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Drivers of Innovation Culture Adoption in Online Distance Learning Higher Education Institutions: Structural Equation Modelling Approach

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Abstract

This study aims to evaluate the relationship between organizational culture, attitude, subjective norm, perceived behavioral control, intention, and adoption of innovation culture in online distance learning (ODL) higher education institutions in Malaysia. The findings of this study are crucial for ODL institutions to maximize employee performance through the adoption of an innovation culture, which is essential for their survival and sustainability. The research framework includes four exogenous variables (organizational culture, attitude, subjective norm, and perceived behavioral control), with intention as a mediator and adoption as an endogenous variable. Primary data was collected using a survey questionnaire adapted from previous studies and distributed via email. Non-probability purposive sampling was employed due to the unavailability of a sample frame. The study analyzed 316 clean questionnaires out of the 333 received, representing an 86.5% response rate. The results support most of the proposed hypotheses, confirming the significant influence of organizational culture, attitude, subjective norm, and perceived behavioral control on intention. Intention was found to be a critical mediator between exogenous and endogenous variables. The model proposed in this study demonstrates high predictive relevance based on

statistical analysis using PLSpredict and Cross-Validated Predictive Ability Test (CVPAT). Only one direct relationship hypothesis was not supported, while the six direct and two indirect relationship hypotheses were supported. Overall, this study provides valuable insights into maximizing the adoption of an innovation culture in ODL higher education institutions.
Keywords: Organizational Culture, Attitude, Subjective Norms, Perceived Behavioral Control, Intention, Adoption

Introduction

Online distance learning (ODL) higher education institutions in Malaysia today are faced with challenging competition in providing online learning services to students. To ensure the survival of Online distance learning (ODL) higher education institutions, action must be taken to ensure that the services offered to students become more efficient, effective, and cost-effective. Therefore, the leadership in ODL higher education institutions needs to think of an innovative approach to make positive changes and increase competitiveness in the market to attract more students to study online. Innovation refers to the introduction of something new or a change in doing something or seeing something (Rubio, 2012). This something may be thoughts, attitudes, knowledge, skills, products, or services (Roffei et al., 2018). With the development of technology being so dynamic, innovation activities must be implemented in the organization of higher education institutions, especially ODL higher education institutions that rely heavily on technological capabilities (Kebah et al., 2019). To ensure the success of ODL higher education institutions in achieving the organizational goals that have been set, innovative activities can help in a very effective way. To strengthen innovation activities in ODL organizations, a culture of innovation must be implemented and strengthened. Studies on innovation culture are mostly found in the field of management, but not many in higher education, especially in ODL higher education institutions. The general definition of innovation culture still cannot be determined precisely (Jucevičius, 2007), but the application of the concept of innovation culture in the field of education is still being studied. Innovation culture as a concept cannot be denied as part of organizational culture and management concepts (Kebah et al., 2019). Culture has three aspects that include values, norms, beliefs, and basic assumptions. Culture is influenced socially by the environment and history that shape individual attitudes. New ideas or innovations are likely to challenge the traditional way employees work, especially in the situation of ODL higher education institutions. Implementing a culture of innovation starts with the leadership of ODL higher education institutions that prioritize clear communication and collaboration over a centralized team structure. If employees are expected to contribute to an innovative workplace, they must be supported with learning and training in their respective areas of expertise. ODL organizations that commit to creativity know that they need to emphasize long-term return on investment (Hashim et al., 2019). Creativity requires resources, and academic and non-academic workers must be provided with the time and tools to innovate. Rewards for thoughtful ideas must be given as a step to encourage a culture of innovation among employees. The practice of innovation is very appropriate to be encouraged among employees in the organization of ODL higher education institutions. The culture of innovation among higher education institutions in Malaysia has still not reached the desired level, and there are still many areas that need to be improved so that organizational culture can be improved. This study will benefit several parties such as policymakers especially the Ministry of Higher Education (KPT) Malaysia, especially in making policy on online distance learning institutions in Malaysia, ODL higher education institutions in Malaysia themselves will benefit from this study where this

framework will be able to help ODL higher education institutions in formulating strategies to further strengthen innovation culture adoption in their respective organizations. For academics and non-academics, it will make them more prepared. This study aims to evaluate the relationship and influence among organizational culture, attitude, subjective norms, perceived behavioral control, intention, and adoption of the innovation culture of ODL higher education institutions in Malaysia.

Literature Review

The Theory of Planned Behavior (TPB) has been used to explain social behavior in a variety of settings, including consumer behavior, and has proven useful through long-standing empirical research (Zhou et al., 2013); It is an extension of Fishbein and Eisen's (1975) Theory of Reasoned Action (TRA), which predicts human behavioral intentions through attitudes toward behavior and subjective norms. TPB adds perceived behavioral control to previous TRA models to overcome limitations of TRA, such as situations where control over people's will is incomplete (Ajzen, 1991). When people need information, skills, abilities, and other resources to perform certain behaviors, they see barriers and obstacles depending on the availability of the necessary resources. In this situation, the TPB, which explains the ease and complexity of carrying out behaviour, is more appropriate (Hansen, 2008). When predicting the use of electric vehicles, PVS must be considered because it requires not only internal resources, such as individual capacity and self-efficacy but also external resources, such as capacity and information; it also forms the effect of social impact, a variable traditionally associated with DOI (Crespo & del Bosque, 2008; Liao et al., 2017).

Organizational Culture

A strong organizational culture will be more crisis-resistant (Scaliza et al., 2022). Organizational learning is said to be influenced by traits including desire, discipline, decision-making, and parity (Widarko & Anwarodin, 2022). According to Qi and Chau (2018), organizational culture is a crucial innovation indicator for assessing an organization's overall innovation culture. It can support the development of the knowledge resources required for sustained business growth. Tactic knowledge and explicit knowledge are the two categories under which knowledge is categorized (Li et al., 2020). One method that businesses use to understand environmental dynamics is organizational learning. Business (Darwish et al., 2018; Krauss & Vanhoye, 2022). Learning institutions with a supervised learning process produce informed individuals, formally and implicitly (Hussain et al., 2018). Some researchers have concluded that organizational learning is influenced by a culture of collaboration and knowledge sharing (Nugroho, 2018). Tacit knowledge is a very important predictor of the development of organizational learning (Thelen & Formanchuk, 2022). Organizational culture remains a key factor in the adoption of innovation culture in recent years. Recent research has highlighted the role of a positive and supportive culture in promoting innovation adoption. For instance, a study by Shahzad et al. (2021) found a significant positive relationship between organizational culture and innovation adoption. Similarly, in a study by Yang et al. (2020), a supportive culture was identified as a critical enabler of innovation. Additionally, research by Furrer et al. (2018) highlighted the importance of a shared vision, values, and beliefs in fostering an innovation culture. Overall, recent studies continue to emphasize the crucial role of organizational culture in the adoption of innovation culture within organizations.

Attitude

Attitude plays a crucial role in shaping individuals' intention to adopt an innovation culture in education. Attitude represents an individual's evaluation and perception of a particular concept or behaviour, while intention reflects their readiness and willingness to engage in that behaviour. According to the theory of reasoned action (Fishbein & Ajzen, 1975), attitude significantly influences intention. Having a positive attitude toward innovation culture, including beliefs in its benefits and compatibility with personal values, strengthens the intention to adopt it (Wu & Lee, 2019). Therefore, individuals with favorable attitudes toward innovation culture are more likely to embrace and integrate innovative practices within educational settings (Osman et al., 2018). Recent studies have identified attitude and intention as critical predictors of the adoption of an innovation culture. Research by Azizi et al. (2019) found that positive attitudes toward innovation were significantly associated with adopting an innovation culture. Similarly, a study by Raza et al. (2021) found that a positive attitude toward innovation was a significant predictor of the intention to adopt an innovation culture in the healthcare sector. Moreover, in a study by Gavilan et al. (2018), the relationship between attitude and intention was found to be partially mediated by subjective norms. Thus, recent research suggests that a positive attitude toward innovation is crucial in developing the intention to adopt an innovation culture within organizations.

Subjective Norms

Recent studies have identified subjective norms as key predictors of the intention to adopt an innovation culture. Research by Khan et al. (2020) found that subjective norms, which refer to the perceived social pressure to adopt an innovation culture, significantly influenced the intention to adopt an innovation culture among employees. Similarly, a study by Li et al. (2018) found that perceived subjective norms significantly predicted the intention to adopt new technologies in the workplace. Moreover, in a study by Zhan et al. (2019), the relationship between subjective norm and intention was found to be partially mediated by attitude. These findings suggest that subjective norms play a crucial role in shaping the intention to adopt an innovation culture within organizations.

Perceived Behavioral Control

Perceived behavioral control (PBC) has been identified as a key predictor of the intention to adopt an innovation culture in recent studies. Research by Chang et al. (2020) found that PBC, which refers to the perceived ease of adopting an innovation culture, significantly influenced the intention to adopt an innovation culture among employees. Similarly, a study by Abu Khalifeh and Som (2018) found that PBC significantly predicted the intention to adopt new technology in the workplace. Moreover, in a study by Cheng et al. (2021), PBC was found to partially mediate the relationship between attitude and intention to adopt an innovation culture. These findings suggest that PBC plays a crucial role in shaping the intention to adopt an innovation culture within organizations. Perceived behavioral control (PBC) has been found to have a significant relationship with the adoption of innovation culture in recent studies. Research by Adeniji et al. (2018) found that PBC had a significant positive impact on the adoption of innovation culture in Nigerian manufacturing firms. Similarly, a study by Hosseini et al. (2019) found that PBC was a significant predictor of innovation adoption in Iranian SMEs. Moreover, in a study by Khan et al. (2020), PBC was found to partially mediate the relationship between innovation culture and intention to adopt innovation culture. These

findings suggest that employees who perceive greater control over the adoption of innovation culture are more likely to adopt such practices within their organizations.

Intention

Intention is a key factor that influences the adoption of an innovation culture in organizations. Intention refers to an individual's attitude towards a particular behaviour and readiness to engage in that behaviour. Research has shown that there is a significant positive relationship between intention and the adoption of an innovation culture. For example, a study by Chen and Lin (2018) found that intention was a significant predictor of the adoption of innovation culture among employees in Taiwanese high-tech firms. Similarly, a study by Siahtiri et al. (2020) showed that intention significantly influenced the adoption of innovation culture in Iranian construction companies. Moreover, a study by Adnan et al. (2021) found that intention played a significant role in the adoption of innovation culture among Malaysian public sector employees. These studies suggest that individuals with a higher intention to adopt an innovation culture are more likely to do so in their organizations. In conclusion, intention is an important factor that influences the adoption of an innovation culture in organizations. Therefore, organizations should focus on developing a positive attitude towards innovation and fostering a culture that encourages employees to adopt new and creative ideas and practices.

Based on the above hypotheses' development, the following research hypotheses were formulated for this study:

H1: There is a significant positive relationship between organizational culture (OCUL) and intention to adopt innovation (INT) in online distance learning higher education institutions.

H2: There is a significant positive relationship between attitudes towards innovation (ATT) and intention to adopt innovation (INT) in online distance learning higher education institutions.

H3: There is a significant positive relationship between subjective norms (SN) and intention to adopt innovation (INT) in online distance learning higher education institutions.

H*4*: There is a significant positive relationship between perceived behavioral control (PBC) and intention to adopt innovation (INT) in online distance learning higher education institutions.

H5: There is a significant relationship between organizational culture (OCUL) and adoption of innovation (ADP) in online distance learning higher education institutions.

H6: There is a significant positive relationship between perceived behavioral control (PBC) and adoption of innovation (ADP) in online distance learning higher education institutions.

H7: There is a significant positive relationship between the intention to adopt innovation (INT) and the adoption of innovation (ADP) in online distance learning higher education institutions.

H8: The relationship between organizational culture (OCUL) and adoption of innovation (ADP) is mediated by the intention to adopt innovation (INT) in online distance learning higher education institutions.

H9: The relationship between perceived behavioral control (PBC) and adoption of innovation (ADP) is mediated by the intention to adopt innovation (INT) in online distance learning higher education institutions.

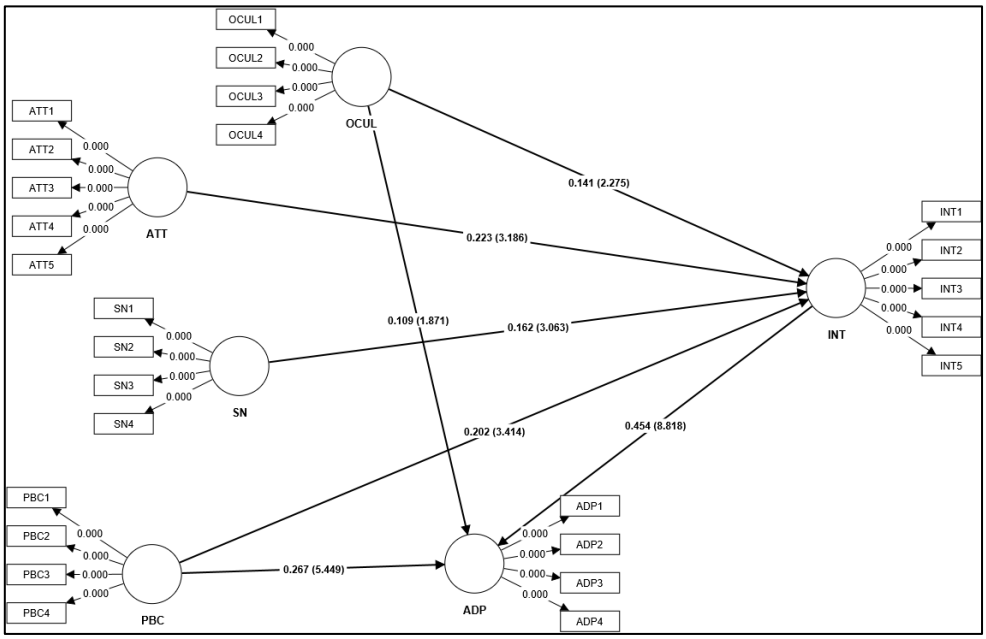

Figure 1: Research Model

Methodology

Employees who are working in online distance learning higher education in Malaysia were selected for this study. This study used primary data, and a survey instrument was employed for data collection. The measurement items used in the survey questionnaire for this study were developed with a detailed evaluation of prior studies to reach suitable measurements that were frequently utilized and possessed strong reliability and validity. Survey questionnaires were sent through email to the selected respondents. This study used the non-probability sampling technique of purposive sampling to gather data due to the absence of a sample frame. In this study, there was a total of 18 observed variables, comprised of exogenous variables and endogenous variable measurement items. The organizational culture construct consisted of four measurement items, and these were based on a prior study by Van den Berg and Wilderm (2004). The attitude construct consisted of five measurement items, the subjective norms construct consisted of five measurement items, and the intention construct also had five measurement items, which were based on a study by Ajzen & and Kruglanski (2019). Then, the perceived behavioural control construct consisted of five measurement items. Finally, the adoption construct consisted of five measurement items, based on a study by De Cannière et al. (2009). A five-point Likert scale ranging from strongly disagree to strongly agree was adopted to measure all constructs' measurement items. Out of 385 questionnaires sent out, 333 were returned. This made up an 86.5% response rate, and it was adequate to analyze the data by adopting the structural equation modeling technique (SEM). Then, after data screening and eliminating the outliers, 316 questionnaires were clean and ready to be analyzed. The present study employs partial least squares structural equation modeling (PLS-SEM) to investigate the relationships in the proposed model. This method allows for examining the strength of the construct's impact on the target construct in the path model (Hair et al., 2022). PLS-SEM is suitable for both

explanatory and predictive goals in analyzing causal-predictive model relationships (Wold, 1982). The model needs to provide a causal explanation and predictive accuracy to compare it with the theory developed before (Chin et al., 2020). PLS-SEM is a research methodology that is particularly useful for developing new theories and refining existing ones (Ritcher et al., 2016). Moreover, PLS-SEM can estimate not only reflective and formative measurement models (Hair et al., 2022) but also complex structural models (Hair et al., 2019; Wold, 1982). Various researchers from different fields of social science have used the PLS-SEM method in empirical analysis to support the objectives of their studies. For instance, the method has been used in human resource management (Ringle et al., 2020), higher education (Ghasemy et al., 2020), information systems (Chin et al., 2020), and marketing (Liu et al., 2021). The evaluation results in this study are estimated and modelled using SmartPLS4, as recommended by Ringle et al. (2022).

Data Analysis

Respondents' Profile

The data reveal that within the group, males constitute 59% (188 individuals) and females account for 41% (128 individuals). This indicates a slight gender imbalance, with males being more predominant. Regarding age distribution, the data is categorized into five groups. Individuals under 30 years old comprise the smallest portion, representing only 6% (18 individuals). The largest age group falls within the range of 31 to 40 years old, accounting for 42% (132 individuals). The subsequent age groups show a gradual decline, with 36% (113 individuals) falling between 41 to 50 years old, 13% (41 individuals) between 51 to 60 years old, and the remaining 4% (12 individuals) being over 60 years old. The data further classifies individuals into two categories: academicians and non-academicians. Academicians constitute the majority, making up 69% (217 individuals) of the group, while non-academicians account for the remaining 31% (99 individuals). The distribution of years of service is presented in various brackets. The majority of individuals, 30% (94 individuals), have served for 11 to 15 years. This is followed closely by individuals with 16 to 20 years of service, making up 22% (68 individuals). Individuals who have served for 6 to 10 years represent 27% (85 individuals). The remaining brackets show a decreasing trend, with fewer individuals serving for longer periods. In terms of educational qualifications, the dataset provides information on five categories: certificate, diploma, bachelor's degree, master's degree, and doctorate. The highest percentage of individuals hold a doctorate, comprising 31% (98 individuals), followed by individuals with a master's degree at 26% (81 individuals). Bachelor's degrees account for 20% (63 individuals), while diplomas and certificates represent 13% (41 individuals) and 10% (33 individuals), respectively.

Common Method Bias

A common problem in the field of management research is the existence of common method biases. This occurs when study variance is supposed to represent structure, but represents the measurement method used. To address this issue, researchers scored measurement points in this study using Harman's one-factor test. The results of the test show that the main factor only accounted for 39.7% of the variance, indicating that bias from the general method was not a significant problem in this study. This result is consistent with Podsakoff and Organ's (1986) suggestion that bias is not an issue if the principal components explain less than 50% of the variance.

Measurement Model

The study employed the PLS-SEM algorithm to assess and validate the measurement of constructs in terms of their validity and reliability. Following the recommendations of Hair, Hult, Ringle, and Sarstedt (2017), two crucial aspects of PLS-SEM were considered: outer model goodness, reliability and validity. Initially, the model underwent evaluation, and after assessing the reliability and validity of outer loading, it was determined that all constructs exceeded the minimum threshold of 0.5 for average variance extracted (AVE), with a minimum AVE of 0.584 and a maximum AVE of 0.699 (Table 1). These findings indicated the establishment of convergent validity for all constructs. Furthermore, Table 1 displayed composite reliability values ranging from 0.848 to 0.903 for all constructs, surpassing the threshold of 0.7 proposed by Hair et al. (2017). Additionally, Cronbach's alpha values for all constructs ranged from 0.761 to 0.856. To confirm the presence of discriminant validity in this study, an evaluation of cross-loadings among the measurement items was conducted. The assessment results revealed that all item loadings exceeded their respective cross-loadings (Table 1). Moreover, the establishment of discriminant validity was further examined using Hetrotrait-Monotrait (HTMT) ratios, which demonstrated that the ratios for all seven constructs were below 0.9 (see Table 2), as suggested by Henseler et al (2015).

Table 1
Constructs' Reliability, validity & Cross Loadings

Construct	Item	Loading	CA	CR	AVE
Adoption	ADP1	**0.815**	0.806	0.872	0.631
	ADP2	**0.793**			
	ADP3	**0.807**			
	ADP4	**0.760**			
Attitude	ATT1	**0.767**	0.850	0.893	0.625
	ATT2	**0.800**			
	ATT3	**0.846**			
	ATT4	**0.839**			
	ATT5	**0.691**			
Intention	INT1	**0.787**	0.836	0.884	0.604
	INT2	**0.820**			
	INT3	**0.787**			
	INT4	**0.728**			
	INT5	**0.761**			
Organizational Culture	OCUL1	**0.777**	0.761	0.848	0.584
	OCUL2	**0.783**			
	OCUL3	**0.682**			
	OCUL4	**0.810**			
Perceived behavioral Control	PBC1	**0.817**	0.763	0.849	0.585
	PBC2	**0.738**			
	PBC3	**0.807**			
	PBC4	**0.689**			
Subjective norms	SN1	**0.858**	0.856	0.903	0.699
	SN2	**0.850**			
	SN3	**0.858**			
	SN4	**0.776**			

Table 2
Hetrotrait-Monotrait (HTMT) Ratio

	ADP	ATT	INT	OCUL	PBC
ATT	0.593				
INT	0.751	0.572			
OCUL	0.534	0.75	0.529		
PBC	0.653	0.757	0.565	0.586	
SN	0.524	0.436	0.437	0.456	0.448

Structural Model

To evaluate the structural model, the study employed the simultaneous examination of pathway coefficients (β) and coefficients of determination (R2) following the approach by Hair et al. (2017). The PLS method was utilized, utilizing 5000 subsamples to verify the significance level of path coefficients. Table 3 presents the path coefficients (beta), t-statistics, p-values, and results of hypothesis tests for confidence intervals. For *hypothesis 1*, the statistical analysis indicated a positive and significant effect of organizational culture on intention (β=0.141, t=2.275, p=0.023), thus providing support for H1. Similarly, hypothesis 2 received strong support as the results showed a positive and significant effect of attitude on intention (β=0.223, t=3.186, p=0.001). The statistical findings for *hypothesis 3* revealed that subjective norms had a positive and significant impact on intention (β=0.162, t=3.063, p=0.002), supporting H3. Likewise, *hypothesis 4* was supported as perceived behavioral control exhibited a positive and significant direct effect on intention (β=0.202, t=3.414, p=0.002). Regarding *hypothesis 5*, the statistical results indicated that organizational culture positively and significantly influenced adoption (β=0.109, t=1.871, p=0.061), providing partial support for H5. *Hypothesis 6* received strong support as perceived behavioral control had a positive and significant effect on adoption (β=0.267, t=5.449, p=0.000). *Hypothesis 7* was strongly supported as intention showed a positive and significant effect on adoption (β=0.454, t=8.818, p=0.000). Additionally, *hypothesis 8* was supported by the statistical findings, demonstrating that intention mediated the relationship between organizational culture and adoption (β=0.064, t=1.193, p=0.028, LLCI=0.007, ULCI=0.121). Similarly, *hypothesis 9* received support as the intention was found to mediate the relationship between perceived behavioral control and adoption (β=0.092, t=3.407, p=0.001, LLCI=0.041, ULCI=0.147). The study's analysis provided evidence to support the majority of the hypotheses, confirming the relationships between the variables under investigation. Table 3 presents a summary of the hypothesis testing results, including information on the effect size, which measures the magnitude of an effect without being influenced by the sample size. Effect sizes in this study were evaluated using Cohen's criteria (1992) and classified as small (0.020 to 0.150), medium (0.150 to 0.350), or large (0.350 or greater). The effect sizes observed in this study ranged from small (0.028) to large (0.263). Table 4 displays the intrinsic value inflation rate (VIF) values, all of which were below the more lenient threshold of 5, with the highest value being 2.161. This level of collinearity allows for meaningful comparisons of sizes and interpretation of coefficients in the structural model. The recruitment process revealed a significant degree of explained variance for the endogenous construct, with an R2 value of 0.471 (refer to Figure 1). As for the mediator, the model explained approximately 32.5% of the variance in the structure, as indicated by an R2 value of 0.325. Of particular importance, the model's ability to make inferences and provide management suggestions was evaluated through out-of-sample predictive analysis. The PLSpredict method, as described by Shmueli et al. (2016,

2019), was employed for this purpose. In Table 5, Q^2 predictions higher than 0 indicated that the predictions made by PLS-SEM surpassed the standard naive mean prediction results. Furthermore, the root mean square error (RMSE) values of the PLS-SEM predictions were lower than those of the linear model (LM) prediction benchmark in all nine instances. This finding indicates that the proposed model possesses predictive power (see Table 5). Furthermore, to evaluate and validate the predictive capabilities of their model, Lingard et al. (2021) conducted a Cross-Validated Predictive Ability Test (CVPAT) in addition to the PLSpredicts analysis. The CVPAT employed an out-of-sample prediction approach to assessing the model's prediction error, quantifying the average loss value. For model assessment based on predictions, this average loss value was compared to two benchmarks: the average loss value of predictions using indicator averages (IA) as a naive benchmark and the average loss value of a linear model (LM) forecast as a more conservative benchmark. In order to substantiate better predictive capabilities of the model compared to the prediction benchmarks, PLS-SEM's average loss should be lower, resulting in a negative difference in the average loss values. The CVPAT aimed to test whether the difference in average loss values between PLS-SEM and the benchmarks was significantly below zero. A significantly negative difference would provide evidence of the model's superior predictive capabilities. Table 6 displays the results of the CVPAT, demonstrating that the average loss value of PLS-SEM was indeed lower than that of the benchmarks, as indicated by the negative difference in the average loss values. To compare the importance and performance of the latent variables in explaining acceptance, Ringle and Sarstedt (2016), as well as Hair et al. (2018) recommended utilizing Importance Performance Analysis (IPMA). The results of this analysis are presented in Table 7. In terms of overall impact, intention exhibited the strongest influence on adoption (0.454), followed by perceived behavioral control (0.359), organizational culture (0.173), attitude (0.101), and subjective norms (0.073). These values indicate the relative importance of each latent variable in the context of recruitment. Regarding performance scores, subjective norms attained the highest score (67.384), while intention had the lowest score (60.649) on a scale ranging from 0 to 100. This implies that subjective norms performed relatively well, while intention had the lowest achievement value. Consequently, despite being the most important factor for recruitment, intention demonstrated the lowest level of performance. Based on these findings, it is recommended that top management in ODL higher education institutions should prioritize and emphasize activities aimed at enhancing the performance of employees' intentions. This emphasis on improving intention can potentially lead to better overall performance.

Table 3
Hypotheses Testing Results & f^2

Hypotheses	Beta	T statistics	P values	f2	2.50%	97.50%	Decision
H1: OCUL -> INT	0.141	2.275	0.023	0.017	0.016	0.262	*Supported*
H2: ATT -> INT	0.223	3.186	0.001	0.034	0.081	0.354	*Supported*
H3: SN -> INT	0.162	3.063	0.002	0.031	0.056	0.264	*Supported*
H4: PBC -> INT	0.202	3.414	0.001	0.035	0.078	0.314	*Supported*
H5: OCUL -> ADP	0.109	1.871	0.061	0.016	-0.008	0.222	*Not Supported*
H6: PBC -> ADP	0.267	5.449	0.000	0.095	0.166	0.361	*Supported*
H7: INT -> ADP	0.454	8.818	0.000	0.282	0.349	0.551	*Supported*
H8: OCUL -> INT -> ADP	0.064	2.193	0.028		0.007	0.121	*Supported*
H9: PBC -> INT -> ADP	0.092	3.407	0.001		0.041	0.147	*Supported*

Table 4
Collinearity Statistics – Inner VIF

	ADP	INT
ATT		2.161
INT	1.382	
OCUL	1.364	1.681
PBC	1.419	1.716
SN		1.242

Table 5
PLSpredicts

	Q^2predict	PLS-SEM_RMSE	LM_RMSE	PLS - LM
ADP1	0.292	0.613	0.620	-0.007
ADP2	0.202	0.622	0.629	-0.007
ADP3	0.222	0.676	0.689	-0.013
ADP4	0.140	0.725	0.741	-0.016
INT1	0.240	0.619	0.627	-0.008
INT2	0.189	0.631	0.651	-0.020
INT3	0.129	0.675	0.681	-0.006
INT4	0.149	0.688	0.713	-0.025
INT5	0.183	0.620	0.641	-0.021

Table 6
Cross-Validated Predictive Ability test (CVPAT)

	Average loss difference	t value	p-value
ADP	-0.117	5.865	0.000
INT	-0.090	4.334	0.000
Overall	-0.102	5.745	0.000

Table 7
Importance-Performance Map Analysis (IPMA)

	Total Effect	Performance
ATT	0.101	66.466
INT	0.454	60.649
OCUL	0.173	66.569
PBC	0.359	66.735
SN	0.073	67.384

Discussion & Conclusion

Discussion

Based on the analysis and findings, online distance learning (ODL) higher education institutions should take the following actions to enhance the adoption of an innovation culture within their institutions. Firstly, these institutions must emphasize the importance of organizational culture. The study identified a significant positive relationship between organizational culture and intention (β=0.141). To foster an innovative culture, institutions should focus on developing a supportive environment that encourages creativity, collaboration, and a willingness to embrace change. This can be achieved through leadership

initiatives, effective communication strategies, and the implementation of organizational practices that promote innovation. Secondly, institutions should work on fostering positive attitudes toward innovation. The analysis indicated a significant positive effect of attitude on intention (β=0.223). Creating awareness about the benefits of innovation, providing training and resources for innovation-related skills, and recognizing and rewarding innovative ideas and initiatives can help cultivate positive attitudes among employees. By doing so, institutions can instil a culture that values and encourages innovation. Furthermore, promoting subjective norms that support innovation is essential. The study demonstrated a significant positive influence of subjective norms on intention (β=0.162). Institutions should create a supportive social environment where innovation is valued and encouraged. This can be achieved through the establishment of communities of practice, organizing innovation-related events and workshops, and facilitating networking opportunities that facilitate the sharing of ideas and experiences among individuals. Additionally, institutions should focus on enhancing perceived behavioral control. The analysis revealed a significant positive relationship between perceived behavioral control and both intention (β=202) and adoption (β=267). Providing individuals with the necessary resources, tools, and support to increase their perceived control over innovative behaviors is crucial. Offering training programs, implementing mentoring and coaching initiatives, and creating an infrastructure that facilitates innovation implementation can empower individuals to take ownership of their innovative endeavors. Lastly, ODL higher learning education institutions should encourage collaboration and interdisciplinary approaches. By fostering collaboration among students, faculty, and staff from different disciplines and backgrounds, institutions can promote diverse perspectives, the cross-pollination of ideas, and the emergence of innovative solutions. Creating platforms such as innovation labs or research centres can facilitate interdisciplinary collaboration and provide opportunities for individuals to work together on innovative projects. By implementing these recommendations, ODL higher education institutions can effectively enhance the adoption of an innovation culture within their institutions. Emphasizing organizational culture, fostering positive attitudes, promoting subjective norms, enhancing perceived behavioral control, and encouraging collaboration and interdisciplinary approaches will contribute to a thriving environment of innovation and continuous improvement.

Theoretical Implications

The present study has significant theoretical implications that contribute to the existing knowledge in the field. Providing empirical evidence strengthens the theoretical foundations and advances our understanding of the interrelationships among key constructs. The findings confirm the positive associations between organizational culture and intention, attitude and intention, subjective norms and intention, perceived behavioral control and intention, and intention and adoption. One important theoretical implication of the study is the recognition of the vital role of organizational culture in fostering innovation. The results demonstrate that a supportive and innovative culture has a positive impact on individuals' intention to adopt innovation. This emphasizes the significance of cultivating an organizational environment that values and encourages innovation, highlighting the role of organizational culture as a key determinant in promoting innovation within higher education institutions. Additionally, the study reinforces the importance of attitudes and subjective norms in influencing individuals' intention to adopt innovation. The findings align with established theoretical frameworks such as the Theory of Reasoned Action and the Theory of Planned Behavior, underscoring the

role of attitudes and subjective norms in shaping behavioral intentions. This provides further support for the relevance of these theories in the context of innovation adoption. Furthermore, the study highlights the influence of perceived behavioral control on both intention and adoption. It underscores the significance of individuals' belief in their ability to engage in innovative behaviours, aligning with the concept of self-efficacy. This finding emphasizes the need for institutions to provide resources and support that enhance individuals' perceived control over innovative behaviours. Moreover, the study supports the mediating role of intention in the relationship between organizational culture and adoption, as well as perceived behavioral control and adoption. This finding sheds light on the underlying mechanisms that drive the adoption of innovation and emphasizes the importance of fostering positive intentions toward innovation. Overall, the theoretical implications of this study contribute to the existing literature by providing empirical support for the relationships between organizational culture, attitudes, subjective norms, perceived behavioral control, intention, and adoption of innovation. These findings enhance our theoretical understanding of the factors influencing innovation adoption within online distance learning higher education institutions, thereby enriching the knowledge base in the field.

Practical Implications

The findings of the study have practical implications for online distance learning (ODL) higher education institutions seeking to enhance innovation culture adoption. These implications can guide institutions in implementing strategies to foster a culture of innovation and improve overall performance. One practical implication is the importance of cultivating a supportive and innovative organizational culture. Institutions should prioritize creating an environment that values and encourages innovation through leadership initiatives, effective communication strategies, and organizational practices that promote creativity, collaboration, and openness to change. By emphasizing organizational culture, institutions can take concrete steps to nurture and sustain a culture that actively supports and promotes innovation. The study also highlights the role of attitudes in driving innovation adoption. Institutions should focus on cultivating positive attitudes towards innovation by raising awareness about its benefits, providing training programs and resources for developing innovation-related skills and acknowledging and rewarding innovative ideas and initiatives. Promoting positive attitudes creates an environment that encourages and facilitates the adoption of innovative practices. Additionally, the study emphasizes the influence of subjective norms on individuals' intention to adopt innovation. Institutions should actively foster subjective norms that support and encourage innovative thinking and practices. This can be achieved through creating communities of practice, organizing innovation-related events and workshops, and facilitating networking opportunities. By establishing a supportive social environment that values innovation, institutions can positively influence individuals' intention to adopt and embrace innovative approaches. The study also highlights the significance of perceived behavioral control in driving intention and adoption of innovation. Institutions should provide individuals with the necessary resources, tools, and support to enhance their perceived control over engaging in innovative behaviours. This may involve offering training programs, mentorship initiatives, and creating an infrastructure that facilitates the implementation of innovative practices. By addressing perceived behavioural control, institutions empower individuals to engage confidently in innovative behaviours, facilitating the adoption of innovation.

Suggestions for Future Study

Future studies on innovation culture adoption in the field of online distance learning (ODL) higher education institutions can enhance their research models by incorporating new variables. One such variable is technological readiness, which evaluates the preparedness of individuals and institutions to adopt and utilize innovative technologies. By including technological readiness, researchers can gain insights into how technology influences the adoption of innovation in ODL contexts. Another valuable variable to consider is perceived risk, which encompasses concerns related to technology reliability, privacy, and the impact on traditional teaching methods. Exploring the relationship between perceived risk and innovation adoption can provide a deeper understanding of the barriers individuals perceive and their influence on the adoption process. Furthermore, examining the learning culture within ODL institutions can contribute to understanding how institutional practices shape innovation adoption. This variable can encompass elements such as promoting continuous learning, fostering experimentation, facilitating knowledge sharing, and cultivating a growth mindset. Investigating the link between learning culture and innovation adoption can illuminate the importance of creating an institutional environment that values continuous learning and innovation. By incorporating these additional variables into future studies, researchers can develop a more comprehensive understanding of the factors that influence innovation adoption in ODL higher education institutions. These insights will be instrumental in guiding institutions to enhance their innovation practices and achieve better outcomes in the dynamic landscape of online education.

Conclusion

In conclusion, the study underscores the importance of organizational culture, attitudes, subjective norms, and perceived behavioral control in driving innovation adoption in online distance learning higher education institutions. It highlights the need for institutions to cultivate a supportive and innovative culture, encourage positive attitudes towards innovation, establish subjective norms that foster innovation, and offer resources to enhance individuals' perceived control over innovative behaviours. By adopting these strategies, institutions can create an environment that facilitates innovation culture adoption, ultimately enhancing their performance and competitiveness in the ever-changing field of online education.

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