired several organizations to evaluate the courses provided by HEIs (Lo, 2014). These early reviews were carried out institutionally, but due to these institutions' low resources, they were unable to effectively manage their evaluations. In response, the Taiwanese government revised the University Law in 1994 and gave the MOE control over performing assessments of HEIs (Lo, 2014).

FINDINGS

ASEAN's general aspect of HEIs

ASEAN has a wide range of postsecondary education forms and policies as a result of the history, culture, and socioeconomic circumstances of each ASEAN Member State. Over the last ten years, ASEAN states have seen a tremendous increase in higher education1, but this growth has not addressed concerns of quality and relevance, nor has it developed students to assure ASEAN member countries' international competitiveness. Furthermore, despite explicit acknowledgment of the right to education, laws, regulations, and programs do not always align or work across sectors to ensure that the right to education and access to excellent and equitable education is realized in a meaningful way. Higher education institutions must continue to strengthen their links with local and international employers and labor markets, as well as make necessary adjustments to their curricula and teaching and learning methods, to produce quality Higher education graduates who can respond to changing national, regional, and global contexts. Furthermore, Higher education courses should strive to create individuals with creativity, critical thinking, leadership, entrepreneurship, language skills, and interdisciplinary knowledge and understanding.

ASEAN and its member states

ASEAN was founded on August 8, 1967, in Bangkok, Thailand, by Indonesia, Malaysia, the Philippines, Singapore, and Thailand. Brunei Darussalam joined in 1984, Vietnam in 1995, Lao PDR and Myanmar in 1997, and Cambodia in 1999, (ASEAN).

According to the ASEAN Declaration, the aims of ASEAN are as follows:

No.	Key Purpose of ASEAN
1	To accelerate economic growth, social progress, and cultural development in the region through collaborative efforts in the spirit of equality and partnership to strengthen the foundation for a prosperous and peaceful Southeast Asian community;
2	To promote regional peace and stability by upholding justice and the rule of law in the region's relationships and adhering to the ideals of the United Nations Charter;
3	Encourage active collaboration and mutual support on issues of mutual interest in the economic, social, cultural, technical, scientific, and administrative domains;
4	To support one another by providing training and research facilities in the educational, professional, technological, and administrative realms;
5	To collaborate more effectively for the greater utilization of their agriculture and \industries, the expansion of their trade, \including the study of the problems of \international commodity trade, the \improvement of their transportation and \ communications facilities, and the raising of \the living standards of their peoples;
6	To promote Southeast Asian studies;
7	To maintain close and mutually advantageous cooperation with existing international and regional organizations with comparable goals and objectives, as well as to explore all opportunities for even closer cooperation among themselves.

Key facts on ASEAN member states

	HEI	Population	GER (%)	Size (Sq km)	GDP (US$)	GNI (US$)	HDI (Rank)
Brunei	4	417,400	32	5,765	$17.10 bn	37,320	0.856 (31)
Cambodia	37	15.3 m	16*	181,035	$16.78 bn	1,020	0.555 (143)
Indonesia	546	254.5 m	31†	1,910,931	$888.5 bn	3,630	0.684 (110)
Lao PDR	11	6.6 m	17	236,800	$12.00 bn	1,660	0.575 (141)
Malaysia	51	29.90 m	39	330,290	$338.1 bn	11,120	0.779 (62)
Myanmar	99	53.44 m	14!	676,577	$64.33 bn	1,270	0.536 (148)
Philippines	1346	99.14 m	36	300,000	$284.8 bn	3,500	0.668 (115)
Singapore	8	5.470 m	-	716	$307.9 bn	55,150	0.912 (11)
Thailand	150	67.73 m	51	513,120	$404.8 bn	5,780	0.726 (93)
Vietnam	70	90.73 m	30	331,212	$186.2 bn	1,890	0.666 (116)

Sources: Higher Education Institutions: WHED, 2016; Population: World Bank, 2014; GER ,= Gross enrolment Ratio, tertiary, both sexes, 2014 (* = 2011; † = 2013; ! = 2012); Size: Encyclopaedia Britannia: 2016; GDP: World Bank, 2014; GNI: World Bank, 2014; Human Development Index (HDI): 2015

Organizations engaged in higher education in ASEAN

During the fourth ASEAN Summit in 1992, ASEAN leaders called for the region to be strengthened by promoting human resource development and higher education. [3]This aim resulted in the signing of the ASEAN University Network Charter and, as a result, the founding of the ASEAN University Network, (AUN, n.d.) in November 1995, with the AUN Secretariat based in Bangkok, Thailand. Since its inception, AUN, the network of outstanding institutions, has served as ASEAN's implementing agency in higher education for the region's transition to the ASEAN Community. In terms of organizational structure, the structure is divided into three layers. The AUN Board of Trustees is in charge of policy (AUN-BOT).

The implementing level is made up of AUN Member Universities that participate in and carry out AUN programs and activities. AUN membership has currently extended to 30 major institutions within ASEAN, and the ASEAN+3 University Network, which comprises 10 universities from China, Japan, and Korea, was founded in 2012. The AUN Secretariat is in charge of coordination and supervision. The AUN Secretariat's responsibilities also include planning, (AUN, n.d.). AUN programs and activities are organized, coordinated, monitored, and evaluated. The AUN Secretariat is also responsible for proposing ideas,

innovations, and proposals for AUN cooperation, as well as devising plans and processes for sourcing and generating finances for AUN's self-reliant and self-sustaining operation. AUN collaborates closely with the ASEAN Secretariat in reporting results and suggesting strategies for increased intra- and inter-regional collaboration in higher education, (AUN, n.d.).

ASEAN strategic and action plan

The future action plan which has been established and determined as the ASEAN Roadmap 2025 to establish a single field of higher education in Southeast Asia: The ASEAN Higher Education Space Roadmap 2025 contributes to the ASEAN Community Vision 2025 and future resilience by improving people-to-people connectivity and access to and recognition of higher education in the ASEAN area, (ASEAN, 2022). It envisions an ASEAN higher education space that is resilient and sustainable, allowing for increasing harmonization and internationalization of higher education institutions in the area. It represents the new reality of education around the world and offers adaptable and sustainable techniques to respond to the changing context of higher education. This includes increasing student access and inclusion to internationalized higher education offerings through digital transformation. Southeast Asia has seen waves of fast change as countries moved toward greater liberalization in their socioeconomic activities and tighter regional and global interdependence, (ASEAN, 2022). Higher education's evolving landscape is dominated by massification, diversification, marketization, and globalization. Higher education demand has increased in three ways: the number of students has increased, there is a greater interest in cross-border knowledge and experience, and there is a greater need for a broader range of academic programs, (ASEAN, 2022).

In response, governments in all nations have established additional higher education institutions, allowing the private sector to play a larger role while also giving public universities more autonomy. Higher education restructuring has resulted in the formation of autonomous and other forms of higher education institutions in many Southeast Asian countries. Although there are several governance structures, these institutions are often granted a stronger executive body and a new governing board, as well as more autonomy and responsibility in financial, human resource, and academic management. The establishment of the ASEAN Community in 2015 adds another crucial layer to the region's higher education landscape upheaval. Many governments have changed their education systems to harmonize. Although various multilateral systems exist at the regional level, each has its limits and is not generally adopted. Regional integration necessitates that ASEAN make harmonization and the formation of a regional common space in higher education a core policy priority, with a more methodical approach and concrete collective activities centered on common regional goals.

Introducing the 4As theme of HEIs

The key to understanding how the ASEAN's members have been involved in such a collateral manner to ensure the future of HEIs is being considered and systemized as to what could be done to ensure more a student approaching higher education during the strategic development plan and progress, [i]as such one theme has been created following this matter as the government policies of ASEAN member nations to promote access to education and ensure the right to education, using Katarina Tomasevski's 4As scheme, which includes the availability, accessibility, acceptability, and adaptability of education (AICHR, 2019).

Availability	By offering several pathways for secondary education graduates from official and informal education to continue in Higher education, including technical education streams and higher education streams, ASEAN Member States improve access to postsecondary education. Over the past ten years, Higher enrollments have increased in Cambodia, Singapore, Vietnam, Thailand, and Lao PDR thanks to a variety of methods, including the expansion and diversification of higher institutions (AICHR, 2019).
Accessibility	Student financial support systems, such as scholarships, loan programs, and education funds, are established in ASEAN nations to promote equity access to Higher education and assure financial affordability to students from low-income families. These awards are aimed at students from disadvantaged socioeconomic backgrounds and those with impairments (AICHR, 2019).

Acceptability	Even while there are more educational institutions and programs than ever, there are growing worries regarding the standard of some of these offerings. For instance, "certain institutions and programs that offer degree or diploma courses *do+ not+ fulfill the necessary criteria." Governments have set up institutions in every nation to guarantee the quality of Higher education in areas including curriculum creation, lecturer and facility quality, and student educational assessment. In Thailand, for example, this assessment is often done every five years (AICHR, 2019). Learning resources including libraries and other learning resources, educational equipment and materials, teaching methods and materials, faculty staff development, and
Adaptability	Lifelong learning is also being offered by more and more institutions to give students the possibility to improve their skills and knowledge to respond to the labor market needs to extend access to Higher education and ensure equity. Through curriculum design, improvements in teaching and learning, financial support for research and publication, and its Higher Education Quality Assurance program, one of its top priorities has been to improve its higher education program and increase its relevance to the current and future labor market (AICHR, 2019).

Ethics and globalization for sustainable development

Mobility: policies should be relegated to the European Union. If the EHEA's goals in this area are to be met, all EHEA students should be afforded the same opportunities as EU students. This may include, for example, access to transparent EHEA-wide information on admission and funding in various countries and institutions, (Curaj et al., 2015).

There is a need for more evidence-based policymaking in the domain of internationalization, as well as a greater willingness to reassess goals in light of new findings. Mobility imbalances, for example, may not always be negative to internationalization. Imbalances may, however, need to be corrected when one of the affected parties feels the need, and in a fashion that does not restrict freedom of movement. EHEA goals in this area (e.g., increased and balanced mobility) may need to be readjusted, as one of the EHEA aims is enhanced attractiveness, but the most appealing HE systems rarely experience balanced mobility flows, (Curaj et al., 2015).

More research: is needed on the impact of institutional differentiation and resource concentration (mergers, alliances) on internationalization trends; domestic internationalization; the understanding and definition of internationalization; and the effects and uses of mainstream internationalization policies 'at the periphery' (including in both countries and HEIs 'at the periphery'), (Curaj et al., 2015).

Area of Coverage: Best practices and case studies

Brunei Darussalam	In Brunei, one of the key policies to promote access to Higher education is the government providing free Higher schooling. Other than that, many projects have been introduced in Brunei to improve the quality of Higher education. Bridging Programmes aims to increase student opportunities to gain entry to Bachelor's Degree programs in universities.
Cambodia	Cambodia's education reforms have been focused on access and equity within its education system with a specific focus on non-formal education and creating mobility. The Kingdom has also fostered a strong research culture via a research grants program with a focus on developing ASEAN regional cooperation.
Indonesia	In Indonesia, the policy for students with disabilities is strongly promoted and implemented. One concrete example is the establishment of the Disability Service Study Center (PSLD) at Brawijaya University Malang. PSLD pioneered the movement at the higher education level to get equal access to all processes of teaching and learning.
Lao PDR	In Lao PDR, 49 different ethnic subgroups are divided into four broad ethnolinguistic groups: Lao-Tai (67%), Mon-Khmer (21%), Hmong-Lu-Mien (8%), and Chine-Tibetan (3%). The government reserves some seats in selected Higher education institutions for ethnic minority students.

Malaysia	Malaysia has had a focus on liberalizing higher education to meet the increasing demand for Higher education and at the same time has widened access to Higher education. The transformation of vocational education has successfully redesigned the landscape of the education system in the country and resulted in a significant increase in enrolment in TVET.
Myanmar	In Myanmar, to promote and protect the right to Higher education, the government paid special attention to the conflict areas like Rakhine States. In 2017, two learning centers for refugees and minority groups are opened in this State for those who would like to join the distance education program.
Philippines	The Philippines has initiated a series of comprehensive financial measures to address the equity gap in accessing Higher education. The UACTE Act provides for free tuition at 112 state universities and colleges. There is also a demonstrated commitment to Regional Caravans (or forums) and partnership building.
Singapore	Singapore has a strong focus on financial support and subsidies. UNISIM was set up as a private limited company in 2005 and received a degree-granting license from the Ministry of Education. Every Singaporean child between the ages of 7 and 16 will receive annual contributions and one-off grants into their personal Edu-save accounts.
Thailand	In Thailand, teacher development is seen as a key to ensuring quality education and reducing disparity. A project called "Diamond in the Mud" was initiated in 1986 and aimed at developing new teachers. There is also a specific policy to support students with disabilities to have access to Higher education.
Vietnam	Vietnam's Education Law aims to improve teaching quality and student mobility with a focus on ethnic minorities (15 percent of the population) and families from low socio-economic incomes. Due to reforms over the last 30 years, Vietnam has experienced a reduction in the gap in enrolment numbers for ethnic minority students.

Current challenges and key improvement

There are still some major difficulties and disparities brought about by the region's rapid expansion and prosperity, despite all the efforts made by ASEAN nations to improve access to university education. Every nation has unique regulations to guarantee that excluded groups receive equal access to education.

HEIs continue to be a problem, as does the lack of a research culture. It is also asserted that using English as the language of instruction in public HEIs at the undergraduate level has to overbear the usage of English proficiency and increased unemployment among locals. Even while there are differences between private and public HEIs, the lines between them are getting increasingly blurred, (Welch, 2011).

The increased number of subsidiaries of public HEIs has created a market of questionable private HEIs, and regulation of the burgeoning private sector has become an issue, affecting overall educational quality. Amongst other members, has lofty ambitions for its higher education system, but the belief is that to attain them, ethnic quotas set in the past must be eliminated, (Welch, 2011).

New teaching setting

Before the COVID-19 epidemic, several universities used an 'online forward' approach to teaching and learning. Taylor's University in Malaysia, for example, claims that each of its courses has its virtual site (akin to a learning management system), allowing for online involvement with examinations, assignments, peer help, and communication channels with peers and lecturers. A progress-tracking meter and the ability to earn digital badges keep students motivated in their studies. Students also have access to a Lecture Capture System, which houses a range of lecture recordings and other learning tools. Live streaming and light board Video Technology are also used to record lectures in large-scale courses, (EAP, 2022)

The presence of infrastructure facilitates the shift to remote teaching and learning. Beyond teaching and learning, the potential benefits of a more online-oriented higher education system are numerous. Online schooling, for example, is predicted to alleviate transportation congestion in major cities. Students in outlying locations will have a better opportunity to engage in higher education, and collaborative relationships between national and international universities in developing and marketing joint online programs and degrees may change the way qualifications are structured. Another

advantage of online learning is that it encourages more interaction between students and teachers, as evidenced by various East Asian studies. Finally, key neighbor professors from ASEAN members discuss the possibilities of more online-based courses to contribute to lifelong learning, where education has no age restriction and people can upskill or reskill whenever they want. Finally, the COVID-19 experience is igniting a long-overdue conversation about new directions for teaching and learning in higher education, (EAP, 2022).

HEI gap and limitation: Capacity and capability to achieve a high standard

Each country has specific policies to ensure equity in education for marginalized groups. Although the current gaps are still highlighted and discussed for reaching solutions, such as;

Gender equality: for example, gender and pupils with special needs and disabilities are considered in policy to provide equity access. Youth have the duties and opportunities to raise the country out of its Least Developed Country classification, but there are governance problems concerning ethics and attitudes toward education.

Promoting inclusivity: Women, ethnic minorities, low-income families, immigrants and refugees, and students with disabilities and special needs continue to face barriers to postsecondary education. Furthermore, accessibility programs are typically focused on socioeconomic position, gender, and disability rather than broader rights outlined in the ASEAN Human Rights Declaration such as religion, political or other choice, and national or social origin.

Comprehensive scholarship and opportunity: The most rural and poorer regions of the world tend to have fewer Higher education institutions, indicating that government subsidies are not necessarily benefiting the students who need them most. Many countries provide scholarships to students from low-income families but the amount is still low and insufficient to fully support study and living expenses.

Remote area and poverty: the selection of programs is limited, and tuition prices are frequently prohibitively high, limiting the right to an education for kids from low-income families who cannot afford to attend private universities and perform poorly when enrolled in public institutions.

Quality and relevance: there is a challenge to maintain the relevance of Higher education to meet the needs of the labor market, national socio-economic development, and global trends. Some of the most valued skills of graduates in South East Asia include not only technical knowledge and skills but also problem-solving and leadership skills.

Industrialized factors: the issue of adaptation and acceptance in reaction to global economic changes. Higher education remains out of step with the needs of industrialization, modernization, and international economic integration.

RECOMMENDATION AND FUTURE STRATEGIC PLAN

1. How is it being systematically formulated and created for the comprehensive circumstances?	Even though the right to Higher education was not expressly addressed in such documents, the Constitution, laws, and policies ensure citizens' rights to education. Institutions of higher learning should strengthen their ties with domestic and international employers and the labor market to improve their curricula and methods of teaching and learning to produce quality graduates who can adapt to the changing national, regional, and global contexts.
2. What is the significant improvement of HEIs among ASEAN members?	ASEAN member states have promoted pathways and financial support for students to access Higher education but this support is not benefiting groups such as women, ethnic minorities, low-income families, students with disabilities, and special needs. Higher education institutions should find more financial resources to have more sustainable funding for instance public-private partnerships.
3. What are the best practices or results from the student life-learning development approach?	Student financial support systems, such as scholarships, loan programs, and education funds, are established in ASEAN countries to ensure financial affordability for students from low-income families and to promote equity access to Higher education. However, this financial support is low and limited in some ASEAN member states.

4. Key future implementation	Implementing quotas for students with disabilities and creating particular inclusive education policies in higher education while assisting higher institutions in ensuring that there is adequate infrastructure, resources, and curriculum for students with disabilities and special needs. The governments should undertake studies and surveys on how best to prepare young people for the labor market and help them choose the right career path. Create specialized inclusive programs that focus on a few target demographics, such as women, ethnic minorities, low-income families, immigrants, and refugees, as well as students with disabilities and special needs who still have restricted access to Higher education.
5. Recommendations from the professional, academic, and relevant sector	To enable proper administration, monitoring, and evaluation, support the development of policy and research institutions. Training and Exchanging Programs amongst high academic professionals and internship programs in cross-cutting edge industries.

CONCLUSION

To increase awareness of and approach the current changes in how education industries have been transformed through many years of technological advancement and platforms for online learning, the overview of higher education institutions in association with ASEAN countries has been developing to the circumstances of their national commodity and the standard of higher education among other nations, probably incorporating with international educational institutions. These HEIs are at the fore of the solutions required to progress the Sustainable Development Goals, stressing the importance of education in fostering the kind of healthy, inclusive society that is envisioned in the 2030 Agenda. Higher education as such is only one aspect of HEIs' responsibilities.

In actuality, HEIs play a significant role in establishing a continuum between all levels of education by preparing new and experienced educators, modifying curricula, developing, and nurturing concepts and novel pedagogical approaches, instilling core values through a variety of teaching techniques and platforms, and nurturing innovations, including technological ones, to enhance the educational process and outcomes. Higher education institutions around the world have also been modernizing and internationalizing as the world moves toward globalization to generate highly skilled graduates for the emergence of new occupations as a result of technical improvements in this fast-paced economic environment. Since they are the source of human capital, HEIs have always been important in forming the global economy. The ASEAN Member States have adopted some strategies to internationalize HEIs, including exchange programs that seek to advance intercultural understanding, brief training sessions for academic staff members to improve work performance, and memorandums of understanding (MOUs) between various institutional organizations and pertinent partners both within and outside the region to develop effective plans to increase the number of interregional collaborations. The initiatives to promote the internalization of HEIs are also motivated by national policy. Although the development has been examined for viability, there are still many challenges that have put heavy measures to secure the learning platform to become reliable and maintain knowledge and practices.

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Developing a Dynamic Model of Interactive e-Learning in Accounting and Finance Programs in Higher Education Institutions in Cambodia: A Phenomenological Study

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The advent of technology and putting emphasis on education in ICT has been the main focus of most universities in Cambodia. Higher education institutions are all the more challenged to be at par with neighboring countries in terms of 21st century skills and competencies, the dynamic intricacies of learning bring to the future at hand through e-learning. This study explored the lived experiences of teachers engaged in e-learning in Cambodia, especially during the pandemic. It also focused on the experience on the use of digital tools that generate great possibilities for developing new techniques of information search, skills, and technological abilities within the school's academic framework, for teachers, who were able to ask themselves how much knowledge they have of these new tools. A phenomenological research design was adapted that culled the following emergent themes through constant comparison by means of phenomenological reduction: Innovative Teaching for Effective Learning, Building Motivation through Difficulties, E-Learning is a Necessity in New Normal Education, Having Aid from School and Technology, Prioritizes Students' Effective Learning and Essentials that led to a Dynamic Model Framework for Interactive e-Learning in Cambodia.

Keywords: *Technology, interactive e-learning, higher education, technological skills in higher education, pandemic*

INTRODUCTION

The problem and its background

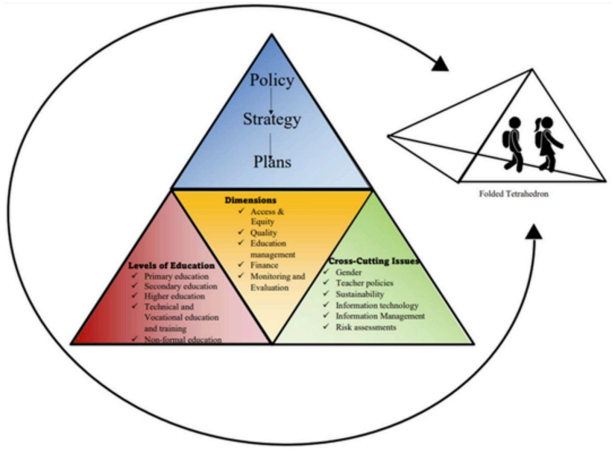
The Kingdom of Cambodia, a developing country of more than 16 million people, prioritizes the building of its human resources after the devastation from the Khmer Rouge Regime in the 1970s (Sol, 2021). That regime killed about a fifth of the country's population at that time. The genocide targeted the intellectuals such as doctors, lawyers, teachers, journalists, artists and students. After the end of the regime, the government recognized the need to rebuild the nation and that the development of the human resources is key to this development. However today, there are about 125 higher education institutions in Cambodia where more than 200,000 students are enrolled (Heng, 2021). In March 2020, to curb the spread of the Covid 19 virus, the Ministry of Education, Youth and Sport (MOEYS) announced that all educational institutions would suspend physical classes temporarily (Seangmeng, 2020). Most of the higher education institutions had to transition to e-learning modalities immediately. The challenges included the lack of ICT infrastructure, internet connectivity, conversion of course materials and students' ability and capability for e-learning. Almost 2 years on, the higher education institutions have not fully gone back to the "old '' normal physical classes. The learning loss in the students is high and it could be attributed to the lower effectiveness of education through e-learning. The interactivity of the teaching and learning process is highlighted as one of the factors that need to be addressed. It is a fact that each and every learner and the learner's world is different. This has been highlighted further during this pandemic. The Covid 19 pandemic has exposed the vulnerabilities of the learners as well as the weaknesses of the education system. The United Nations Policy Brief on Education during Covid 19 and Beyond calls for flexibility, equitability and inclusivity. The researcher is a faculty of accounting and finance in a private higher education institution in Cambodia. Thus, this research will focus on developing a dynamic model of an interactive e-learning system for higher education in Cambodia.

Using the existing policies, processes and resources, the dynamic model of interactive e-learning produced from this research will enable learning providers of Accounting and Finance Program in Cambodia to develop curriculum, course programs and lesson

plans that are engaging and interactive. The various stakeholders will be able to apply the processes within their contexts as well as to ensure a cohesive, inclusive, flexible and equitable e-learning system. This wholistic approach will lead to higher standards in learning and progressive country building. The tetrahedron in Figure no. 1 shows the dimensions that can be addressed by a dynamic interactive e-learning system and may support the findings of the emergent framework at the end of this study.

Figure 1

A Flat Tetrahedron Illustrating the Facets to be Considered in Developing a Curriculum and to which the Dynamic Model in Interactive e-Learning can be Applied



The base of the tetrahedron represents the dimensions that the learning system must accomplish. These are accessibility & equity, high quality, proper management, adequate financing, constant monitoring and continuous evaluation. The three sides of the tetrahedron contain the different factors that must be in place to enable the education system to achieve the dimensions mentioned in the base. The first side represents the importance of formulating the principles that established the policy. This policy forms the basis for setting up the strategy. The approach in the strategy can be the foundation of the plans for execution. These must be based on the priorities of international and national governing bodies as well as the needs of the stakeholders such as employers, business, government, society. The policy, strategy and plans must encompass all the levels and types of education system in the country – primary, secondary, higher, technical & vocational, and non-formal education levels. The third side of the tetrahedron represents the emerging issues that have become important and integral consideration in any education system: gender, teacher policies, sustainability, environment, Information Technology and information management. At the center is the beneficiary of the system – the learner.

This diagram is not all-inclusive. The four sides highlighted in the tetrahedron as illustrated in Figure 1 may not be enough to cover all the factors required to be considered in policy analysis, development and programming. However, the research may result in additional information or changes in the contents of the tetrahedron. During this pandemic time all businesses and organizations have gone back to the drawing table to re-write their strategies and included risk management as a major factor to consider. The education system and institutions must be equally prepared. The policy and programming must be embedded with a mechanism to identify, assess, and address any risks that it will face. As such, under the third side of the tetrahedron above, risk management is added to highlight the need for the same. It may be argued that risk management may fall under the dimension of monitoring and evaluation. Monitoring and evaluation is applicable to the policy and plans that already existed. Risk management involves the assessment of both the current and future situations. Only then will the policy analysis and programming be truly dynamic.

LITERATURE REVIEW

For most of the higher education institutions the need to rapidly moved into e-learning modalities, following the suspension of the physical classes by the Ministry of Education, Youth and Sports in March 2020, “has been a huge culture shift for leaders, faculty members and students, with limited prior exposure to digital learning, teaching platforms and pedagogies.” (Leng et al, 2020). In Cambodia, traditional methods of face-to-face instruction in the classroom remain dominant across the sector, despite calls to integrate ICT into higher education since the 1990s. Higher education infrastructure and learning resources in Cambodia existed mainly for on-campus teaching and learning (Sol, 2021). Upon the arrival of COVID-19, the pandemic has caused disruption in Cambodia in all aspects of life, and education is no exception (Heng, 2021). The abrupt transition to online learning prompted by the COVID-19 pandemic allowed no time for all stakeholders to prepare. Faculty members and students were required to take on online teaching and learning without enough guidance, training, and resources (United Nations, 2020).

Despite this, COVID-19 presents both opportunities and challenges to the education sector (Marinoni et al., 2020). Contemplating the fast-growing context of a more digitalized world, COVID-19 has provided an excellent opportunity for Cambodian educational institutions to integrate ICT into their education programs. The infrastructure and experience accumulated during the COVID-19 crisis will act as a strong impetus for the greater utilization of ICT in Cambodian education in the future (Heng, 2021). According to Sol (2021), digital infrastructure and learning resources "include but are not limited to a wide range of digital devices, e-learning platforms, technology-enhanced classrooms, high-speed internet connectivity, digital libraries, comprehensive learning management systems, data privacy and security, quality digital contents and resources, and constant technical support" (Sol, 2021).

Adopting online learning and teaching is no longer an option but a matter of survival. Key challenges are related to the closure of educational institutions, leaving millions of learners unable to continue their education in normal, face-to-face classroom settings (Marinoni et al., 2020; UNESCO, n.d.). As a response to these unprecedented challenges, schools and universities in Cambodia and other countries around the globe have resorted to online learning, creating a phenomenon called "the rise of online learning" (Heng & Sol, 2021). Because ICTs provide both students and teachers with more opportunities in adapting learning and teaching to individual needs, society is forcing schools to aptly respond to this technical innovation (K. Ratheeswari, 2020).

However, the need to shift to e-learning during this pandemic could also be an opportunity to leapfrog into a personalized and digitized education which will prepare the learner for Industrial Revolution 4.0 in the long term. COVID-19 could be considered "a silver lining in the crisis" for Cambodia's education sector. Particularly, the COVID-19 pandemic has offered a unique opportunity for Cambodia "to strengthen the integration of ICT in education and foster the digital transformation of its education system" (Heng, 2021). The increasing investment in essential digital tools and Learning Management Systems (LMS), the transformed learning resources developed and made available by HEIs and faculty members, and the experience gained through online teaching and learning during the school closure will improve blended learning in Cambodian higher education post-COVID-19 (Sol, 2021).

To be able to aid the Cambodian higher education institutions, Leng et al, (2020) suggests that "higher education leaders have a genuine commitment to adopting online learning as a key complement to in-person classes in the post COVID-19 era, although not a total replacement for them" (Leng et al, 2020). It is suggested that digital infrastructure and literacy must be developed. It is important that they find more innovative ways to encourage faculty members to integrate ICT into the classrooms more widely.

Due to the socially constructed nature of technology, technological choices made during the Covid-19 pandemic will impact micro-level teaching and learning experiences, to create wider and unpredicted macro-level societal impacts (Selwyn 2010). Instead of short-term solutions, what is needed is critical analysis of these matters (Williamson, 2020) The integration of ICT or blended learning in the mainstream classrooms "requires effective leadership, strong commitment and institution-wide collaboration" (Heng, 2021). Furthermore, approaches to online learning and teaching need to be focused more on students rather than relying on teacher-dominated lectures so that students are engaged and take responsibility for their learning, and also the establishment of nationwide development and training programmes for teaching and non-teaching staff to increase their confidence and competency around online learning and teaching methodologies" (Leng et al, 2020).

Research with a number of teaching and learning centers reveal eight priorities to enhance the effectiveness of teaching and learning in e-learning modality (Naffi et. al, 2020). The priorities are to create accessible materials; choose adequate digital technologies; record lectures and caption videos and audio content; adopt inclusive culturally responsive teaching; adopt a flexible approach to student participation; ensure financial support and equipment; understand student needs; and address systemic racism.

Unplanned closures of educational institutions undoubtedly cause severe issues for learners, educators, parents, and society at large. There have been notable effects on interest in learning and students' academic performance (Seangmeng, 2020). It is known that students learn better if they actively participate during class rather than just listening to hours of lecture. Through learning resources including video conferencing applications such as Zoom, email and social media, teachers and students are able to continue their teaching

and learning activities. Furthermore, through online resources, educators and learners can access information, create supportive environments for education and have the opportunity for professional development (Seangmeng, 2020).

The National University of Singapore has identified three approaches to ensure engagement of students in online learning: "strengthen student-teach interaction, plan regular checkpoints with live student responses, and utilize student interaction. Keeping students engaged virtually is more challenging because it is harder to pick up on the clues you get during a traditional class: knowing when students are lost, distracted or confused and when to speed up or slow down. By effectively using teaching techniques and available online platforms, lecturers can deliver engaging lessons while achieving meaningful interactions among the teaching team and students. We encourage educators to explore and expand on the various methods to make online learning more engaging for students." (Fung et al, 2020).

Interactivity must be considered in designing an effective learning management system (LMS). Sabry and Barker (2009) states that " For a learning system to be interactive for different types of learner, it will be necessary to take account of the users (the learners) who are expected to use such systems for learning, and it is not merely enough to give students access to different tools and/or learning environments (Bates and Leary, 2001, as cited in Sabry and Barker, 2009). It requires a move from a teacher-student dependence design to a teacher-student independence design that gives students flexibility and control over their learning in line with their changing needs. This essentially requires investigation of factors such as learners' different learning preferences, needs, interests, prior knowledge, experiences, background, culture, talents, and abilities.

The Learner component is concerned with knowledge about the learner such as individual differences (for example, gender, prior knowledge, age, culture and special needs); learning styles (for example, Sequential/Global, Active/Reflective and Visual/Verbal); performance and attainment level; attitudes and beliefs. The Subject Content component, includes information that constitutes relevant subject knowledge required to be learned including internal information or actual contents provided (subject material) and other external information that are relevant or supplementary to subject material, for example, searching the Internet for information such as papers relevant to subject material), items to be taught, course aims and objectives, and skills to be developed (Figure 1). The Technology component is concerned with how a course of study may be delivered in terms of different tools to be used, including usability, interactivity, navigation, and human-computer interaction (HCI) aspects of learning systems. The Pedagogy component is concerned with how a course of study will be delivered in instructional terms. Meanwhile, the Interaction component will help in coordinating and balancing the other four elements.

Sabry and Barker (2004), highlighted the need for a dynamicity dimension of the Interactive Learning System model. This is on how information should be "updated instantly as soon as changes occur and is available to those who need it at the time and in the form and relevance in which it is needed" (Barker, 2007; Barker and Finnie, 2004, as cited in Sabry and Barker, 2009). The Dynamic Interactive Learning System (DILS) "will not only have interactive components, but dynamic components rather than static components that are constantly updated and modified based on latest research and updated knowledge gained in the field concerned. It is based on open systems that are flexible, adaptable, adaptive, interactive, relevant, anytime and anywhere. The DILS advocates the inclusion of a dynamic feedback and adjustment mechanism which is largely ignored by most learning systems. The DILS also stresses and highlights the importance of the balancing concept through the interaction and coordination between different components of the model based on up-to-date and dynamic information including course material, relevant technology, pedagogy and learners' actual profile in order to both accommodate students' differences and develop skills required in a relevant and balanced manner" (Sabry and Barker, 2009).

As part of this study, the researcher focused on "adopt a flexible approach to student participation - Prepare for flexible timing for student assessment; discontinue traditional three- hour lectures; opt for asynchronous activities; give priority to project-based assignments in order to promote asynchronous participation; provide additional time for completing exams and other evaluations when necessary" (Naffi et al, 2020). Moreover, it is concluded that the Dynamic Interactive Learning System (DILS) and the framework illustrating the dynamic model in e-learning is significant to address the gaps in this

research, to show how these influences students in Phnom Penh, Cambodia, the digital skills that teachers acquired, and what the real integration of new virtual tools or platforms are. Therefore, this research explored the lived experiences of technology-driven teachers during this time of the pandemic. It also focused on the experience of the use of digital tools that generate great possibilities for developing new techniques of information search, skills, and technological abilities within the school's academic framework, for teachers, who will be able to ask themselves how much knowledge they have of these new tools.

PURPOSE OF THE RESEARCH

The Covid 19 pandemic of 2020 has been seen as a catalyst of change from physical classes to e-learning for higher education institutions in Cambodia. The need to adapt and adopt the e-learning modality has pushed the teachers and learners to develop, create and innovate a workable e-learning system. Education during Covid 19 and beyond a new normal wherein e-learning will be part of the higher education institutions' teaching and learning modality. The literature shows that for effective learning there is a need for engagement and interaction between different components: the student, the technology, the pedagogy and the subject content. Considering that the characteristics of these components keep changing and evolving, a definition of the dynamic nature of these components must be included.

The successful implementation of the first e-learning program in 2005 has introduced the relatively new pedagogy of e-Learning in Cambodia. It shows that the e-Learning system is an effective and powerful approach in providing education to underserved students in the provinces in Cambodia as well as working professionals who seek further professional development. The indefinite suspension of physical classes has pushed higher education institution administrators, teachers and students to prepare and use e-learning to enable the continuity of education. This research covered the experiences and learnings of the higher education institution administration, teachers, students and also employers on establishing e-learning in higher institutions in Cambodia.

RESEARCH QUESTIONS

The research questions were:

a. How will the participants describe their lived experiences on e-learning? How will the participants describe e-learning?

b. What challenges did they encounter in e-learning?

c. What best practices can they share in their teaching using e-learning?

d. What dynamic model or framework can be developed for the interactivity of the e- learning management system in higher education institutions in Cambodia?

There are about 125 higher education institutions in Cambodia and two thirds of these are private. The research was conducted on public and private higher education institutions that are based in Phnom Penh – as most of these institutions are based. The participants were teachers in accountancy and finance conducting e-learning.

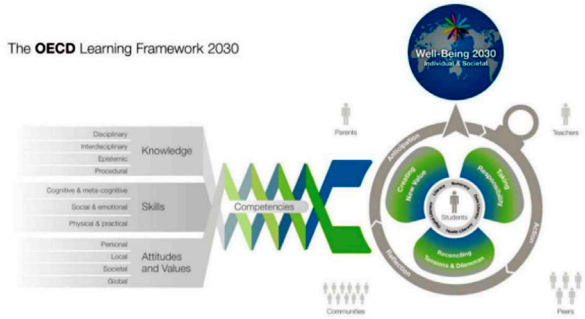
The selected participants for the research will cover a number of public and private institutions that offer accounting and finance courses. These higher education institutions are based in Phnom Penh, Cambodia.

THE CONCEPTUAL FRAMEWORK

The learning framework for 2030, prepared by the Organization for Economic Cooperation and Development (OECD) was designed to prepare Cambodians for 2030 and beyond (Leng et. al., 2020). The framework is comprehensive and is designed to guide the stakeholders on the education of the learners. Developing future-ready learners through advocating learner agency and cultivating the attitude of being change agents will demand extensive reformation of Cambodia's higher education system. During this pandemic, we have seen that Cambodia's education system had many challenges to hurdle especially when it was required to change from physical classes to distance learning. Reforming to meet the principles of the OECD Learning Framework 2030 may prove highly challenging, if not, beyond the current educational system's capacity and capability (OECD, 2018). Figure 2 below illustrates the OECD learning framework for 2030.

Figure 2

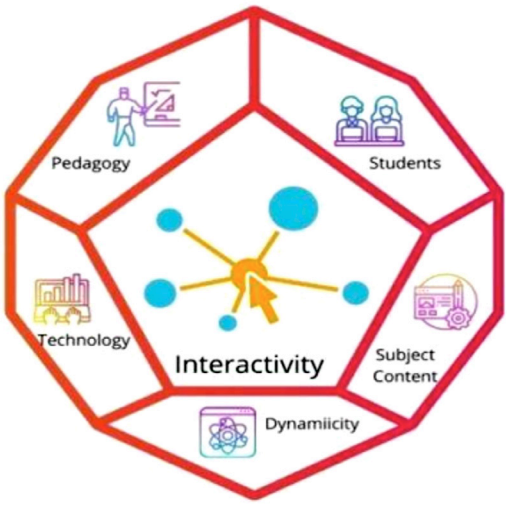
The OECD Learning Framework 2030



The research followed the initial concept as illustrated in the pentagon in Figure 3 which is actually anchored on the OECD Framework. The interactivity of the student component, pedagogy component, subject component, technology component and the dynamic characteristics of these components were investigated in this research. The student component included their experience, expectations and concept of interactivity in the learning process. The pedagogy component will include the teachers' experiences, ideas and innovations in enabling engagement and interactivity in their subjects. The subject component investigated the specific activities needed by each subject to enable the achievement of the learning outcomes, and also the skills set that the potential employers needed from the graduates of the course. The technology component involved the innovations that were used as well as those that could be used in the teaching and learning process. The dynamicity covered the feedback and response mechanism to the changing factors in each of the components.

Figure 3

A pentagon of dynamicity and interactivity of e-learning in Cambodia



Reforms of the Cambodian e-learning system during and post-pandemic is vital. The pentagon presented may serve as a guide.

METHODOLOGY

Research method

The research took a qualitative approach. It focused on the lived experiences of the participants in the context that they are engaged with. "Husserlian descriptive phenomenology as a research method aims to explore and describe lived experiences. However, understanding the guiding features of phenomenology in the tradition of Husserl may be complex, especially when deciphering how intentionality, the natural attitude and the phenomenological reduction are articulated into a research study" (Welch & Barr, 2017). Hence, the "pentagulated" approach of the lived experiences of teachers, pedagogy, technology, subject content and dynamicity enabled the researcher for the reduction of the lived experiences into its intentionality.

Initially, the research took the form of secondary desk research to set up the questionnaire, the details of the participants and the timeline. After considering the results of the desk research, a primary field research was conducted using a set of questionnaires developed to gather additional and current data. Most of the data were of the e-learning system in Accounting and Finance Courses in higher education institutions in Cambodia.

Participants and stakeholders

The participants for this research were teachers in accountancy and finance conducting e-learning Purposive sampling was applied and the selection criteria for the participants were the following: 1) Teaching online e-learning for the past one year since the pandemic, 2) Faculty of accounting and finance; 3) Teacher in Cambodia through distance online learning or e-learning. The number of participants increased as the researcher anticipated a snowball sampling that normally occurs in qualitative data gathering and which is typical in phenomenological research.

Instrument

The data were collected through semi-structured interviews formulated by the researcher and given to the participants. The main instrument therefore of the study was the interviews to obtain more deep information regarding the participants' lived experiences.

Data collection procedures

The researcher herself went to Cambodia to personally attend to all the requests for data gathering, a similar letter was also sent to the respective administrators of the said institutions outlining the purpose, method of research, and the selected participants within their institution. The researcher then scheduled an interview with the selected participants.

Data analysis procedures

The data analysis was in the form of phenomenological reduction. "Husserl viewed the reduction as a means to confirming epistemological assumptions about the nature of knowledge, especially how it is viewed within consciousness. Husserl believed through a purging or cleansing of the mind to allow the essences of the phenomena to shine through (LeVasseur, 2003, as cited by Welch & Barr, 2017). Therefore, for Husserl, descriptions of the life-world not only aim to capture the raw essence of the phenomena or how the phenomenon was experienced, but take into consideration the nuances, the contextual underpinnings, the emotiveness, and the actions that were evoked in consciousness. Moreover, the phenomenological reduction resolves to suspend impressions, conceptions or beliefs surrounding the truth or accuracy of the phenomena in question" (Beech, 2003, as cited by Welch & Barr, 2017) this is evident in one of Husserl's proponent, Giorgi (2012), who coined the necessary essential steps towards phenomenological reduction. Thus, the researcher adapted the step-by-step procedure of Giorgi as founded upon by the Husserlian phenomenological reduction school of thought namely:

1. Getting to Know the Data. Giorgi's approach of analysis begins by repeatedly listening to the recordings of the interviews or reading the transcripts in order to become familiar with the information. Through this procedure, the researcher was able to gain a comprehensive understanding of all the transcripts and comprehend the significance of the experience from the participants' points of view. The researcher needed to adopt a "phenomenological mindset" to make sure they see the experience through the respondents' eyes (Giorgi, 2012).

2. How to Recognize Meaning Units. The entire description was dissected into its component pieces in this step. Classifying meaning units refers to the process of defining pieces. Each meaning unit only has meaning in respect to the broader meaning structure and expresses different parts of the participant's experience (Ratner, 2001).

3. Meaning Units are Regrouped in Clusters. This stage was crucial for developing a deeper comprehension of the information provided by the participants by identifying the study-relevant components and creating a coherent structure of the connotation of their experiences, as well as the relationships between those constituents (Giorgi, 2012). Those that were determined to be pertinent were regrouped in accordance with their entwined meanings in order to better convey the participants' lived experience (Giorgi, 2012). According to Ratner (2001), this procedure typically involves the context and specific background information that helps the claims to be understood. At this point, the participants' accounts of their personal experiences were elaborated with a personal goal (Giorgi, 2012; Ratner, 2001).

4. Meaning Clusters are formed by Regrouping Units. By identifying the study-relevant elements and building a coherent structure of the connotation of the participants' experiences, as well as the links between those elements, those that are deemed relevant were regrouped in accordance with their intertwined meanings (Giorgi, 2012). The narratives of the participants' individual experiences were now expanded upon with a personal objective (Giorgi, 2012; Ratner, 2001).

5. Integration and Synthesis. The researcher identified assertions that can generally be taken to be true after identifying the patterned structure of each description. Even though everyone has a unique set of social experiences, when people were grouped together in a certain setting, they were more likely to share certain behaviors, viewpoints, and beliefs (Ratner, 2001). In order to determine the similarities and contrasts in meaning between protocols that have something in common, they were compared throughout this step.

Figure 4 shows the process of Giorgi's method of data analysis that was used by the researcher for this study.

Figure 4

Giorgi's Method of Data Analysis Flow Chart

Source: Giorgi, 2012

The data collected were in the form of "interview transcripts, unstructured notes or personal texts - the first stage was to read through and get a feel for what is being said, identifying key themes and issues in each text. These points - from all the texts for a small scale project, or a sample of different ones where there are more than 15-20- may then be aggregated and organized with the aid of a mind-map or set of 'post-it' notes. The resulting list was used as a set of points to interrogate the texts and structure and summarize them ("what is this participant saying about…"). Points which weren't brought out through this process needed to be added" (Lester, 1999).

Hence, in general, after gathering the data as a result of the interviews, the researcher analyzed the data by means of abstraction and conceptualization of the participants' lived experiences through reflective evaluation and interpretation of the participant's account or narrative regarding the experiences of these teachers in Cambodia.

The objects of such actions further have been reduced to what appears relevant to the particular experience being attended to, and were validated as genuine from the participants' rich personal experience. In this method, the researcher attended to the phenomena in its "own self-giving mode", therefore meeting the need for scientific objectivity in respect to the subjective approach of phenomenological reduction.

RESULTS AND DISCUSSION

This chapter presents the findings and discussions of the data analysis used to improve students' education throughout the pandemic using interactive e-learning. The researcher collected the interview transcripts for this study through interviews and questionnaires, and the conclusions were obtained by ongoing comparative analysis of the transcripts from coding and later on discovering patterns that led to emergent themes through thematic analysis.

Participants discussed their personal experiences using e-learning during the pandemic. In connection with the development of a dynamic model for interactive e-learning for higher education institutions, the study's findings and analysis are meant to assist education leaders at various levels of educational governance, in both public and private educational organizations, in formulating responsive educational strategies that are flexible, consistent, efficient, and equitable. The following themes emerged in the light of constant comparison method using the steps as ascribed by Giorgi (2012).

Pulling through e-learning

E-learning may be helpful, particularly when everyone had to remain indoors for safety because of the epidemic. It inspired optimism for the future and a better education for the students. The themes that arose from the participants' viewpoints and helped to make e-learning effective are listed below.

Theme 1: Innovative teaching for effective learning

Innovative teaching entails originality and creativity in the instructor who modifies the teaching style and methodology. All Educational institutions all throughout the world are deploying new ideas, techniques, and technological advances to improve the knowledge of students. For effective learning, innovative teaching to assist students in achieving their goals, the current and future of education to their maximum capacity (Kalyani & Rajasekaran, 2018).

These were backed up by participant comments like,

"Learnt a lot from many different tools to support teaching and learning to attract students' attention during live class." (KPa1)

> "To improve more by researching and finding new ways to improve my strategic approach to e-learning." (KPa17)
>
> "Used a variety of class activities to get the students focused and involved during the whole session." (KPe15)
>
> "Make it a personalized learning for students and with lots of fun". (KPi18)

Applying cutting-edge teaching and learning techniques is essential if we want to inspire and cultivate a learning spirit in students and a passion for academic study at universities as well as lifetime learning. While academic staff members do educate, it is the responsibility of education to make sure that the material is understandable to students from a variety of cultural and linguistic backgrounds and that they quickly become familiar with the required

standards. Any society's growth and progress are fueled by education. Information and knowledge are essential components for survival and growth in the modern world. Instead of viewing education as merely a tool for achieving social improvement, the information age, society must see education as a force for progress, powered by its wheels of knowledge and research that lead to advancement.

Theme 2: Building motivation through hardships

Success in the teaching-learning process depends on motivation. As the name implies, motivation is what "moves" us. It is the driving force behind everything we do. The key to effective teaching and learning is motivation. One of the most aggravating barriers to student learning, from the perspective of teachers, has always been a lack of drive. The human mind's complicated motivational system psychology and behavior that affects how people spend their time, how much effort they put into a task, how they feel and think about the task, and how long they stick with it (Bakar). According to Bakar, students' motivation is reflected in the learning tasks they select, the time and effort they invest in them, their perseverance with those tasks, and how they handle challenges they face during the learning process (Filgona, et al., 2020). These are backed up with participants statements such as:

> "I always focused on motivating the students to actively participate in the discussions." (KPa11)
>
> "Motivate them to join class even if we are far from each other." (KPb24)
>
> "Encourage students to get involved all the time." (KPg15)
>
> "Always use motivating words when they do their activities." (KPi2)

Due to its relevance to daily life, motivation is a crucial psychological term in education since it encourages and supports students to learn and enhance their academic performance. Since various forms of motivation underpin everything students do, including their drive to finish tasks that advance their knowledge, motivation is crucial to learning. As a result, students' lack of motivation to learn was recognized as a critical issue in education today, perhaps more than ever before, self-motivation to learn is extremely important. Teachers have a duty to make sure students are motivated to learn because modern education is required, therefore they cannot assume students will be. Teachers must influence students to desire to do the right thing. Consequently, despite the fact that teachers may believe they have no influence over students' attitudes toward learning, they actually do. Generally speaking, students learn when their teachers expect and encourage them to learn.

Theme 3: E-learning is a necessity in new normal education

The coronavirus pandemic has led to changes in the teaching-learning process in institutions of higher learning and has had an impact on how teachers and students interact. Universities were forced to conduct all of their activities with students solely online as a result of the pandemic. In this regard, numerous countries took action to stop the virus from spreading and to guarantee the ongoing nature of the educational process, and institutions all over the world adopted online education (Coman, et al., 2020). While online education is typically thought of as a complement to traditional education, it proved crucial to keeping schools and institutions operating during the Coronavirus pandemic. According to what the participants said:

> "e-learning provide us more flexibility and convenience to our teaching and learning." (KPa25)
>
> "It's the learning platform via which lectures can be given and stored online. It promotes wide access among students from different areas." (KPb5)
>
> "E-learning is a part of supporting teaching and learning material. In today education, e-learning is required to use as a part of classroom." (KPg1)

Online learning is instruction delivered through the use of the Internet. Among other names, it is frequently referred to as "e-learning." Online education is only one sort of "distance learning," which refers to all learning that occurs remotely and outside of a regular classroom. An expanding demographic of students who are unable to engage in traditional classroom settings or who choose not to do so are served by online distance learning. These students include individuals who can't attend traditional classes, can't find a specific course at their preferred university, reside in remote areas, work full-time and can only study during or after work, or just prefer independent learning (Stern).

The requirement to maintain educational continuity in the context of the suspension of in-person instruction has presented difficulties to which nations have responded with various remote options and solutions, including adjusting the school calendar and how the curriculum is implemented, all of which have been adapted, prioritized, and adjusted in various ways. The characteristics of national or subnational curriculum, the nation's resources and capacity to build remote learning processes, the country's levels of racial and educational inequality, and the amount of time left in the school year must all be considered when making adaptations (ELAC-UNESCO, 2020).

Theme 4: Having aid from school and technology

Technology is a recent marvel that has made the most challenging activities eminently simple and more effective. Technology has made it possible for information to be shared instantly and for communication to happen more quickly and effectively in the field of education. Additionally, technology has made it possible for kids to learn and be involved in ways that they never have in a traditional classroom environment. Technology's place in the educational landscape is always evolving. The most recent innovation in education has been the use of technology to inspire, differentiate, and enable students to succeed and flourish in ways they have never been able to before (Harris, Al-Bataineh, & Al-Bataineh (2016).

Effective teacher assistance must be predicated on the professionalism of the teachers. Teachers attest to the fact that a surprising number of coaching and professional development methods aim to "teacher-proof" instructional strategies. Giving teachers the chance to incorporate new information and skills into their daily work is essential to effective teacher support. Their task is crucial and equally hard and difficult. Each student possesses a diverse variety of ever-changing needs and skills. The landscape of goals and demands in each school and district is constantly changing (Elliott, et. al., 2021). As shared by the participants:

> "CamEd Business School has made the transition from physical classes to online classes convenient. The materials, the learning platform and other activities were already digitalized years before the Covid 19 pandemic." (KPa35)

> "e-learning simply is carrying out teaching and learning activities with the help of electronic resources." (KPb11)

> "Our staff should be trained and confident in using the platform. Before using such we should conduct thorough professional training to get through these struggles." (KPf17)

How significant is technology in the classroom? The COVID-19 pandemic is rapidly illuminating the importance of online education as a component of teaching and learning. Teachers can use online learning as a potent teaching tool by incorporating it into current curricula rather than using it only as a crisis-management tool. Additionally, it aids pupils in developing crucial 21st-century abilities (School of Education, 2020). Virtual learning environments, video, augmented reality (AR), robots, and other technological tools can not only make classes more engaging but also more inclusive learning environments that encourage collaboration and inquisitiveness as well as give teachers the ability to gather data on student performance. However, it's crucial to remember that technology is a tool and not an aim in itself in education. The potential of educational technology depends on how educators use it and how it can be used to best meet the needs of their pupils.

A supportive environment for educators must encourage experimentation and risk- taking. Teachers must experiment with new approaches in order to improve their methods. If the accountability structure they operate under penalizes them for trying new things or taking innovative risks, they are unable to do so. Currently, teacher effectiveness is frequently extremely narrowly defined and evaluated based on results from standardized tests. Additionally, administrators frequently lack consistency in how they evaluate the performance of their faculty. Systems of accountability and teacher evaluation must be in line with goals for applying new knowledge (Elliott, et. al., 2021).

Theme 5: Prioritizes students' effective learning and essentials

Students want to feel important and a part of their educational community. Students made it clear that they wanted to advance at their own paces, have more options, be acknowledged for their skills, and expand their learning outside of the classroom. Students frequently complained that they needed social engagement and peer relationships but that their educational experience was so heavily centered on personal performance (Global Science of Learning Education Network, 2021). At some point, every student will feel anxious, face difficulties (social

or academic), and fail. Teachers can encourage relationships and establish physically and emotionally secure learning environments for their students in order to support their development of skills for successfully managing stress and academic and social setbacks. These are emergent in statements such as:

> "We also need to learn about the learners: what they need, what they lack, and their strengths and weaknesses." (KPg10)
>
> "Students will be motivated to attend and participate in the online class if the lecturer is consistent in his/her efforts to encourage student engagement." (KP15)
>
> "Encouraging students to form small study groups may help them keep pace with their study." (KPj8)

If done well, education may give each child experiences that will grow and advance their capacity for problem-solving, creativity, caring, and ownership of learning. A school principal's main duty is to allocate the limited time, space, and funding to maximize students' happy and fruitful school experiences, in addition to making sure that all students have caring, effective teachers who create the classroom environments and opportunities for these things to occur (Cunat, 2015). As a result, learners are able to obtain knowledge without any obstacles when the teacher recognizes their flaws and takes action to overcome them. This makes sure that the learners who are struggling don't feel excluded or treated differently from others.

Downside of e-learning

Despite the substantial benefits of online learning, students nevertheless face a number of difficulties that ultimately have either limited or detrimental effects. In certain instances, is maintained through distance and reflection, which prevents student contact. Since exams are typically given via the e-learning approach, there is less chance of preventing illegal actions like plagiarism and cheating (Arkorful & Abaidoo, 2015).

Theme 6: Experienced challenges

The rapid advancements in technology made it necessary to update schooling. They had to be able to learn at any time and anywhere for it to be successful (Wolfinger, 2016). Online education has been made available in various international institutes throughout the past 20 years. However, the majority of schools, colleges, and universities do not adopt this teaching method, and their personnel are unaware of its components. The following themes emerged from the participant replies that were thematically analyzed:

> "It is quite challenging because when we switch into online immediately." (KPa1)
>
> "It is challenging due to the difficulties of assessing the students' attention and engagement." (KPa14)
>
> "It's challenging and dependent on technology, especially on the Internet connection; lacks personal interaction with the students." (KPa21)

The assumption of digital choice, digital competency, and digital aptitude for online learners is further complicated by the possibility that external student cohorts will include mature age (non-digitally native) students. Because of this, assumptions about technological preferences and capabilities should be put on hold, regardless of the cohort's demographics, at least until the essential social and peer support systems are in place. Both facilitators and students may find it difficult to adjust to the online setting (Jaques & Salmon, 2007; Kirkwood & Price, 2014). When deciding which technologies to utilize, Jaques and Salmon (2007) compared the significance of picking which technologies to use to the significance of understanding learners and their capacities. Building relationships online is crucial if you want to facilitate group activities because they are essential to successful group work.

Theme 7: Experienced numerous abrupt changes to their educational method

Every aspect of life was impacted by the pandemic, including schooling. The worldwide lockdown culminated in a lockdown of educational institutions as the crisis got worse. For the educational administration, this closure of schools, colleges, and universities was a tough situation with few alternatives. This large unanticipated switch from a traditional learning environment to an all online learning setting has altered the ways in which education is delivered to pupils (Khalil, Mansour, et al., 2020). These are evident in comments such as:

> "Due to the pandemic, I had to each online. I had to adjust the teaching material to fit e-learning.I need to be familiar with technology, using mic, webcam and design online quiz and so on." (KPa31)

> "There were some teaching methodologies could not be applied online which require the replacement. So lesson plan need to revise accordingly." (KPa33)
>
> "Short notice and being the first time my students where expose to such experience" (KPd16)

The COVID-19 epidemic has abruptly changed many facets of global civilization, upending everything in its path. Everything has been affected, not only the education industry, which has witnessed some unexpected shifts in many different corners of the world. As a result of COVID-19, developing countries have abruptly switched to online pedagogy. These difficulties and disparities are now the norm in the developing world's educational system (Oyedotun, 2020). Several university faculty members and colleagues began investigating all types of video-conferencing platforms and applications within days of the directions. Along with the university's Moodle platform, other platforms were used, including Google Meet, Skype, Kahoot, emails, and Zoom. based on the generally favorable Zoom platform usage experience of numerous colleagues.

Theme 8: Disadvantages in e-learning

Despite the benefits that e-learning provides when used in education, there are some drawbacks as well. Studies confirm that there are drawbacks to e-learning. For instance, Dowling et al. (2003) contend that, despite assertions to the contrary, making learning materials available online only enhances learning outcomes for certain types of group assessments. Mayes (2002) also questioned if e-learning is more than just a supplement to traditional teaching techniques. The most obvious criticism of e-Learning is the total lack of crucial personal interactions, not only between students and instructors but also between students of different classes. These are shown in participants remarks such as:

> "Some students cheating being online, but they are not." (KPa28)
>
> "less interaction between lecturer and students, lecturer can not observe student behavior and don't know what students are doing." (KPa30)
>
> "No outdoor activity with the students. Lack of social and emotional skills for the students." (KPb4)
>
> "Another challenge is to keep students concentrated during the whole session.
>
> They easily get distracted by their surroundings." (KPc15)
>
> "Because it is technology-dependent; also, you cannot see whether the students are listening or not during the lecture." (KPd21)

E-learning as a mode of instruction forces students to engage in reflection, distance, along with a lack of communication or connection. Therefore, a very powerful inspiration is necessary, as well as time management skills in order to lessen such impacts. E-learning as a method can help students' communication abilities improve. Even if you can be quite knowledgeable in academics, they could not have the necessary abilities to impart their knowledge to others. Additionally, not all academic disciplines or fields can use the e-learning method. For instance, it is impossible to study adequately using e-learning in the pure scientific fields that include practice (Arkorful, 2014). Digital tools are used in e-Learning for both teaching and learning. It makes use of modern tools to let students study wherever they are and whenever they choose.

Theme 9: Internet difficulties

Since everyone is impacted, lockdown briefly halted the educational system. Millions of pupils worldwide are impacted and some others have already renounced their status as students. The availability of learning tools or technologies is another relevant topic in this study that is equally essential. Even though we live in a time where technology tools and devices are readily available, some people still lack one (Asio, Gadia, et al., 2021). Following further confirmation, the participants' real responses were as follows:

> "Giving activities to them, some of them miss those activities. This may mean that students face poor Internet connectivity or they do other task simultaneously." (KPc2)
>
> "1. The internet connection is very unstable in Cambodia, especially for students who work from home in the rural areas/provinces.
>
> "It is difficult to get feedback from students during zoom session. Communication is difficult in general." (KPc7)
>
> "Classes are often disrupted by Internet problems both from the lecturer's and student's sides; students often get disconnected." (KPc21)

> "In Cambodia, access to stable Internet is still limited. Many students use their phone internet which is not reliable and expensive." (KPd18)

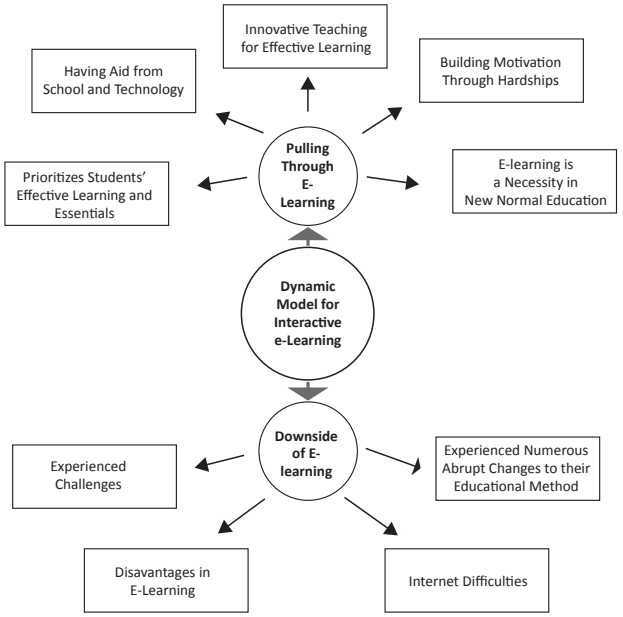
The internet is helpful for quickly finding material and enables pupils to complete their assignments with only one search on a search engine. Both students and teachers experience interruptions during lectures because of the unstable internet and lack of devices that can support online learning. The learning process is drastically different for students when they go from traditional classrooms and in-person teacher instruction to computer-based training in a virtual classroom. Many students may not have access to the internet connection needed for online courses, which causes them to fall behind in their virtual lessons (Saminathan, 2020). Online learners are lacking in effective communication abilities. They lose all control if there are any technological issues when conducting a live session or dealing with pupils.

The following major themes, which were intricately connected and intertwined as to what e-learning is in the new normal and the process involved in initializing it, are thus captured by the emergent framework as the teachers go through the theory's " Developing a Dynamic

Model for Interactive e-Learning " process in the new normal, which became the core category: "Innovative Teaching for Effective Learning", "Building Motivation Through Hardships", "E-learning is a Necessity in New Normal Education", "Having Aid from School and Technology", "Prioritizes Students' Effective Learning and Essentials", and the challenges that e-learning encounters are: "Experienced Challenges", "Experienced Numerous Abrupt Changes to their Educational Method", "Disadvantages in E-Learning", and lastly, "Internet Difficulties". The theory of Developing a Dynamic Model for Interactive e-Learning in the new normal is shown in Figure 5 as an emergent framework.

Figure 5

Emergent Dynamic Model Framework for Interactive e-Learning



CONCLUSION

This section of the research paper presents a summary of the findings, conclusions, and suggestions that show how the researcher discovered the necessary answers to the statement of the problem and research questions as a result of this study based on the analysis in the preceding chapter.

The study's findings and outcomes are summarized as follows:

1. The following themes — Innovative Teaching for Effective Learning, Building Motivation Through Difficulties, E-Learning is a Necessity in New Normal Education, Having Aid from School and Technology, Prioritizes Students' Effective Learning and Essentials — emerged as the participants' pertinent insights in the preparation of e-Learning.
2. The participants in the e-learning faced several urgent obstacles, including: challenges, several abrupt changes to their educational method, disadvantages of e- learning, and finally, internet problems.
3. The framework shown in Figure 5 is suggested as a way for professors to assist students in their academic pursuit of e-learning through the pandemic or anticipated continuation of e-learning once face-to-face or rather in-person classes have resumed.

The overview of the findings leads to several conclusions. First, the researcher found it sufficient to state that teachers during this new normal understood innovative pedagogy in terms of technological integration that will amplify learning among the various significant strategies introduced by the participants in the implementation of their own interactive e-learning in the new normal. To prioritize the demands of the learners, the participants also saw the use of e-learning as crucial, essential, and required for the learning to be accomplished.

Furthermore, the themes that emerged from the insightful sharing of the chosen participants, which showed various approaches and activities affirming the various strategies and techniques that must be used in online and modular learning, are consolidated into the proposed framework for a dynamic and effective Interactive e-Learning for a better understanding for teachers towards a more efficient and effective approach.

RECOMMENDATIONS

Several suggestions have been put up for thought in light of the study's findings, conclusions, and results. First, improving the balance between educational services, teacher professional collaboration, and close work with families based on the major insights on e-learning may be necessary. Second, it is also important to use creative pedagogy activities that promote connection and affirmation. Third, more seminars and training programs for teachers in the use of innovative pedagogy are also needed, which should center on the following themes: experiencing many abrupt changes to their educational method; receiving support from their school and technology; facing challenges; and innovative teaching for effective learning.

Lastly, the emergent framework or model may therefore serve as a guide for future professional growth in becoming innovative and adapting strategies suited for each specific situation of teaching and learning. This professional growth may be made possible through the ongoing efforts of the educational stakeholders especially the educational leaders and educational decision makers to make 21st-century strategies and pedagogies an initializing experience for every teacher to nourish and cultivate even beyond the new normal.

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CONFERENCE AGENDA

DAY ONE: 17 February 2023			
Time	**Topic/Theme**	**Resource Person**	**Room**
8:00-8:25	Registration	Registration officers	
8:25-8:30	National Anthem	MC	Lucas Pacioli
8:30-8:40	Welcome Address	**Prof. Casey Barnett** President, CamEd Business School, Cambodia	Lucas Pacioli
8:40-8:50	Welcome Address	**Prof. Dr. Biswajeet Pattanayak** President, ASBM University, India Chair, ACBSP Region 10	Lucas Pacioli
8:50-9:05	Welcome Address	**Mr. Jeffrey Alderman** President and CEO, ACBSP, USA	Lucas Pacioli
9:05-9:10	Brief Introduction to the Conference	**Prof. Dr. Sok Uttara** Vice President for IQA-IA, CamEd Business School Treasurer, ACBSP Region 10 Conference Chair	Lucas Pacioli
9:10:-9:50	Opening Address	**H.E. Dr. Hang Chuon Naron** Minister of Education, Youth, and Sport	Lucas Pacioli
9:50-10:00	Presentation of Momento	Guests of Honor	Lucas Pacioli
10:00-10:30	Tea Break		Reading Room (3rd floor, East Building)
10:30-11:00	Introduction to ACBSP	**Mr. Jeffrey Alderman** President and CEO, ACBSP, USA	Lucas Pacioli
11:00-11:30	Keynote Speech	Collaborative Alliances: Accreditation as means to International Collaboration and Quality Improvement **Prof. Dr. Paul Stumb** President, Cumberland University, USA Chair of Board of Directors, ACBSP	Lucas Pacioli
11:30-11:40	ACBSP Accreditation and Approval Process	East-West Collaborations: Opening Exciting Opportunities for Everyone **Prof. Dr. Rajesh Khajuria** ACBSP Commissioner, Accreditation Governance Board member, and Professor at FPT University, Vietnam	Lucas Pacioli
11:40-12:00	A Covid Paradox	A Covid paradox: Collateral benefits enhancing future education **Prof. Dr. Kenneth Paul Charman** Chair, CamEd Center for Business Research	Lucas Pacioli
12:00-13:30	Lunch Break		Reading Room (3rd floor, East Building)

13:30-14:45	Panel Discussion: Internationalization of Higher Education	**H.E. Mak Ngoy** Director General, Ministry of Education, Youth and Sport, Cambodia **Dr. Srun Pagnarith** Director, Ministry of Industry, Science, Technology and Innovation, Cambodia **Prof. Casey Barnett** President, CamEd Business School, Cambodia **H.E. Dr. Hor Peng** Rector, National University of Management, Cambodia **Panel Chair:** **Prof. Dr. Kenneth Paul Charman** Member of Board of Trustees and Chair of CamEd Center for Business Research, Cambodia	Lucas Pacioli
14:45-15:30	Peregrine Global Services	Learning Assessment Results for Identifying Knowledge Gaps **Dr. Alimaa Jamiyansuren** Director of Partner Relationships, Peregrine Global Services, Japan	Lucas Pacioli
15:30-16:00	Tea Break		Reading Room (3rd floor, East Building)
16:00-17:00	15-minute Presentations 10-minute Q & A	Identifying Factors Influencing Knowledge Collaboration Effects in Knowledge Alliances in Cambodia: A Structural Equation Model **Prof. Dr. Tapas R. Dash,** Research Advisor, CamEd Business School **Prof. Dr. Lim Siphat,** Member of CamEd Center for Business Research Analysis of a Multi-Country University Collaboration: The ErasmusFriends Project **Dr. Raymond Zepp,** President, Dewey International University **Chair:** **Dr. Monirith Ly,** Associate Professor	H.E.Dr. Ngy Tayi (5th Floor, East Building)
		The Study of ASEAN Members Higher Education Institution Adaptation Progress to Current Covid-19 **Ms. Sam Sysoma,** Librarian, CamEd Business School Researching the affecting factors on the use of social media, collaborative learning and academic performance in higher education, Vietnam **Dr. Thi My Hanh Le,** Van Ky Long Nguyen, Thi Thu Hien Le, Thi Thanh Huong Nguyen, and Khoa Nguyen Vu Faculty of Business FPT University, Vietnam **Chair:** **Dr. Maria Isabelita,** Advisor to IQA-IA, CamEd Business School	David Alonso (5th Floor, East Building)

		University-Industry Linkage in the Research Field: Challenges and Opportunities for ACLEDA Institute of Business **Dr. Sokha Norng,** Hok Pisith, and Chanphirun Sam, ACLEDA Institute of Business Strategic Alliances between Universities and Enterprises **Dr. Pham Dan Khanh,** Vice Dean, School of Advanced Education Programs, National Economics University **Chair:** **Dr. Thath Rido,** Assistant Professor, CamEd Business School	Robert Shiller (4th Floor, East Building)
17:30-18:30	Annual General Meeting (AGM)	Only for ACBSP Home Office, ACBSP Region 10 Committee Members and Invited Guests	Benjamin Graham Discussion Room (11th Floor, West Building)
DAY TWO: 18 February 2023			
8:00-8:25	Registration	Registration Officers	
8:25-8:30	Announcement	MC	
8:30-9:15	Keynote Speech	Collaborative Alliances: What can be done together? **Dr. Kasthuri Henry** President and CEO, KasHenry Inc., USA	Lucas Pacioli
9:15-10:30	**Panel Discussion:** Strategic Collaborations between Higher Education and Business	**Prof. Dr. Tuan Tran Ngoc** Vice Rector, FPT University, Vietnam Chair-Elect, ACBSP Region 10 **Mr. James Roberts** Head of Advisory, KPMG in Cambodia **Mr. Travis Mitchell** Executive Director, AmCham Cambodia **Dr. No Fata** Education Specialist, World Bank, Cambodia **Prof. Dr. Tapas R. Dash** Research Advisor, CamEd Business School **Panel Chair:** **Prof. Dr. Prum Virak** Chairman of Board of Trustees, CamEd Business School	Lucas Pacioli
10:30-11:00	Tea Break		John Locke (West Building)

11:00-12:00	15-minute Presentations 10-minute Q & A	Challenges of Internationalization of Business Education **Mr. Lee Seungmin**, Mr. Veng Meng, Mr. Kong Pichetoudom, Miss Ung Khemara Bormeychan Undergraduate Students, CamEd Business School Developing a robust IQA System for International Accreditations and Quality Culture Development: The Case of CamEd Business School **Prof. Dr. Sok Uttara,** Vice President for IQA-IA, CamEd Business School **Mr. Mean Udam,** Internal Audit Manager, CamEd Business School **Chair:** **Mr. Adriaan Cornet,** Associate Professor, CamEd Business School	Benjamin Graham Discussion Room (11th Floor, West Building)
		The Relationship of Knowledge Sharing in Strategic Alliance: A Partial Least Square Analysis of Hotel Industry in Cambodia **Prof. Dr. Lim Siphat,** Member of CamEd Center for Business Research Industrial Transformation and Skill Needs: Implications for Education-Industry Collaborations **Mr. Naron Veung,** Research Associate, Cambodia Development Resource Institute (CDRI) Dr. Ly Monirith, Associate Professor **Chair:** **Dr. Mahammad M. Ma'aji,** Professor, CamEd Business School	Nassim Nicolas Taleb (9th Floor, West Building)
		Creating and Measuring Shared Value **Dr. Kenneth Paul Charman,** Professor and Chairman of CamEd Center for Business Research The Effect of Business Ethics Education on Business Students' CSR Perception: Evidence from Vietnam **Dr. Luu Thi Nguyen,** Lecturer/Subject Leader of Management, FPT University, Vietnam Chair: **Dr. Ky Sereyvath**, Professor, CamEd Business School	Warren Buffett (8th Floor, West Building)
12:00-13:30	Lunch Break		John Locke (7th Floor, West Building)

13:30-14:30	15-minute Presentations 10-minute Q & A	Capacity Building in Green Bonds in Cambodia: Universities Must Play a Key Role to Support the Industry **Mr. Varabott Ho,** Professor, CamEd Business School Factors Influencing Students' Choice of Accounting Major in Cambodia **Dr. Thath Rido,** Associate Professor, CamEd Business School Dr. Mong Mara, Professor, CamEd Business School Ms. Chheng Somala, Supervisor, International Engagement, CamEd Business School **Chair:** **Mr. Yem Bunthorn,** LSC Manager, CamEd Business School	Benjamin Graham Discussion Room (11th Floor, West Building)
		Outcome-Based Feedback: Collaborating with Students for Curriculum Review **Dr. Monirith Ly,** Associate Professor (Past), CamEd Business School Learning by Doing- A case of catalytic pedagogy **Dr. Poornima Narayan R.,** Professor, SCMS Cochin School of Business **Ms. Anjali A.**, Assistant Professor, SCMS Cochin School of Business **Chair:** **Dr. Sok Uttara,** Professor and Vice President for IQA-IA, CamEd Business School	Nassim Nicolas Taleb (9th Floor, West Building)
		Media Relations Club of SCMS: Learning by 'Doing' and 'Reflecting' **Ms. M. Archana Mohan,** Mr. P.Sivaramakrishnan, and **Ms. Anjali A.**, PGDM Students, SCMS Cochin School of Business, India Determinants of SME Success or Failure in Frontier Markets **Dr. Muhammad Muhammad Ma'aji,** Professor, CamEd Business School **Chair:** **Dr. Tapas R. Dash,** Professor and Research Advisor, CamEd Business School	Warren Buffett (8th Floor, West Building)

14:30-15:30	15-minute Presentations 10-minute Q & A	Analyzing Interrelationships of Critical Barriers of University Technology Transfer from Vietnam- An Emerging Economy: A Multi-Stakeholder Perspective **Dr. Phi-Hung Nguyen,** Trinh Trong Hung, and Nguyen Thanh Tam, Researchers, FPT University Developing a Dynamic Model of Interactive e-Learning in Accounting and Finance Programs in Higher Education Institutions in Cambodia: A Phenomenological Study **Dr. Maria Isabelita C. Manzon,** Advisor to IQA-IA Department, CamEd Business School **Chair:** **Dr. Alimaa Jamiyansuren,** Director of Partner Relations, Peregrine Global Services, Japan	Benjamin Graham Discussion Room (11th Floor, West Building)
		Impact of CoVid-19 on Cambodia's economy and education **Dr. Ky Sereyvath,** Professor, CamEd Business School Outbound Training Program (OBT): A practical approach to Experiential Learning **Ms. Gopikrishna** and Ms. Aparna J., MBA Students, SCMS School of Technology and Management **Chair:** **Dr. Hap Phalthy,** Professor, CamEd Business School	Nassim Nicolas Taleb (9th Floor, West Building)
		Immersive learning practices at SCMS School of Technology and Management, Kochi, India. **Dr. Praveena K** and Dr. Deepa Pillai Head of the Department, SCMS School of Technology & Management, India Challenges Faced by Entrepreneur **Mr. Monirul Islam,** Assistant Professor, CamEd Business School **Chair:** **Dr. Mong Mara,** Professor, CamEd Business School	Warren Buffett (8th Floor, West Building)
15:30-16:00	Tea Break		John Locke Reading Room (West Building)
16:00-16:20	Conference Synopsis	**Dr. Maria Isabelita Manzon-Cabrera** Advisor to IQA-IA Department, CamEd Business School, Cambodia Conference Rapporteur	Lucas Pacioli
16:20-16:30	Closing Remarks	**Mr. Jeffrey Alderman** President and CEO, ACBSP, USA	Lucas Pacioli
16:30-16:40	Closing Remarks	**Prof. Casey Barnett** President, CamEd Business School, Cambodia	Lucas Pacioli
16:40-17:00	Presentation of Certificate of Participation	All Participants	Lucas Pacioli

PROFILES OF THE SPEAKERS AND PRESENTERS

Anjali A. is Assistant Professor in the Communications Department. Anjali has taken her Masters in English Literature and Post Graduate Diploma in Communication and Journalism from Kerala University. She has been with St. Teresa's College as faculty in English for about two years. She has worked with "The New Indian Express" at the News Desk. She has participated in various seminars / conferences and presented papers.

Aparna J. completed her Bachelor of Management Studies in International Business and is currently pursuing MBA at SCMS College of Technology and Management with a specialization in Marketing and Human Resources. Aparna specializes in the end to end recruitment process, onboarding, ATS and various other aspects of Talent acquisition. Her hobbies include reading, singing and dancing.

Alimaa Jamiyansuren is Director of Partner Relationships and oversees the Asia Pacific operations of Peregrine Global in Japan. She has over twenty years of experience including economic, business, leadership, and higher education consulting. As an international consultant and economist, Alimaa focuses on building strategic relationships with HEIs, public and non-public organizations located in the USA and around the world. Ms. Alimaa's areas of expertise include training, communications, global partnerships, leadership and professional skill development, and higher education quality assurance. Alimaa is a board member of academic and non-profit organizations located in the U.S. and abroad, e.g., the AACSB Asia Pacific Advisory Council and Mongolian American Higher Education Foundation. Ms. Jamiyansuren is part of the Fulbright Specialist Program (U.S. Department of State) and is fluent in English, Russian, and Mongolian, and is currently studying Japanese. She received her undergraduate and graduate degrees from Bryn Mawr College in Pennsylvania USA and Tufts University in Massachusetts USA, respectively, and an honorary DBA from Ider University, Mongolia.

Biswajeet Pattanayak is the Founder and President of ASBM University, which was established in 2006. He holds Ph.D. and D.Litt. in Organizational Behavior and D.Sc. in Management Science. At the age of 35, he was awarded a professorship of IIM. He was a member of the Courts of Central University of Rajasthan and Guru Ghasidas Central University, Chhattisgarh. He is an Advisor to the Union Public Service Commission, Government of India and the Mentor of the World Bank assisted Center of Excellence in Human Capital Development of Utkal University. Prof. Pattanayak has 104 research publications in national and international refereed journals and 27 books. He is popularly known as the 'LAGAAN Professor' after his innovation in teaching through the introduction of the famous 'Lagaan' movie in the course curriculum of IIM Indore. He is the Chair of ACBSP Region-10 (South Asia) and an ACBSP certified evaluator. Prof. Pattanayak has been conferred with several awards and accolades including the most recent one being 'LifeTime Achievement Award 2022', 'Business Excellence Award 2021 for Education', Skill Development & Entrepreneurship, ACBSP Teaching Excellence International Award, and Deccan Herald Award for Best Teacher in Management, among others.

Casey Barnett is the President of CamEd Business School as well as a professor. He is an expert in IFRS and has trained many professionals from the Big Four, the General Department of Taxation, and listed companies. He also is an advisor to the National Accounting Council of the Ministry of Economy and Finance as well as a member of the Working Group on Accounting, Tax, and Securities Markets for Microenterprises and SMEs of the Ministry of Economy and Finance. Previously, he was a World Bank consultant in the area of public sector financial reporting. He is a CFA charterholder, a fellow member of the Association of Chartered Certified Accountants and holds an MBA from Columbia Business School.

Chheng Somala is the international engagement supervisor at CamEd Business School. She is working closely with international students as well as overseas partnerships for the agreement on the academic exchange as well as students exchange. She holds the Master degree in International Business from Beijing Foreign Studies University, China.

Deepa Pillai is currently working as Associate Professor in the department of MBA at SCMS School of Technology & Management. She has more than 23 years of teaching experience at various capacities and a few years in the industry. She has a specialization in Human resource management and handles courses like Organizational change and Transformation, Leadership for Managerial Performance, Counseling skills, Business law, Organization Behavior. Her research interests include experiential learning, instructional design, Pedagogical initiatives, Competency mapping, OBE and education. She has authored book chapters , articles and case studies. She is also an author too.

Fata No an education specialist at the World Bank Cambodia, has actively engaged in all the education projects and analytical work from early childhood to higher education. Before joining the World Bank, he had wide experience working as a university lecturer, a senior officer in the Ministry of Education, Youth and Sport, a senior researcher at the Education Research Council, and a freelance consultant for many well-known national and international institutions working in the education sector. He was awarded a PhD in Educational Development from Hiroshima University, Japan, in 2012.

Gopikrishna is a very passionate HR personnel and an MBA aspirant who is highly motivated and hardworking. She earned a Bachelor's degree in Electronics and Communication Engineering from the University College of Engineering. She is currently pursuing her Masters in Business Administration in HR and Marketing at SCMS School of Technology and Management. Having strong interpersonal skills along with leadership,decision making, teamwork, she is excited to pursue her career journey to HR.

Hang Chuon Naron is currently Minister of Education, Youth and Sport and the Vice Chairman of the Supreme National Economic Council (SNEC), a Think Tank of the Royal Government of Cambodia. He holds Master's and Ph.D. degrees in International Economics from the Moscow State Institute of International Relations, an Advanced Diploma in Insurance from the Chartered Insurance Institute, United Kingdom, and the Malaysian Insurance Institute. He received a Master's degree in International Law from the Royal University of Law and Economics and the University of Lyon 2, France, in 2012 and a Ph.D. in Educational Leadership and Administration from Chulalongkorn University in 2018. H.E. Dr. Hang worked in various diplomatic missions and research institutions as a political and economic analyst. In 2000, he introduced the reform of school financing. In 2001, he was appointed Deputy Secretary General in charge of Policies, ASEAN, financial industry, economic analysis, and coordination with the IMF and the World Bank. He held the position of Permanent Secretary of the Ministry of Economy and Finance from 2004 to 2010. In 2010, he was appointed Secretary of State of Economy and Finance. He represented Cambodia at the Meetings of G20 Finance Ministers and Central Bank Governors during Cambodian chairmanship of ASEAN in 2012. He is author of a number of government policy papers and socio-economic development strategy and books on Cambodian economy and public finance. His book, "Cambodian Economy: Charting the Course for a Bright Future", was published by the Institute of Southeast Asian Studies (ISEAS). In September 2013, he was nominated Minister of Education, Youth and Sport and published in 2016 a book in Khmer entitled: "Education Reform in Cambodia: Towards a Knowledge-Based Society and Shared Prosperity."

Hor Peng is currently Rector of National University of Management (NUM). He earned both Master and PhD degrees in Law (Constitutional Law) from Nagoya University in Japan. He teaches a course of business law and public policy.

James Roberts is a Chartered Accountant from the UK, with more than a decade advising investors in Cambodia. James draws on a range of experience derived from his background in Audit, tax and consulting. He has extensive experience advising senior business professionals across Europe and Asia. Within his current role as leader of KPMG Advisory business in Cambodia, he is required to leverage his experience in Mergers and Acquisitions, business valuation, and in the delivery transformational programs. He works extensively to assist new investors in establishing their business in Cambodia, and to help established investors to seek strategic partners in order to develop or exit their businesses. James previously served as non-executive director for a number of businesses and as treasurer for International Business Chambers (IBC).

Jeffrey Alderman President/CEO, joined ACBSP in February 2015 coming from the Kansas City Kansas Chamber of Commerce. In addition to his work at the Chamber, Jeff brings an extensive background in association management including serving as executive director of the Kansas Bar Association, a 7,200-member statewide voluntary organization of lawyers, judges, and law students. He served as executive director of Camden County (N.J.) Bar Association and was assistant executive director of the Detroit Metropolitan Bar Association. He also served as vice president for Visit Topeka, a destination marketing organization where he oversaw sales of more than $60M in economic impact for the city during his tenure. Jeff has worked with large companies in various branding initiatives as well as collegiate sports governing bodies including the National Association of Intercollegiate Athletics (NAIA) and has a proven track record in increasing memberships as well as building charitable foundations.

Kasthuri Henry is driven by her mission of Building to Last and Ennobling for Success. Her ability to understand the importance of first developing the being and then bringing that authentic self to all the doing makes her a sought-after member of Forbes Coaches Council. Dr. Kas is the author of #1 International Best Seller Ennobled for Success: From Civil War to a US CFO and The Resiliency Playbook. Dr. Kas is the CEO of KasHenry Inc. and the Founder of Ennobled For Success Institute. Her business change management, financial strategy, business process improvement, and leadership acumen includes global acquisition of the Duracell Brand by Warren Buffet from P&G and standing up as the global leader of L&D and Financial Processes, business transformation of Chicago Teachers Pension Fund as the CFO, and more. A graduate school professor, she continues to transform students representing the US military, public safety, private sector, and nonprofit sectors via Southern Illinois University, DeVry University, and North Park University. A centered approach to solving life's challenges is the theme of her weekly international podcast Unleash your Inner Goldilocks: How to get it just right.

Kenneth Paul Charman earned his MBA at London Business School, a Bachelor's Degree in Economics and Agricultural Economics from Nottingham University, and a PhD in International Business from London Business School. Dr. Ken is currently Professor in Strategy and Competitiveness at CamEd Business School, Phnom Penh, Cambodia, having been Professor at KBTU Business School. He co-chairs the Harvard Business School Microeconomics of Competitiveness (MOC) Asian Chapter for KBTU. Dr. Ken is also a Visiting Research Fellow at the Royal Institution of Great Britain (RIGB) and a highly experienced consultant and business school faculty, in the economies of the transition process in Eastern Europe and Central Asia. Dr. Ken established Central Asia's first international business school, Kazakhstan Institute of Management, Economics and Strategic Research (KIMEP), where he was Head of the Master's Degree Programme in Economics. Since then he has been at the heart of policy advice at senior government level on economic reform, public sector reform and regional development.

Ky Sereyvath is a researcher and lecturer in the field of Economics. He was a visiting professor in Macroeconomics at Changwon National University, Republic of Korea. He also was a part-time professor in Economics in Cambodia. Dr. Sereyvath holds a PhD degree in Economics from Changwon National University, Republic of Korea in 2011.

Le Thi My Hanh is a well-known Vietnamese skilled professional. She is currently the Head of Business Administration of FPT University – Da Nang campus, Vietnam. In addition, she currently works in diverse Colleges and Universities as a Professor of Logistics and Supply chain management, E-business, Education and other fields. She obtained her Ph.D. in Port and Logistics Systems from Dong-A University, Busan, South Korea and a Master's Degree of Management of Technology and Innovation at Korea University of Technology and Education, Cheonan, South Korea. She holds other diverse specializations and training concerning research but not limited to Education, Logistics & Supply Chain Management, Tourism, Circular Economy and New Technology trends in industry. Working as a researcher and a professor for more than 10 years, she believes education becomes the shining light in the path of human civilization.

Luu Thi Nguyen is a faculty member at the Faculty of Business, FPT University. She received her PhD degree in Business Administration at Tongji University. Her research focuses specifically on the field of strategic management, CSR, and entrepreneurship. Her work has been published in such journals as Journal of Cleaner Production, International Journal of Technology Management, European Journal of International Management, Sage Open, and South East Asian Journal of Management, and accepted for oral presentations in AOM, AIB, and EURAM annual meetings.

Mak Ngoy received a Master Degree of Arts in Education from the Moscow State University of Pedagogy, Russia and a Master Degree with Honors in Educational Administration from the University of New England, Australia (1997-1998). He is a Director General of Higher Education, Ministry of Education, Youth and Sport. With this position, he is in charge of Higher Education policy formulation as well as overseeing the implementation of the policy and regulations. He served as a Project Manager of the First World Bank's Project on Higher Education Quality and Capacity Improvement (2011-2017). Currently, he is also a Project Manager of the Second World Bank's Project on Higher Education Improvement (2018-2024). These projects are instrumental in building the capacity of higher education practitioners in Cambodia. Regionally, he serves as a Board Member of the SEAMEO-RIHED and has contributed a lot to the regional higher education development and harmonization within ASEAN and beyond.

Maria Isabelita Isabelita is an Advisor to the Internal Quality Assurance and Internal Audit Department and a professor for Accounting and Audit & Assurance subjects in the ACCA, CAT, Bachelor's, and Masters in Accounting courses. She is also a member of the Board of Trustees of Camed Business School. She has worked with the leading audit firm in the Philippines Sycip, Gores, Velayo and Company (Ernst & Young). Her work experience covers 15 years of international multinational exposure in accounting, marketing, training, continuous education, administration and customer services both in supervisory and management capacity. Currently, she is an Audit Partner with a national audit firm in Cambodia. She holds a Doctor of Education from Miriam College, a Master of Distance Education from the University of the Philippines Open University, is an ASEAN Chartered Professional Accountant and Philippine Certified Public Accountant with a degree of Bachelor of Science in Commerce major in Accounting which she achieved with the honors of magna cum laude and valedictorian.

Mean Udam is an Internal Audit Manager as well as the secretary to the Board of Trustees at CamEd Business School. He successfully completed the Association of Chartered Certified Accountants (ACCA) in 2020 and achieved the highest score in Financial Accounting 1 and Financial Accounting 2 in September 2017 in Cambodia. He has recently completed a Master of Science in Professional Accountancy in the University of London in 2021. Mr. Udam has more than 5-year experience in higher education, particularly in curriculum review, teaching and learning support, assessment and quality assurance. Currently, Mr. Udam is a member of the Association of Chartered Certified Accountants (ACCA), with 3-year experience in the accounting and auditing field. He is also an assessor of the Asean University Network Quality Assurance (AUN-QA) who contributes to the quality of higher education in many countries in ASEAN. Moreover, he has been teaching and advising audit papers and providing course tutorials for several years.

Monirul Islam is an assistant professor and a business strategist who also mentors students in business model competitions and start-ups. He has worked for several universities in Malaysia and Cambodia, managing faculties in these institutions, as well as serving as a university rector prior to joining CamEd Business School. Monirul holds two MBAs in Multimedia Management and Communication & Public Relations. He currently teaches Business Strategy and Behavioral Economics and serves as a member of the CamEd Faculty Council.

Monirith Ly has been working progressively in various university teaching and managerial positions leading curriculum development, student advising, faculty development, institutional quality assurance, program evaluation, and ICT application in teaching and management. He has earned a Ph.D. in Professional Education from Texas State University and an M.Ed. in Postsecondary Administration from Loyola University Chicago. Dr. Ly has published a few research papers in international journals and presented studies in numerous international conferences.

Muhammad M. Ma'aji is a Chartered Accountant with the ACCA, a Certified Valuation Analyst with the CFI and an Associate Professor at CamEd Business School Cambodia. Dr Ma'aji also works as Business Consultant with Yuanta Securities. Dr Ma'aji holds a PhD and MSc in Finance from the Universiti Utara Malaysia and a BA in Accounting & Finance from the University of Greenwich, UK. Dr Ma'aji has mentored and coached CamEd students to compete at several local and international competitions and in 2021 and 2022, the CamEd team won the Local CFA Research Challenge Competition and became Sub-Regional Champions the same year. Before joining CamEd Business School, Dr Ma'aji worked as a Research Assistant for the Centre for University-Industry Collaboration (CUIC) Universiti Utara Malaysia, where he fully participated in two national research grants awarded by the Ministry of Higher Education and Ministry of Rural and Regional Development, Malaysia. He has also worked as an Account Assistant for Gidauniya Investment & Securities LTD and Saleh A.D. & Co both in Nigeria. Dr Ma'aji has published research articles in well-known high impact international journals. His areas of research interest include financial distress, bankruptcy prediction, corporate finance, corporate governance, cross-listing, and financial management.

Norng Sokha was born in 1979 in Kampong Cham Province and he is currently holding a Ph.D. in Business Administration from Beltei International University. He graduated with his MBA in General Management from Assumption University, Thailand in 2011; and He graduated with his Bed. In TEFL from IFL in 2004. He also obtains financial training from UNITAR Malaysia. He has been teaching for 15 years in the relevant disciplines and published several research articles on AIB Research Series. He was the Assistant Professor from 2019 to 2021 and he is now the Junior Head of the Centre for Research & Innovation (CRI) at ACLEDA Institute of Business.

Pagnarith Srun received his Doctor of Engineering (D.Eng) degree from the University of Tokyo, Japan in 2019, and his Master of Engineering from Chulalongkorn University, Thailand in 2016. He is currently a Deputy Director General, Ministry of Industry, Science, Technology and Innovation, Kingdom of Cambodia. Dr. Srun has a wide range of experience in national policy and regulatory framework development. He has been involved in and led the development of many national policies and strategic plan including, inter alia, Cambodia's Science, Technology and Innovation Roadmap 2030, National Research Agenda 2025 of Cambodia, many technology roadmaps for the Kingdom of Cambodia, all of which are high-level national policy documents for Cambodia to enhance its scientific and technological capability and leverage innovation performance in order to realize the Royal Government of Cambodia's 2030 and 2050 Vision. Prior to his current position, he was a director of the department in charge of STI Policy of the General Department of STI, MISTI. In addition, he was a lecturer and researcher at the Institute of Technology of Cambodia (ITC).

Paul Stumb was named as the 26th President of Cumberland University in August 2015. He has served Cumberland University since 2003, when he became an Adjunct Professor for two years before being named Dean of the Labry School of Science, Technology, and Business. Dr. Stumb enjoyed a successful career in the for-profit business sector, serving in a variety of increasingly responsible positions including: Director of Marketing and Business Development for Georgia Pacific Corp, General Manager of American Corrugated, Vice President for Operations and Owner of One Coast Network, and Regional Vice President for Curtis 1000 Inc. Dr. Stumb is a graduate of the Navy War College Strategy and Policy Program, and holds a BS in Engineering from Auburn University, an MS from the University of Tennessee, Knoxville, a Master's in Education from Cumberland University, and earned his PhD at the University of Tennessee, Knoxville.

Pham Dan Khanh is working as Vice Dean in the School of Advanced Education Programs. He completed master's degree in Stirling, UK and PhD Program in Finance and Banking at National Economics University, Vietnam He has many research papers in the field Investment, Banking and Finance, which have been published in various reputed Scopus and other indexed Conference Proceedings and Journals. He is a member of SPCC (2022-2024), ACBSP. He has attended many National and International Conferences, Seminars and Workshops in the field of Banking, Finance and Accreditation during his academic and research career. He has delivered some courses in business finance, financial management, and investment.

Phi-Hung Nguyen received a Ph.D. in Business Management at the National Taipei University of Technology, Taiwan. He is currently a researcher and head of Research Center of Applied Sciences at Faculty of Business, FPT University in Vietnam. He serves as an Guest Editor and Reviewer for Sustainability, Mathematics, CMC-Computers, Materials & Continua, Mathematical Problems in Engineering, Soft Computing, Expert Systems with Applications and other decision making journals. His current research interests include Supply chain management, International business, Operation research, Multi-Criteria Decision Making, Management sciences, etc. He has published more than 30 papers in SCI/SSCI journals.

Pichetoudm is an undergraduate student majoring in Accounting and Finance at CamEd business school and thriving to get his Certified Accountant Technician certificate. He is deeply passionate about learning and actively searching for new experiences. Apart from academics, personal development and constant improvement is his top priority. He is constantly seeking new methods to better himself and consistently looking at his actions from an objective perspective. Lastly, he indulges himself in sports and films during his downtime.

Poornima Narayan has more than two decades of professional experience as an educationist, an economist, a development practitioner and an activist working with marginalized communities like tribals, fishermen communities, and urban poor. She is a trained and experienced practitioner and activist who knows the functioning of Local Self-government in Kerala. Dr. Poornima is the lead author of the Human Development Report – Ernakulam District, 2010 and she has contributed to the tribal development and public health chapters of the report. She has been engaging in the area of policy both as a researcher and as an implementer. Since 2018 she has been contributing significantly in addressing the disaster related crisis in the urban, coastal and tribal area. She has developed a digital solution to the medical consultation at the PHCs and a mobile application for reporting Reproductive Tract Infections among the fisherwomen and commercial sex workers . She is the Syndicate Member of Cochin University of Science and Technology. She is Professor, Department of General Management at SCMS Cochin School of Business.

Praveena K is presently working as Associate Professor & HoD of the MBA Department at SCMS. Holding two masters degrees- one in Computer Applications and Business Administrations, she is granted PhD from the Faculty of Social Sciences, Cochin University of Science & Technology in Management. A passionate researcher and academician, she is involved in various social research projects in association with the Government and non Government bodies. She has to her credit several publications in national and international peer reviewed journals. Her interests in teaching are Research Methods, Big Data and Business Analytics and Information Systems. Her research interests are Social media, Analytics, Information Systems. She has over 16 years of teaching experience.

Rajesh Khajuria is a Commissioner on Board and member of Accreditation Governance Board, the Accreditation Council for Business Schools & Programs (ACBSP), USA; Professor, FPT University, VIETNAM, and Vice President (Learning-RISE), Rishabh Software. Dr. Rajesh Khajuria is a proud recipient of 2015 ACBSP-USA Teaching Excellence Award at Philadelphia, a Speaker in over 200 Conferences worldwide, and recipient of over 100 Awards and Recognitions from Academia and Industry. He sits on the Academic Council / Boards of Business Schools and Corporates. Dr. Khajuria, as Founder Director of CKSVIM Business School in Vadodara He founded and managed SANKALPA: Journal of Management & Research as the Chief Editor (2000-2020) and currently serves as a member on the Editorial Boards of a few European Universities' Research Journals (2018-2022). Dr. Khajuria founded and managed TEAM Projects & Consultants for 38 years.

Raymond Zepp has spent a long career helping to set up new universities in remote locations around the world, e.g. University of Maiduguri, Nigeria; University of Goroka, Papua New Guinea; University of East Asia, Macau; Central Buganda University, Uganda; National University of Management, Cambodia; and last but not least, Dewey International University, Battambang, Cambodia. Dr. Zepp received his Bachelor's Degree (magna cum laude, high honors in mathematics, Phi Beta Kappa) from Oberlin College, and his Doctorate from Ohio State University. He was a U.S. Fulbright Professor to the Ivory Coast. He has served as consultant to World Bank (Cambodia), ADB (Sri Lanka), UNDP (Mozambique), USAID (Haiti and Cambodia), and European Union (Cambodia), as well as numerous NGOs and charitable organizations. He has authored numerous books, journal articles, and conference papers in education, mathematics, research methods, and psycholinguistics.

Sam Sysoma is a librarian of CamEd Business School with the background of social researcher with holistic knowledge of research and report writing processes. Academically and socially, Experienced identifying efficiencies and problem areas within social streams, while communicating needs for projects.

Siphat Lim holds a Ph.D. in Econometrics from the prestigious Thammasat University, Thailand. He was awarded a Master of Science in Finance, a Master of Art in Economics from Pannasastra University of Cambodia, and a Bachelor of Accounting from the National University of Management. He was also employed as a full-time Economist at the National Bank of Cambodia and a member of the Exchange Rate Regulator Committee for many years. In addition, he was an economic researcher at Thailand Research Fund (TRF) and International Trade Development (ITD) in Thailand and Japan External Trade Organization in Japan. Likewise, he was also an Econometrics lecturer of the post-graduate program in Business at Thammasat Business School. Moreover, he has completed many training courses in financial and economic forecasting. In 2011, he was awarded an Honor Certificate in a competition on forecasting the stock price index of Austria from IMF Institute and Joint Vienna Institute in a training course on Macroeconomic Forecasting of the European Union. He has guided many Finance and Economics graduate and undergraduate students. Last but not least, he has published many research papers in both local and international journals.

Sok Uttara is currently the Vice President for Internal Quality Assurance and Internal Audit (IQA-IA) as well as a professor in CamEd Business School. He is an ACBSP-certified evaluator and AUN-QA certified assessor. In 2018, he was a visiting professor at Sophia University, Tokyo, Japan. He has taught a variety of courses in English and educational management and leadership from Bachelor to Doctoral degrees. He worked as Dean of Education and Dean of Arts, Humanities and Languages for 20 years. He was a permanent member of the National Committee on Doctoral Degree Program Preparations, an Interim Director of Department of Standards and Accreditation of the Accreditation Committee of Cambodia (ACC), a Team Leader of ACC Assessors, and a Consultant to the Ministry of Education, Youth, and Sport and several INGOs. Dr. Uttara holds a PhD in Educational Leadership and Management, specializing in Quality Assurance from De La Salle University-Manila. In addition, he received training on International Deans at Osnabruck University of Applied Sciences, Germany, and Leadership in Higher Education at Harvard University, the USA. His research interests include internal quality assurance, assessments, and teaching methodology.

Tapas R. Dash is currently the professor of Economics and research advisor at the CamEd Business School. Professor Dash holds a PhD in Economics. He has more than 28 years of experience in academic administration, teaching, research, consultancy, capacity building, and guiding research scholars. As a consultant, he is involved in conducting and managing a number of research and consultancy projects funded by international and national organizations and the Government. He has completed around 40 research and capacity building projects, some of which are funded by ILO, Swiss Agency for Development and Cooperation, USAID Cambodia Green Future Activity, Aide et Action, Oxfam, Plan International, Heifer International, Transparency International, People in Need, TdH Netherlands, and others. He has written/edited five books, including more than 25 research papers published in national and international journals. His latest edited book is on Cooperatives in the Global Economy published in the USA in 2021 and COVID-19: The Economy and Society published in India in 2021. Professor Dash has participated/presented papers in international seminars and conferences. Currently, he is the editor-in-chief of the Journal of Accounting, Finance, Economics, and Social Sciences published by CamEd Business School.

Thath Rido received a Bachelor of Science in Mathematics from the Royal University of Phnom Penh (RUPP), Cambodia, and an MA and a PhD in International Development (Development Economics) from Nagoya University, Japan. He has been teaching Statistics and Economics at CamEd Business School and RUPP since 2015. From 2017 to 2021, he was an Assistant Professor at the Faculty of Economics, Meiji Gakuin University, Tokyo, Japan. He has published several research papers in the field of Agricultural and Development Economics in Cambodia.

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VENG Meng is currently a student at CamEd Business School thriving to get his Certified Accountant Technician certificate. With a background in Real Estate, Digital Marketing, and Regional Debates his main interests are business analysis, and global economic environment. Apart from success, personal self-development is also his priority so he spends most of his free time listening to audio books, lifting weights and socializing with people who are living the life he is thriving for. Last but certainly not least to his family is just as important as success, and personal development.

Veung Naron has joined the Cambodia Development Resource Institute (CDRI) as a PhD scholarship awardee under the r4d programme's project "Skills for Industry", focusing on the garment, food processing and electrical and electronic sector since mid-2018. He has been involved in various firm-level surveys and qualitative interviews. He has also gained more than 10 years of extensive experience working in Cambodia's TVET sector. He is currently doing his PhD degree at Pañññāsāstra University of Cambodia. In 2015, he obtained his master's degree in International Development from the Graduate School of International Development, Nagoya University, Japan. His research interests include TVET, skill development, curriculum development, job market intermediaries, and youth employment.

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