

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

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*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.

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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).

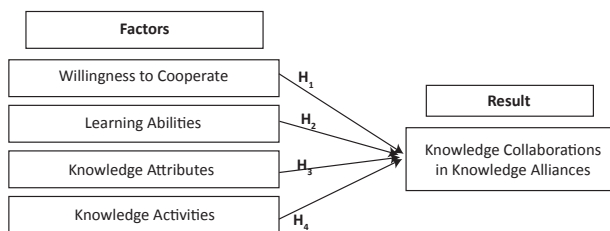
The literature clearly shows that in the context of Cambodia, there is an absence of any kinds of research on knowledge collaboration. Against this background, as a first attempt in this direction, through a *Structural Equation Model*, the present study attempts to examine which of the four factors 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,  $\alpha$  are parameters to be estimated,  $\epsilon$  is the residual or error term, and  $\eta$  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,

$\sigma$  : Standard deviation

$\epsilon$  : Error

Referring to the normal distribution table, the value of  $z$  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).

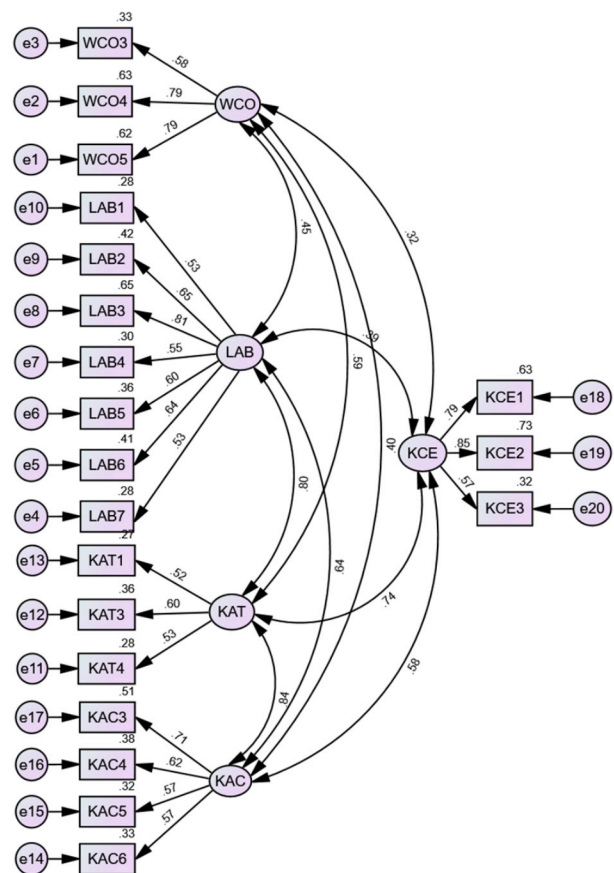
**Table 2**

*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	

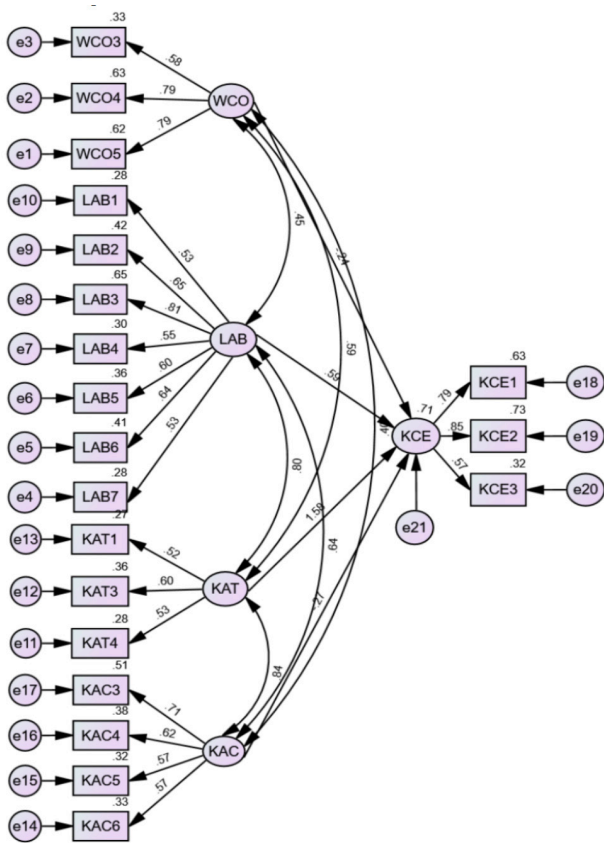
**Figure 2**

*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	<i>Willingness to Cooperate has a positive relationship with Knowledge Collaboration Effects.</i>	Rejected
H2	<i>Learning Abilities have a positive relationship with Knowledge Collaboration Effects.</i>	Accepted
H3	<i>Knowledge Attributes have a positive relationship with Knowledge Collaboration Effects.</i>	Accepted
H4	<i>Knowledge Activities have a positive relationship with Knowledge Collaboration Effects.</i>	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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