



INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES



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To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v13-i7/17439>

DOI:10.6007/IJARBSS/v13-i7/17439

Received: 10 May 2023, Revised: 13 June 2023, Accepted: 28 June 2023

Published Online: 17 July 2023

In-Text Citation: (Osman et al., 2023)

To Cite this Article: Osman, Z., Sulaiman, T. F. T., Aziz, R. C., Bakar, R. A., & Fadil, N. A. (2023). Leadership Styles and Organizational Commitment: Driving the Sustainable Development Practice Adoption in Online Higher Education Institutions through an Intention as a Mediator. *International Journal of Academic Research in Business and Social Sciences*, 13(7), 476 – 492.

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Vol. 13, No. 7, 2023, Pg. 476 – 492

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Leadership Styles and Organizational Commitment: Driving the Sustainable Development Practice Adoption in Online Higher Education Institutions through an Intention as a Mediator

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Abstract

Sustainability development practices currently is a pressing issue in many organizations and are gaining wide attention across the words. This study aims to evaluate the direct and indirect relationships among leadership style, organizational commitment, intention, and adoption of sustainable development practices among employees of distance learning higher education institutions in Malaysia. Presently, in Malaysia, the adoption of sustainable development practices among online distance learning higher education institutions is still at not very encouraging level and much improvement needs to be done to increase the level of adoption. In this study, primary data was employed and a survey questionnaire, which was adapted from previous research studies, was utilized for data gathering. The data analysis involved 392 clean data which was analyzed using structural equation modeling. Firstly, the measurement model was evaluated to determine the convergent validity by examining the construct reliability and validity. The discriminant validity was then assessed and verified using cross-loading and Hetrotrait-Monotrait (HTMT) ratios. The structural model was then evaluated and the hypothesis testing indicated that leadership style and organizational commitment have a significant positive direct relationship with intention and adoption. Further, intention significantly mediates the relationship between leadership style and

organizational commitment with adoption. This study provides some insights in providing strategies to enhance the adoption of sustainable development practices

Keywords: Attitude, Leadership Style, Organizational Commitment, Intention, Adoption

Introduction

Higher education institutions around the world are increasingly recognizing the importance of sustainable development practices. As the need for sustainability grows across all sectors, these institutions have an important role to play in promoting sustainable practices. This is particularly important in the context of online distance learning, which has become increasingly popular in recent years. In order to ensure that sustainable development practices are adopted in this context, it is essential to consider the specific challenges and opportunities that arise in online distance learning. According to Fernandez (2020), this paper will discuss the adoption of sustainable development practices in online distance-learning higher education institutions around the world. Huang & Li (2020) mention that sustainable development practices are essential for higher education institutions to promote environmental sustainability and social responsibility. To achieve this, institutions can integrate sustainability into their policies and curricula, engage in sustainable practices such as energy conservation and waste reduction, and promote sustainable development research and community outreach. Online distance learning is a growing trend in higher education, and Kuyini et al (2019) highlight the importance of considering sustainable development practices in this context. Some specific sustainable practices that can be adopted in online distance learning include using digital textbooks and other resources, reducing travel and energy costs associated with commuting, and promoting online collaboration and communication to reduce paper usage. In addition, online distance learning institutions can engage in sustainable practices such as energy conservation, waste reduction, and resource management in their physical facilities. Robinson & Gasson (2021) argue that adopting sustainable development practices in online distance learning higher education institutions is essential for promoting environmental sustainability and social responsibility. Higher education institutions around the world must take a proactive role in promoting sustainable development practices and integrating sustainability into their policies and curricula. By adopting sustainable practices in online distance learning, higher education institutions can reduce their environmental impact, promote social responsibility, and prepare students for a sustainable future. Several challenges hinder the adoption of sustainable development practices in online distance learning higher education institutions in Malaysia. According to Abdul Razak et al (2019), online learners and educators lack awareness and understanding of sustainable development practices. Moreover, limited resources and the lack of institutional leadership support can impede the adoption of sustainable practices in online distance learning (Yusoff et al., 2018). Addressing these challenges is necessary to effectively promote sustainable development practices in online distance learning in higher education institutions in Malaysia. The research on sustainable development practices in online distance learning higher education institutions in Malaysia is of great significance as it provides insights into the challenges and opportunities for promoting sustainable practices in this context. This study can help higher education institutions in Malaysia and globally to identify areas for enhancing their sustainability efforts. Promoting sustainable practices in online distance learning can reduce environmental impact, promote social responsibility, and prepare students for a sustainable future. Policymakers and education administrators can benefit from this research

to develop initiatives aimed at promoting sustainability in higher education institutions, contributing to a more sustainable future for all.

The objectives of this study are to

- To determine whether there is a relationship between leadership style and intention to adopt sustainable development practices among employees in online distance-learning higher education institutions.
- To evaluate whether there is a relationship between organizational commitment and intention to adopt sustainable development practices among employees in online distance-learning higher education institutions
- To assess whether there is a relationship between leadership style and adoption to adopt sustainable development practices among employees in online distance-learning higher education institutions.
- To determine whether there is a relationship between organizational commitment and adoption to adopt sustainable development practices among employees in online distance-learning higher education institutions
- To confirm whether there is a relationship between intention and adoption to adopt sustainable development practices among employees in online distance-learning higher education institutions
- To assess whether there is a mediating effect of intention on the relationship between leadership style and adoption to adopt sustainable development practices among employees in online distance-learning higher education institutions
- To evaluate whether there is a mediating effect of intention on the relationship between organizational commitment and adoption to adopt sustainable development practices among employees in online distance-learning higher education institutions

Literature Review

Underpinning Theory

According to Social Cognitive Theory, an individual's behavior is influenced by personal, environmental, and behavioral factors. This theory provides a framework to understand the study of leadership style, organizational commitment, intention, and adoption of sustainable development practices. Personal factors such as organizational commitment and intention can influence an individual's behavior toward sustainable practices (Bandura, 1986). Organizational commitment can create a sense of responsibility and accountability, while intention can motivate individuals to engage in pro-environmental behavior (Ajzen, 1991). Leadership style can also play a significant role in the adoption of sustainable development practices. Transformational leaders can inspire and motivate their employees to adopt sustainable practices by creating a shared vision and promoting a sense of ownership among employees (Avolio et al., 1999). Supportive leaders can also facilitate the adoption of sustainable practices by providing resources and support to their employees, which can increase their intention to engage in pro-environmental behavior (Liu et al., 2020).

Leadership Style, intention & Adoption

The literature on the relationship between leadership style and intention in the context of sustainable development practices is limited but growing. Previous studies have shown that transformational leadership is positively related to the intention to adopt sustainable practices (Wang & Lu, 2018; Mosadeghrad et al., 2020). Transformational leaders are known

to inspire and motivate their followers to pursue a shared vision, which includes sustainability goals (Zhang et al., 2017). They create a positive work environment that fosters creativity and innovation, which is crucial for the successful adoption of sustainable practices (Mosadeghrad et al., 2020). A number of studies have investigated the correlation between leadership style and the inclination to embrace sustainable practices. Alzahrani et al. (2020) conducted research in the hospitality industry of Saudi Arabia and discovered that the transformational leadership style has a favorable influence on the intention to adopt sustainable practices. Likewise, Long and Pham (2019) scrutinized the relationship between leadership style and the adoption of sustainable practices in Vietnam and observed that transformational leadership has a significantly positive association with the intention to adopt sustainable development practices. Conversely, Carraher et al (2016) explored the relationship between leadership style and sustainable management and determined that the authoritarian leadership style has a detrimental impact on sustainable management practices. They contend that this leadership style engenders a culture of fear and punishment that dissuades employees from adopting sustainable practices. Chun and Davies (2001) advocated that e-leadership, a form of leadership that highlights the use of technology and communication tools, can have a positive impact on the intention to adopt sustainable practices. They suggested that e-leadership can facilitate communication and collaboration among employees, leading to more effective adoption of sustainable practices. Additionally, Shahzad et al. (2018) discovered that leadership styles such as transformational and transactional leadership have a positive influence on employees' readiness to adopt changes, which can encompass sustainable practices. Similarly, Gill (2011) argued that leadership styles can affect followers' behavior and that effective leadership can inspire followers to embrace sustainable practices. Tuan Long and Pham (2019) discovered a significant positive relationship between transformational leadership and the adoption of sustainable development practices in Vietnam. On the other hand, Carraher et al (2016) argued that an authoritarian leadership style has a negative impact on sustainable management practices. Chun and Davies (2001) posited that e-leadership, emphasizing the use of technology and communication tools, can positively impact the adoption of sustainable practices. Additionally, Shahzad et al (2018) found that transformational and transactional leadership styles positively influenced employees' willingness to adopt changes, including sustainable practices. Gill (2011) suggested that effective leadership can inspire followers to adopt sustainable practices by influencing their behavior. A number of studies have explored the relationship between leadership style and the adoption of sustainable development practices, with a particular focus on the mediating effect of intention (Osman et al., 2022). For instance, Lu et al (2022) found in their study that the relationship between transformational leadership and the adoption of sustainable practices in Taiwanese manufacturing companies was mediated by employees' intentions. According to the study, transformational leaders can motivate their employees to adopt sustainable practices by creating a shared vision and inspiring them to engage in pro-environmental behavior. Similarly, Han et al (2020) discovered that intention partially mediated the relationship between supportive leadership and the adoption of sustainable practices in South Korean manufacturing companies. The study suggested that supportive leaders can promote the adoption of sustainable practices by providing resources and support to their employees, which in turn can increase employees' intention to engage in pro-environmental behavior.

Organizational Commitment, Intention & Adoption

Organizational commitment, intention, and adoption have been found to be significant factors in the adoption of sustainable development practices. Singh and Dhir (2021) discovered a positive correlation between organizational commitment and the intention to adopt sustainable practices in the Indian hospitality industry. Similarly, Nguyen et al (2020) found a positive relationship between employees' intention to adopt sustainable practices and the adoption of sustainable supply chain practices in the Vietnamese manufacturing industry. In addition, Chang and Chen (2019) found that employees' intention to engage in pro-environmental behavior was positively related to their actual adoption of sustainable practices in the Taiwanese manufacturing industry. Moreover, several studies have suggested that the perception of organizational support influences employees' intention to adopt sustainable practices (Chen et al., 2021; Lu et al., 2021). Overall, these findings suggest that employees' organizational commitment, intention, and perception of organizational support play a critical role in the adoption of sustainable development practices. Organizational commitment has been found to have a positive impact on the adoption of sustainable development practices. In a study by Qiu et al (2020), it was found that employees who have a high level of organizational commitment are more likely to engage in environmental behavior. Similarly, in a study by Singh and Dhir (2021), it was found that employees' commitment to the organization is positively related to their intention to adopt green practices in the Indian hospitality industry. The study suggested that organizational commitment can be a driving force in the adoption of sustainable practices because it creates a sense of responsibility and accountability among employees. Intention has also been identified as a critical factor in the adoption of sustainable development practices (Osman et al., 2022). In a study by Nguyen et al (2020), it was found that employees' intention to adopt sustainable supply chain practices in Vietnamese manufacturing companies was positively related to their actual adoption of these practices. This suggests that employees who are motivated to adopt sustainable practices are more likely to follow through with their intentions and make changes to their behavior. Employees who are committed to their organization, have a strong intention to adopt sustainable practices, and perceive organizational support for these practices are more likely to engage in pro-environmental behavior and adopt sustainable practices (Osman et al., 2022). Several studies have explored the mediating effect of intention on the relationship between organizational commitment and the adoption of sustainable development practices. In a study by Shrestha and Aryal (2020), it was found that intention partially mediates the relationship between organizational commitment and the adoption of sustainable practices in the Nepalese tourism industry. The study suggested that employees' commitment to their organization can positively influence their intention to engage in pro-environmental behavior, which in turn can lead to the adoption of sustainable practices (Osman et al., 2022). Similarly, in a study by Chen et al. (2021), it was found that intention fully mediates the relationship between organizational commitment and environmental behavior in Chinese small and medium-sized enterprises. The study suggested that organizational commitment can enhance employees' intention to engage in sustainable practices, which ultimately leads to the adoption of these practices. Additionally, in a study by Zhang et al (2021), it was found that intention mediates the relationship between organizational commitment and green behavior in the Chinese automotive industry. The study suggested that organizational commitment can positively influence employees' intention to adopt sustainable practices, and this intention can lead to the adoption of these practices.

In view of the above hypotheses' development, the following hypotheses were proposed for this study

- H₁: There is a relationship between leadership style and intention to adopt sustainable development practices among employees in online distance-learning higher education institutions.
- H₂: There is a relationship between organizational commitment and intention to adopt sustainable development practices among employees in online distance-learning higher education institutions
- H₃: There is a relationship between leadership style and adoption to adopt sustainable development practices among employees in online distance-learning higher education institutions.
- H₄: There is a relationship between organizational commitment and adoption to adopt sustainable development practices among employees in online distance-learning higher education institutions
- H₅: There is a relationship between intention and adoption to adopt sustainable development practices among employees in online distance-learning higher education institutions
- H₆: There is a mediating effect of intention on the relationship between leadership style and adoption to adopt sustainable development practices among employees in online distance-learning higher education institutions
- H₇: There is a mediating effect of intention on the relationship between organizational commitment and adoption to adopt sustainable development practices among employees in online distance-learning higher education institutions

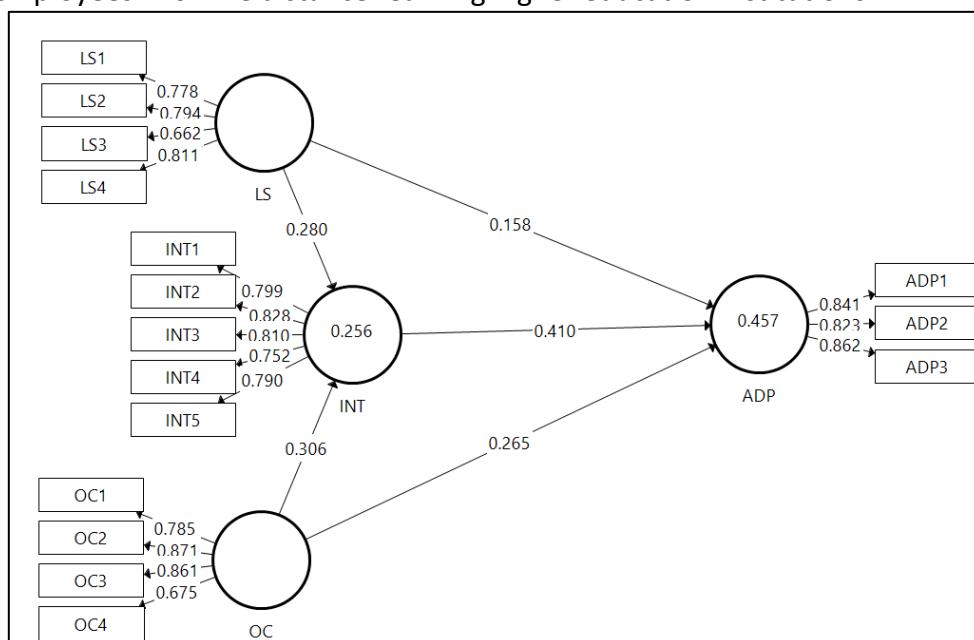


Figure 1: Research Framework

Note: LS=Leadership Style OC=Organizational Commitment INT=Intention ADP=Adoption

Methodology

This study focused on employees who work in open online distance learning higher education institutions (ODL) in Malaysia. To collect primary data, a survey instrument was utilized with measurement items that were developed through a comprehensive evaluation of prior studies to ensure strong reliability and validity. The survey questionnaires were distributed

via email to the selected participants using purposive sampling as a non-probability sampling technique due to the lack of a sample frame. The study included 16 observed variables, including independent, mediating, and dependent variables. The leadership style construct contained 4 measurement items (Madlock, 2008), organizational commitment included 4 measurement items (Angle & Perry, 1981), the mediating variable was the intention with 5 measurements (Fu et al., 2016), and the dependent variable was adoption with 3 measurement items (De Cannière et al., 2009). All constructs were measured on a five-point Likert scale ranging from strongly disagree to strongly agree. Out of 495 questionnaires distributed, 419 were returned, resulting in a response rate of 75.6%. After screening the data and eliminating 27 samples with outliers by performing the Mahalanobis Distance procedure, 392 questionnaires were considered for analysis using the structural equation modeling technique (SEM). To test the relationship in the proposed model, this study employs component-based SEM, specifically partial least squares structural equation modeling (PLS-SEM) (Hair et al., 2022). PLS-SEM allows for analyzing the strength of construct influence on the target construct in the path model and supports both explanatory and predictive goals when analyzing causal-predictive model relationships. For the model to be compared with the theory developed before, it must support a causal explanation and provide predictive accuracy (Chin et al., 2020). This research methodology is particularly suitable for developing both new and existing theories and supports the estimation of reflective and formative measurement models, as well as complex structural models (Hair et al. 2019; Wold 1982). Researchers from various social science fields, including 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; Chaouali et al., 2021; Damberg, 2021a), especially corporate and organizational reputation (Damberg, 2021b; Schloderer et al., 2014) have utilized the PLS-SEM method in their empirical analyses to support their study's purpose. This study uses SmartPLS 4 (Ringle et al., 2022) to estimate and model evaluation results. The respondents' profiles were depicted in Table 1.

Table 1
Respondents' Profiles

		Frequency	Percent
Gender	Male	179	45.7
	Female	213	54.3
Age	<30 Years Old	33	8.4
	31-40 Years Old	110	28.1
	41-50 Years Old	177	45.2
	51-60 Years Old	50	12.8
	>60 Years Old	22	5.6
Job Category	Academic	305	77.8
	Non-Academic	87	22.2
Year Service	<5 Years	32	8.2
	6-10 Years	95	24.2
	11-15 Years	155	39.5
	16-20 Years	67	17.1
	21-25 Years	38	9.7
	26-30 Years	5	1.3
Recommend	Yes	346	88.3
	No	46	11.7
	Total	392	100

Data Analysis

Common Method Bias

According to Kock (2015), a variance inflation factor (VIF) exceeding 3.3 indicates the presence of collinearity issues and also suggests that the model may have common method bias. Therefore, to ensure that the model is free from common method bias, it is necessary to conduct a full collinearity test and ensure that the VIFs for all factor-level variables are equal to or less than 3.3. Table 2 confirmed that there was no issue of common method bias since the full collinearity statistics showed all the value inflation factors (VIF) were less than 3.3.

Table 2
Collinearity Statistics (VIF)

	LS	OC	INT	ADP
LS		1.347	1.422	1.486
OC	1.465		1.586	1.472
INT	2.346	2.226		1.568
ADP	2.462	2.417	1.682	

Measurement Model

This study utilized the PLS-SEM algorithm to evaluate and confirm the validity and reliability of the constructs. Following the guidelines of Hair et al (2017), two essential aspects, namely the reliability and validity of the outer goodness model, were considered crucial in the PLS-SEM analysis for this study. The research model (Figure 1) was developed, and the assessment of outer loading reliability and validity indicated that all constructs achieved an Average Variance Extracted (AVE) above the minimum threshold of 0.5. The minimum AVE recorded was 0.583, while the maximum AVE was 0.709, as shown in Table 3. These findings establish

the convergent validity of all constructs. Table 3 also displays the composite reliability values ranging from 0.848 to 0.896 for all constructs. These values surpassed the recommended threshold of 0.7, as suggested by (Hair et al., 2017). Furthermore, Cronbach's alpha values for all constructs exceeded the threshold of 0.7, ranging from 0.759 to 0.856. To confirm the presence of discriminant validity in this study, the assessment focused on evaluating the cross-loading measurement items. The results revealed that all item loadings were higher than their respective cross-loadings, as presented in Table 4. Additionally, discriminant validity was further confirmed through the assessment of Heterotrait-Monotrait (HTMT) ratios, as proposed by (Henseler et al., 2015). The results in Table 5 indicate that all four constructs' ratios were below 0.9. Based on these outcomes, it can conclude that this study successfully established the reliability and validity of all latent constructs, aligning with the recommendations of (Hair et al., 2022).

Table 3

Construct Reliability, Validity and Item Loading

Construct	Item	Loading	CA	CR	AVE
Adoption	ADP1	0.841	0.795	0.880	0.709
	ADP2	0.823			
	ADP3	0.862			
Intention	INT1	0.799	0.856	0.896	0.634
	INT2	0.828			
	INT3	0.810			
	INT4	0.752			
	INT5	0.790			
Leadership Style	LS1	0.778	0.759	0.848	0.583
	LS2	0.794			
	LS3	0.662			
	LS4	0.811			
Organizational Commitment	OC1	0.785	0.811	0.877	0.643
	OC2	0.871			
	OC3	0.861			
	OC4	0.675			

Table 4
Cross Loading

	ADP	INT	LS	OC
ADP1	0.841	0.547	0.434	0.449
ADP2	0.823	0.459	0.373	0.439
ADP3	0.862	0.495	0.363	0.437
INT1	0.533	0.799	0.383	0.338
INT2	0.483	0.828	0.359	0.367
INT3	0.456	0.810	0.341	0.317
INT4	0.450	0.752	0.304	0.322
INT5	0.444	0.790	0.321	0.419
LS1	0.370	0.327	0.778	0.357
LS2	0.365	0.261	0.794	0.324
LS3	0.295	0.365	0.662	0.365
LS4	0.384	0.354	0.811	0.441
OC1	0.365	0.307	0.372	0.785
OC2	0.410	0.322	0.403	0.871
OC3	0.490	0.390	0.458	0.861
OC4	0.396	0.387	0.325	0.675

Table 5
Hetrotrait-Monotrait (HTMT) Ratio

	ADP	INT	LS
INT	0.718(0.636, 0.795)		
LS	0.595(0.475, 0.708)	0.531(0.417, 0.637)	
OC	0.647(0.543, 0.744)	0.528(0.414, 0.631)	0.619(0.496, 0.734)

Note: CI 95% bootstrap confidence interval, LS=Leadership Style OC=Organizational Commitment

INT=Intention ADP=Adoption

Structural Model

The evaluation of the structural model was conducted by simultaneously assessing the pathway coefficient (β) and the coefficient of determination (R^2) (Hair et al., 2017). In this study, the PLS method was used to launch 5000 subsamples to verify the significant level of path coefficients. Table 3 displays the path coefficients (beta), t-statistics, p-values, and statistical results of hypothesis tests for confidence intervals. For hypothesis 1, the statistical results revealed that leadership style had a positive and significant effect on intention ($\beta=0.280$, $t=5.514$, $p=0.000$), thus supporting H1. For hypothesis 2, the results demonstrated that organizational commitment had a positive and significant effect on intention ($\beta=0.306$, $t=5.854$, $p=0.000$), thus well-supporting H2. For hypothesis 3, the statistical results indicated that leadership style positively and significantly influenced adoption ($\beta=0.158$, $t=3.170$, $p=0.002$), thus supporting H3. For hypothesis 4, an organizational commitment was found to have a positive and significant direct effect on adoption ($\beta=0.265$, $t=5.179$, $p=0.000$), therefore supporting H4. Hypothesis 5 demonstrated that intention positively and significantly influenced adoption ($\beta=0.410$, $t=8.305$, $p=0.000$), favoring H5. For hypothesis 6, the intention was shown to positively and significantly mediate the relationship between leadership style and adoption ($\beta=0.115$, $t=4.304$, $p=0.000$, $LLCI=0.065$, $ULCI=0.168$), therefore

H6 was well supported. For hypothesis 7, the intention was also shown to positively and significantly mediate the relationship between organizational commitment and adoption ($\beta=0.126$, $t=4.754$, $p=0.000$, $LLCI=0.078$, $ULCI=0.181$), therefore H7 was also supported. Table 6 displays the summary of the hypothesis testing results.

Table 6 provides information on the effect size, which measures the magnitude of an effect unaffected by the sample size. According to Cohen's criteria (1992), effect sizes were categorized as small (0.020 to 0.150), medium (0.150 to 0.350), or large (0.350 or greater). This study's effect sizes ranged from small (0.032) to large (0.231). The adoption exhibited a high level of explained variance in endogenous constructs with an R^2 of 0.457 (Figure 1). For the mediator, intention, the model explained 25.6% of the construct's variance ($R^2 = 0.256$). More importantly, the model's out-of-sample predictive power was assessed to draw conclusions and provide managerial recommendations. The PLSpredict procedure was used on business performance (Shmueli et al., 2016, 2019). A Q2 prediction greater than 0 indicates that the PLS-SEM predictions are better than the naïve mean value prediction standard outcomes (Table 7). Moreover, in seven out of eight cases, the root mean square error (RMSE) value of the PLS-SEM predictions was lower than the RMSE value of the linear model (LM) prediction benchmark. These findings establish the predictive power of the proposed model (Table 7).

Finally, an Importance-Performance Map Analysis (IPMA) was conducted to support managerial implications (Ringle and Sarstedt, 2016; Hair et al., 2018), which combines the importance of latent variables explaining adoption (total effect) and their performance (average value on a scale from 0 to 100), as shown in Table 8. Based on total effects, the intention had the highest total effect (0.410) on adoption, followed by organizational commitment (0.391) and leadership style (0.273). In terms of performance value, leadership style had the highest performance value (66.851), while intention had the lowest performance value (60.993). Therefore, although leadership style had the highest performance for adoption, it also had the lowest importance value. Therefore, the top management of the ODL should focus on improving the importance of intention among their staff to positively impact the adoption performance.

Table 6
Hypotheses testing Results & f^2

Hypotheses	Path	T Statistics	P Values	f^2	2.50%	97.50%
LS -> INT	0.280	5.514	0.000	0.080	0.173	0.372
OC -> INT	0.306	5.854	0.000	0.096	0.199	0.406
LS -> ADP	0.158	3.170	0.002	0.032	0.060	0.256
OC -> ADP	0.265	5.179	0.000	0.090	0.165	0.364
INT -> ADP	0.410	8.305	0.000	0.231	0.309	0.499
LS -> INT -> ADP	0.115	4.304	0.000		0.065	0.168
OC -> INT -> ADP	0.126	4.754	0.000		0.078	0.181

Table 7
PLS-predicts

	PLS RMSE	LM RMSE	PLS-LM	Q^2_{predict}
ADP2	0.627	0.632	-0.005	0.216
ADP1	0.654	0.655	-0.001	0.252
ADP3	0.688	0.697	-0.009	0.211
INT5	0.617	0.619	-0.002	0.179
INT1	0.629	0.633	-0.004	0.168
INT2	0.633	0.634	-0.001	0.170
INT4	0.693	0.698	-0.005	0.126
INT3	0.680	0.672	0.008	0.138

Table 8
Importance-Performance Map Analysis

	Total Effect	Performance
INT	0.410	60.993
LS	0.273	66.851
OC	0.391	63.99

Discussion & Conclusion

The findings of the hypothesis testing provide useful insights into the factors that can contribute to the successful adoption of sustainable development practices in online distance learning (ODL) higher education institutions in Malaysia. The study's results indicate that intention, leadership style, and organizational commitment are essential factors in predicting the adoption of sustainable development practices. To enhance these factors, several strategies need to be implemented. To foster a transformational leadership style, higher education institutions should encourage their leaders to emphasize innovation and creativity and encourage staff members to embrace sustainable development practices. This can be achieved by creating awareness campaigns and involving staff members in the decision-making process. Training programs that focus on sustainable development practices can also be provided. To promote a culture of commitment to sustainable development, higher education institutions can involve staff members in decision-making processes, create awareness campaigns, and provide training programs that focus on sustainable development practices. By doing so, staff members are more likely to embrace sustainable development practices and implement them in their work. Emphasizing the benefits of adopting sustainable development practices and providing training programs that focus on enhancing staff members' skills and confidence in using sustainable development practices can significantly impact the intention to adopt these practices. This is a crucial predictor of successful adoption outcomes. Collaboration with industry partners can also provide higher education institutions with valuable insights into sustainable development practices and help them stay up-to-date with the latest trends and practices. By conducting research and evaluation of sustainable development practices, higher education institutions can identify areas of improvement and develop strategies to enhance their adoption outcomes. Finally, higher education institutions can provide incentives such as bonuses or promotions to staff members who adopt and implement sustainable development practices in their work. This can motivate staff members to embrace sustainable development practices and help achieve successful adoption outcomes. Overall, implementing these strategies can significantly enhance leadership style,

organizational commitment, and intention to adopt sustainable development practices among ODL higher education institutions in Malaysia.

Theoretical and Practical Implications

The results of the study have important theoretical and practical implications. Firstly, the study supports the idea that leadership style, organizational commitment, and intention play a crucial role in predicting the adoption of ODL higher education institutions. These variables have been identified as important predictors in previous studies. Secondly, the study confirms that intention mediates the relationship between leadership style and adoption. This finding highlights the significance of intention as a crucial predictor of ODL higher education institutions' adoption. Lastly, the study supports the use of Importance-Performance Analysis (IPMA) as a useful tool to understand the relationship between latent variables and adoption. The study's practical implications for higher education institutions are three-fold. Firstly, top management should prioritize improving the importance of intention among staff members by emphasizing the benefits of ODL higher education institutions and providing training to enhance their skills and confidence in using ODL higher education institutions. Secondly, adopting a transformational leadership style that encourages innovation and fosters a positive attitude toward ODL higher education institutions' adoption is crucial. Lastly, promoting a culture of commitment to ODL higher education institutions by involving staff members in decision-making and providing support and resources to facilitate ODL higher education institutions adoption can significantly impact the adoption outcomes of higher education institutions.

Suggestions for Future Studies

Future research should focus on investigating the impact of technological innovations on the adoption of sustainable development practices in online distance-learning higher education institutions. In addition, it is important to examine the effectiveness of various sustainability-focused curricula and teaching methodologies in these institutions and to evaluate the impact of sustainability certifications and accreditation programs on sustainable development practices adoption. Comparative studies should also be conducted to assess the effectiveness of sustainability practices adoption in different countries or regions. Other variables such as innovation culture, peer influence, and working environment should be considered when developing the research model. Addressing these research gaps can provide valuable insights into promoting sustainability in online distance learning higher education institutions.

Conclusion

To sum up, this study emphasizes the crucial significance of leadership styles and organizational commitment in facilitating the adoption of sustainable development practices in online higher education institutions. The results indicate that the relationship between leadership styles, organizational commitment, and sustainable development practices adoption is mediated by intention. Therefore, online higher education institutions should prioritize leadership development and create a culture of organizational commitment that embraces sustainability. This approach can positively impact the environment, society, and students' personal growth. The study provides valuable insights into effective strategies for advancing sustainability in online higher education institutions.

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