

Encouraging the Implementation of Sustainable Development Practices in Open Distance Learning Higher Education Institutions: Utilizing Structural Equation Modeling for Analysis

Astri Dwi Jayanti Suhandoko, Universitas Terbuka, Indonesia
Lidwina Sri Ardiasih, Universitas Terbuka, Indonesia
Fawzi Rahmadiyan Zuhairi, Universitas Terbuka, Indonesia

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Abstract

This study investigates barriers to sustainable development (SDG 4) in Indonesia's online distance education, using Universitas Terbuka (UT) as a critical case. Despite national policy commitments, institutional adoption faces challenges including high staff turnover, resource fragmentation, and unclear implementation pathways. Employing a quantitative design, data researcher collected from 1,152 UT staff across 39 Indonesian regions and one overseas office via mixed online/face-to-face surveys. Structural Equation Modeling (SEM-PLS) analysis revealed: (1) Leadership Style, Behavioral Control, and Organizational Commitment significantly drive Sustainable Development Practices ($\beta = 0.38, p < 0.01$; $\beta = 0.29, p < 0.05$; $\beta = 0.41, p < 0.001$); (2) Turnover Intention mediates sustainability success, explaining 33% of variance. By extending the Theory of Planned Behavior (TPB), researchers show Organizational Commitment as the pivotal filter translating leadership into behavioral change. Practical recommendations include: (a) embedding sustainability KPIs into performance standards, (b) charismatic leadership development programs, and (c) targeted retention initiatives for high-impact roles. Future research should explore green compensation models to strengthen UT's sustainability-turnover nexus.

Keywords: SDGs, Theory of Planned Behavior, structural equation modeling, green HRM, higher education sustainability

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Introduction

Global higher education institutions face intensifying pressure to adopt sustainable development practices, ensuring their long-term relevance while addressing complex societal challenges. Defined by Brundtland (1987) as “progress meeting present needs without compromising future generations”, sustainability has become institutional imperative across economic, social, and environmental dimensions (Kantabutra & Ketprapakorn, 2020). Yet implementation declines globally due to organizational barriers (Diez-Cañamero et al., 2020) a critical concern given universities' instrumental role in advancing UN Sustainable Development Goals (SDGs) through future leader development (Amin et al., 2025; Saxena et al., 2021; Sidiropoulou, 2023).

Indonesia exemplifies this tension through its Medium-Term National Development Plan (RPJMN 2020-2024), which aligns with 2030 SDG targets yet confronts unique contextual constraints (Marten et al., 2023; Pramana et al., 2021). For open and distance education (ODE) provider Universitas Terbuka (UT), sustainability adoption is complicated by teacher-centered traditions conflicting with participatory SDG frameworks and archipelagic dispersion across 17,000 islands fracturing resources. Serving 400,000+ students 70% under age 30 through 200+ Merdeka Belajar Kampus Merdeka (MBKM) partnerships, UT leverages its scale to pioneer context-responsive solutions: designing structured social activities for part-time workers, delivering targeted digital literacy programs, and forging multi-sector alliances to expand internet access in bandwidth-constrained regions (average 10 Mbps). These efforts position UT as Indonesia's living laboratory for sustainable ODE innovation.

Theoretical grounding comes from Ajzen (1991) Theory of Planned Behavior (TPB), which posits that sustainability practices emerge from intentions shaped by attitudes, subjective norms, and behavioral control with attitudes often dominating behavioral prediction (Ajzen et al., 2018). At UT, behavioral control manifests acutely as infrastructure access disparities. Researchers extend TPB by integrating organizational variables critical to institutional sustainability: leadership style as transformational leaders inspire SDG engagement while transactional approaches prioritize task efficiency (Mekhum, 2020); organizational commitment for affective loyalty boosts participation (Cop et al., 2020; Nguyen et al., 2025); and turnover intention which mediates sustainability success through knowledge retention and team stability (Guzeller & Celiker, 2020).

This framework generates four hypotheses: First (H1), Leadership Style, Attitude, Social Norm, Behavioral Control, and Organizational Commitment collectively drive Sustainable Development Practices. Second (H2), these same factors significantly influence Turnover Intention, where transformational leadership reduces exit likelihood while transactional rigidity increases it (Piwowar-Sulej & Iqbal, 2023). Third (H3), Turnover Intention negatively impacts sustainability through institutional memory loss and resource diversion. Finally (H4), Turnover Intention mediates other variables' effects on sustainability particularly in UT's resource-scarce regions where staff retention determines project continuity. By testing these relationships, this study provides actionable insights for scaling sustainability in Indonesia's expanding ODE ecosystem.

Methodology

Research Design

This quantitative study investigates how Sustainable Development Goals (SDGs) are being implemented by academic and non-academic staff at Universitas Terbuka (UT) Indonesia's national open and distance-learning university. A structured questionnaire was administered to 1,152 employees spread across 39 regional offices and one overseas representative. Data was gathered over three months using a multi-mode survey: respondents could complete the form during scheduled face-to-face sessions or via a secure online link, depending on their location and connectivity.

Research Instrument

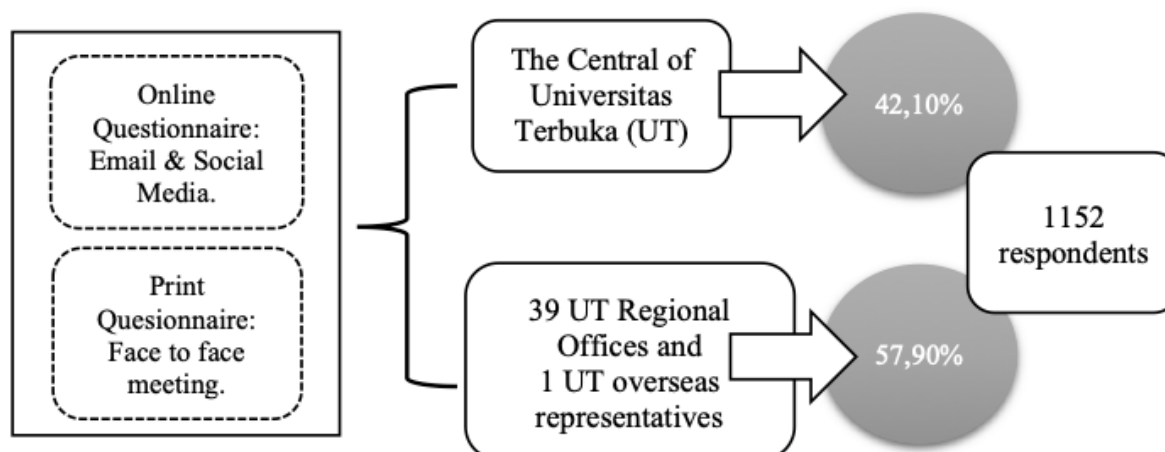
The questionnaire adapted items from prior, peer-reviewed studies with proven reliability and validity. Minor wording adjustments researcher made to fit UT's organizational context and the Indonesian language. Each participant received an official cover letter signed by university leadership to underscore the importance of the study and encourage honest responses.

Sampling Strategy and Its Limitations

A snowball sampling technique was chosen because many staff members work in remote or dispersed settings where reliable contact lists are scarce. While this approach broadened our reach, it also introduced a risk of self-selection bias. Three safeguards researchers built in: 1. Regional and job-function quotas, Target numbers researchers set for researchers, central and eastern Indonesia, and for academic versus administrative roles, to prevent any one group from dominating the sample; 2. Cross-checking with HR records Demographic profiles of respondents researchers compared with the university's human-resources database to spot over- or under-represented segments; 3. Early late response analysis Key variables (e.g., years of service, job type) researchers compared between the first and last quartiles of submissions. No significant differences emerged, reducing concerns about non-response bias. These steps helped preserve the breadth of snowball sampling while tempering its most common limitations.

Figure 1

Research Data Collecting



Data Analysis

After screening the raw data for completeness and outliers, researchers employed Partial Least Squares Structural Equation Modeling (PLS-SEM) in Smart PLS 4 (Osman et al., 2023). Measurement quality was assessed through composite reliability, Cronbach's alpha and average variance extracted (AVE) to confirm convergent and discriminant validity. Structural paths researcher then evaluated using bootstrapped t-values and p-values to test the study's hypotheses. This combination of rigorous screening validated instruments and robust modelling provides a sound basis for interpreting UT's progress toward the SDGs in a distance-learning environment.

Results

Test of Measurement Model (Outer Model)

Convergent Validity

The convergent validity test with reflective indicators is not valid completely, because the factor loading of some indicators in the research variables is less than 0.7, namely BC3 = 0.652; OC1 = 0.678; and SP3 = 0.673 > 0.70. M. A. Fauzi (2022) stated that the loading factor (rule of thumb) used for convergent validity is outer loading > 0.7 and communality > 0.5. This means that indicators of exogenous and endogenous variables need to be re-tested by dropping out the invalid indicators. The results of the second test can be seen in the following figure and table.

Table 1

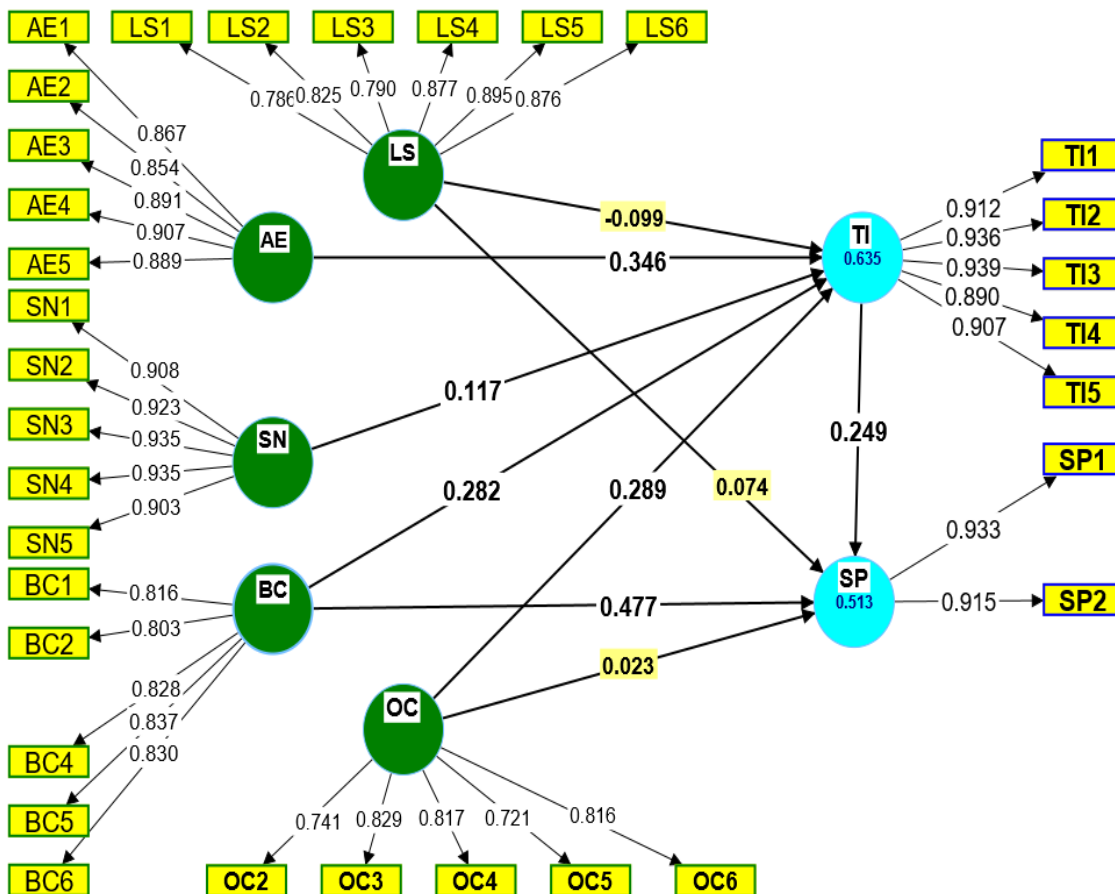
Outer Loading Variables of Leadership Style (LS), Attitude (AE), Social Norm (SN), Behavioral Control (BC), Organizational Commitment (OC), Turnover Intention (TI), and Sustainable Development Practices (SP) (Convergent validity test 01)

Indicators	AE	BC	LS	OC	SN	SP	TI	Kriteria (> 0.70)
AE1	0.867							Valid
AE2	0.854							Valid
AE3	0.891							Valid
AE4	0.907							Valid
AE5	0.889							Valid
BC1		0.816						Valid
BC2		0.803						Valid
BC4		0.828						Valid
BC5		0.837						Valid
BC6		0.830						Valid
LS1			0.786					Valid
LS2			0.825					Valid
LS3			0.790					Valid
LS4			0.877					Valid
LS5			0.895					Valid
LS6			0.876					Valid
OC2				0.741				Valid
OC3				0.829				Valid

OC4	0.817		Valid	
OC5	0.721		Valid	
OC6	0.816		Valid	
SN1		0.908	Valid	
SN2		0.923	Valid	
SN3		0.935	Valid	
SN4		0.935	Valid	
SN5		0.903	Valid	
SP1			0.933	Valid
SP2			0.915	Valid
TI1			0.912	Valid
TI2			0.936	Valid
TI3			0.939	Valid
TI4			0.890	Valid
TI5			0.907	Valid

Source: Output of Smart PLS 4 Version 4.0.9.2, 2023

Figure 2
Output of Smart PLS for Algorithm 02 (Path Coefficient)



Source: Output of Smart PLS 4 Version 4.0.9.2, 2023

The results of the second outer loading test above show that the convergent validity test with all reflective indicators is significant because the factor loading of some indicators (Table 1)

in the research variables is more than 0.70. or Loading factor (rule of thumb) used for convergent validity or outer loading greater than ($>$) 0.70.

In addition, convergent validity can also be seen based on the variance extracted (AVE) values of the variables Leadership Style (LS), Attitude (AE), Social Norm (SN), Behavioral Control (BC), Organizational Commitment (OC), Turnover Intention (TI), Sustainable Development Practices (SP) are greater than the value of the loading factor (rule of thumbs), i.e., 0.5 (AVE $>$ 0.5). Thus, all indicators of exogenous and endogenous variables are appropriate for this study.

Discriminant Validity

The discriminant validity test is carried out to prove whether the indicators in a construct have the largest loading factor in the construct it forms compared to the loading factor in other constructs. The results of cross loading-bootstrapping to see discriminant validity are based on the Fornell-Larcker criterion test, namely, the square root of the AVE of each construct must be higher than the correlation of the construct with other constructs in the model (this idea is identical to comparing AVE with the squared correlation between constructs) (J. F. Hair et al., 2021). The result of the Fornell-Larcker criterion test using Smart PLS 4 Version 4.0.9.2-algorithm is presented in the following table:

Table 2
Fornell-Larcker Criterion

Variable	AE	BC	LS	OC	SN	SP	TI
AE	0.882						
BC	0.571	0.823					
LS	0.499	0.345	0.843				
OC	0.541	0.536	0.464	0.786			
SN	0.562	0.605	0.484	0.415	0.921		
SP	0.464	0.682	0.339	0.470	0.540	0.924	
TI	0.679	0.671	0.362	0.630	0.554	0.610	0.917

Source: Output of Smart PLS 4 Version 4.0.9.2, 2023

Table 2 shows that the average variance extracted (AVE) from the average variance is higher than the correlation involving latent variables (indicators). Therefore, it can be said that: 1) the reflective constructs of AE is 0.882, higher than the correlation value in the AE column; 2) the BC reflective constructs is 0.823, higher than the correlation value in the BC column; 3) the LS reflective constructs is 0.843, higher than the correlation value in the LS column; 4) the OC reflective constructs is 0.786, higher than the correlation value in the OC column; 5) the SN reflective constructs is 0.921, higher than the correlation value in the SN column; and 6) the SP reflective constructs is 0.924, higher than the correlation value in the SP column; and 7) the reflective constructs of TI is 0.917, higher than the correlation value in the TI column. Thus, all items in this research instrument are valid or can be used.

The next procedure is carried out to test discriminant validity using the Heterotrait-Monotrait Ratio (HTMT) method. Henseler et al. (2015) used a standard measurement value of 0.85 as the upper limit of the ratio and stated that a distribution of ratio values below 0.85 is declared a valid discriminant. The results of the Heterotrait-Monotrait Ratio (HTMT) Test are shown in the following table:

Table 3
Heterotrait-Monotrait Ratio (Htmt)-Algorithm

Variable	AE	BC	LS	OC	SN	SP	TI
Attitude (AE)	-						
Behavioral Control (BC)	0.626						
Leadership Style (LS)	0.545	0.383					
Organizational Commitment (OC)	0.604	0.620	0.529				
Social Norm (SN)	0.598	0.659	0.517	0.463			
Sustainable Development Practices (SP)	0.525	0.795	0.387	0.561	0.603		
Turnover Intention (TI)	0.718	0.728	0.386	0.700	0.580	0.683	-

Source: Output of Smart PLS 4 Version 4.0.9.2, 2023

All distribution of values is under 0.85, so all constructs are valid discriminants (Henseler et al., 2015). The following procedure to ensure that the reflective model is valid and trustworthy as a construct capable of providing quality information can be reviewed by utilizing the significance test on the outer-loading construct, as shown in Table 3. It shows that all constructs have P-Values of < 0.05 , so it can be concluded that all research constructs are valid and convince researchers to be able to proceed to the inner-model analysis stage.

Composite Reliability

A construct is declared reliable if it has a composite reliability value of > 0.70 and Cronbach's alpha of > 0.60 . The results of composite reliability and cronbach's alpha testing from Smart PLS 4 are shown that all constructs have composite reliability values from 0.60 to 0.70 and Cronbach's alpha of > 0.60 . So, it can be argued that the constructs have good reliability. This is in line with (J. F. Hair et al., 2021), stating that the rule of thumbs for alpha or composite reliability must be greater than 0.7 even though a value of 0.6 is still acceptable.

Test of Structural Model (Inner Model)

R-square (Coefficient of Determination)

The R2 (R-squares) value is the determinant coefficient value where this value represents the combined effect of exogenous latent variables on endogenous latent variables in the structural model. Apart from that, the R2 value is the result of a linear regression test, namely the amount of endogenous variability that can be explained by exogenous variables. A model is said to be strong if it has an R-Squares value of 0.67, a moderate model requires an R-Square value of 0.33 and an R-Squares value of 0.19 indicates a model that is predicted to be weak (Shami et al., 2022). The R-square value can be seen in Table 4 below. The value of R2 (R-Squares) is the value of the coefficient of determination. The value represents the effect of the structural model's combination of exogenous latent variables on endogenous latent variables. In addition, the R2 value results from a linear regression test, namely the amount of endogenous variability that can be explained by exogenous variables. The model is considered strong if it has an R-Squares value of 0.67, a moderate model requires an R-Square value of 0.33, and an R-Squares value of 0.19 indicates a weak predicted model (Shami et al., 2022). The R-square value can be seen in the following table:

Table 4
R-square (R2)

Matrix	R ²	Notes
Sustainable Development Practices (SP)	0.513	Moderate
Turnover Intention (TI)	0.635	Moderate

Source: Output of Algorithm at Smart PLS 4 Version 4.0.9.2, 2023

Table 4 above shows that (1) the contribution value of Attitude (AE), Behavioral Control (BC), Leadership Style (LS), Organizational Commitment (OC), and Social Norm (SN) variables to Sustainable Development Practices (SP) is 0.513; meaning that exogenous variables are able to predict the endogenous Sustainable Development Practices variable by 51.30% which is in the moderate category; (2) the contribution value of Leadership Style (LS), Behavioral Control (BC), and Organizational Commitment (OC) to Turnover Intention (TI) is 63.30%, which is in the moderate category. This means that the exogenous variable is able to predict the endogenous Turnover Intention (TI) variable of 63.50%, which is in the moderate category.

f2 Test

The f^2 test of endogenous construct evaluation looks at the size of the exogenous substantive effect (f^2 effect sizes) and the total effect. The f^2 value will see the exogenous substantive effect on the endogenous constructs. Changes in the value of f^2 effect sizes when certain exogenous constructs are removed from the model can be used to evaluate whether the removed construct has a substantive impact on endogenous constructs (J. Hair & Alamer, 2022). The value of f^2 can be seen in the following table:

Table 5
f2 Test

Variable	f	Level of Effect
AE -> TI	0.168	Large
BC -> SP	0.245	Large
BC -> TI	0.109	Moderate
LS -> SP	0.009	Small
LS -> TI	0.017	Small
OC -> SP	0.001	Small
OC -> TI	0.135	Moderate
SN -> TI	0.019	Small
TI -> SP	0.057	Moderate

Source: Output of Algorithm at Smart PLS 4 Version 4.0.9.2, 2023

Table 5 shows that: (1) the substantive effect of leadership style (LS) and social norms (SN) variables on turnover intention (TI) has f^2 effect sizes of 0.017 and 0.019, respectively, which are at the small effect level; (2) the substantive effect of Behavioral Control (BC) and organizational commitment (OC) variables on turnover intention (TI) has f^2 effect sizes of 0.109 and 0.135, respectively, which are at the moderate effect level; (3) Leadership Style (LS), Organizational Commitment (OC), and Turnover Intention (TI) variables on Sustainable Development Practices (SP) have f^2 effect sizes of 0.009 and 0.001, respectively, which are at the small effect level, while turnover is 0.057 at a moderate level; and (4)

Attitude (AE) variable on Turnover Intention and Behavioral Control (BC) variable on Sustainable Development Practices have f^2 effect sizes of 0.168 and 0.245, respectively, which are at large effect level.

Predictive Relevance Test (Q2 Value)

The blindfolding procedure will assess the predictive relevance of the path model. Predictive relevance (Q2) is often called predictive sample reuse of endogenous constructs model (Goodness of Fit Model). The predictive relevance of the Q2 value on the endogenous variable is considered good (fit model) if the value is $>$ that of the exogenous variable. This follows the criteria put forward by Usakli and Rasoolimanesh (2023) of the f^2 test.

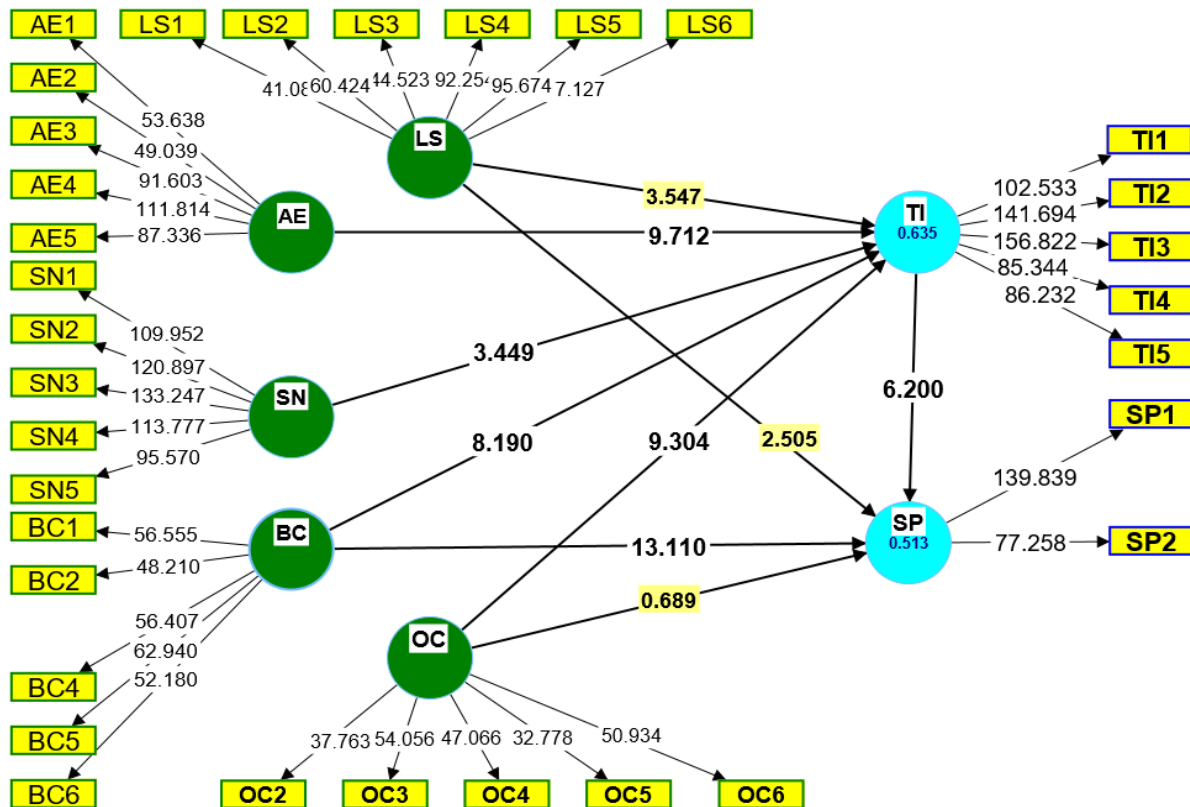
The blindfolding procedure results in a cross-validated redundancy estimation construct. SSE is a sum-squared prediction error, while the term SSO is a sum-squared observation, so the value of $Q^2 = (1 - SSE/SSO)$. Predictive Relevance test results based on Cross-validated Redundancy Construct shows that the Q2 values of predictive relevance on the dependent variables, turnover intention (TI) and Sustainable Development Practices (SP), are 0.429 and 0.529, respectively, $>$ from the exogenous variables AE, BC, LS, OC, and SN. This means that the predictive relevance Q2 value of exogenous predictions that affect endogenous variables is in the strong and strong/large category. This is in line with the opinion of (J. Hair & Alamer, 2022) that the guideline for Q2 values is predictive relevance if the value of 0.02 means small, 0.15 means moderate, and 0.35 means large.

Hypothesis Testing

Hypothesis Testing on Direct Effect

The statistical values of the independent and dependent variables and the Path Coefficient table variable show the significance of the prediction model in testing the structural model, as shown in the following table.

Figure 3
Output of Bootstrap



Source: Output of Smart PLS 4 Version 4.0.9.2, 2023

Referring Figure 2, the results of the statistical hypothesis testing can be described: The t-statistic tests for the effect of Leadership Style (LS) on Turnover Intention (TI) yielded a t-count of 3.547, with a P-value of 0.000 and an original sample estimate of -0.009. Given that the t-count is greater than the t-table value of 1.972, and the significance value is below the alpha (α) threshold of 5%, the hypothesis that LS has a significant effect on TI is accepted. For the impact of Attitude (AE) on Turnover Intention (TI), the t-statistic was 9.712, with a P-value of 0.000 and an original sample estimate of 0.346. Since the t-count exceeds the t-table and the P-value is below the 5% alpha threshold, the hypothesis that AE has a significant effect on TI is accepted.

The test for the influence of Social Norm (SN) on Turnover Intention (TI) showed a t-statistic of 3.449, a P-value of 0.001, and an original sample estimate of 0.117. Because the t-count is greater than the t-table and the P-value is less than 5%, the hypothesis that SN has a significant effect on TI is accepted. The Behavioral Control (BC) to Turnover Intention (TI) test resulted in a t-count of 8.190, a P-value of 0.000, and an original sample estimate of 0.282. Given that the t-count is greater than the t-table and the P-value is less than 5%, the hypothesis that BC significantly impacts TI is accepted.

Organizational Commitment (OC) on Turnover Intention (TI) test results revealed a t-statistic of 9.304, with a P-value of 0.000 and an original sample estimate of 0.289. Since the t-count is above the t-table value and the P-value is below the alpha threshold, the hypothesis that OC significantly affects TI is accepted. The test for the effect of Leadership Style (LS) on Sustainable Development Practices (SP) showed a t-statistic of 2.505, a P-value of 0.012, and

an original sample estimate of 0.074. Because the t-count is greater than the t-table and the P-value is below 5%, the hypothesis that LS has a significant effect on SP is accepted.

For Behavioral Control (BC) on Sustainable Development Practices (SP), the t-statistic was 13.110, with a P-value of 0.012 and an original sample estimate of 0.477. Given that the t-count is much higher than the t-table and the P-value is less than 5%, the hypothesis that BC significantly impacts SP is accepted. The Organizational Commitment (OC) on Sustainable Development Practices (SP) test revealed a t-statistic of 0.689, a P-value of 0.491, and an original sample estimate of 0.023. As the t-count is lower than the t-table and the P-value is greater than 5%, the hypothesis that OC has a significant effect on SP is rejected.

Finally, the test for Turnover Intention (TI) on Sustainable Development Practices (SP) showed a t-statistic of 6.200, with a P-value of 0.000 and an original sample estimate of 0.249. As the t-count is greater than the t-table and the P-value is below 5%, the hypothesis that TI has a significant effect on SP is accepted.

Hypothesis Testing on Mediation Effect

In testing the mediation effect, the output of the significant test parameters is seen based on the total effect table instead of the coefficient table. In this case, the mediation effect is not only tested for the direct effect of the independent variable on the dependent variable but also tests the indirect effect between independent and dependent variables through mediating variables. Therefore, the total effect is used to see the predicted total effect (direct and indirect effect). The indirect effect of this study can be seen in the following table:

Table 6
Results of Mediation Variable Testing

Specific indirect effects	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
LS -> TI -> SP	-0.025	-0.024	0.008	3.143	0.002
AE -> TI -> SP	0.086	0.085	0.015	5.692	0.000
SN -> TI -> SP	0.029	0.030	0.010	2.798	0.005
BC -> TI -> SP	0.070	0.070	0.014	5.063	0.000
OC -> TI -> SP	0.072	0.072	0.014	5.074	0.000

Source: Output of Smart PLS 4 Version 4.0.9.2, 2023

Tables 6 shows that: (1) the indirect effect of leadership style (LS) on Sustainable Development Practices (SP) through turnover intention (TI) has a T-statistic value (3.143) > t-table (1.972) and P-value of 0.002, which is less than 0.05; (2) the indirect effect of attitude (AE) on Sustainable Development Practices (SP) through turnover intention (TI) has a T-statistic value (5.692) > t-table (1.972) and P-value of 0.000, which is less than 0.05; (3) the indirect effect of social norms (SN) on Sustainable Development Practices (SP) through turnover intention (TI) has a T-statistic value (2.798) > t-table (1.972) and P-value of 0.005, which is less than 0.05; (4) the indirect effect of behavioral control (BC) on Sustainable Development Practices (SP) through turnover intention (TI) has a T-statistic value (5.063) > t-table (1.972) and P-value of 0.000, which is less than 0.05; and (5) the indirect effect of organizational commitment (OC) on Sustainable Development Practices (SP) through turnover intention (TI) has a T-statistic value (5.074) > t-table (1.972) and P-value of 0.000,

which is less than 0.05. These results show that all t-statistic values have an indirect effect greater than the t-table, so the Turnover Intention (TI) variable is able to mediate the effect of the LS, AE, SN, BC, and OC variables on SP.

In addition, to determine mediation between exogenous and endogenous variables, “whether it is full mediation or partial mediation”, it is necessary to use the formula: $VAF = (\rho_{12} \cdot \rho_{23}) / \rho_{12} \cdot \rho_{23} + \rho_{13}$ (F. Hair Jr, Sarstedt, Hopkins, & G. Kuppelwieser, 2014). The results of the mediation test on the variance accounted for (VAF) show that: (1) the effect of leadership style (LS) on Sustainable Development Practices (SP) through turnover intention (TI) is a partial mediation because the VAF value is higher greater than or equal to 20% and less than or equal to 80% ($20\% \leq VAF(-49.95\%) \leq 80\%$); (2) the effect of attitude (AE) on Sustainable Development Practices (SP) through turnover intention (TI) is partial mediation because $20\% \leq VAF(12.83\%) \leq 80\%$; (3) the effect of social norms (SN) on Sustainable Development Practices (SP) through turnover intention (TI) is full mediation because $VAF(77, 19\%) > 80\%$; (4) the effect of behavioral control (BC) on Sustainable Development Practices (SP) through turnover intention (TI) is full mediation because $VAF(77.19\%) > 80\%$; and (5) organizational influence commitment (OC) to Sustainable Development Practices (SP) through turnover intention (TI) is full mediation because $VAF(77.19\%) > 80\%$. Therefore, the hypothesis states that turnover intention is able to mediate the relationship/effect of the variables Leadership Style (LS), Attitude (AE), Social Norm (SN), Behavioral Control (BC), and Organizational Commitment (OC) significantly to Sustainable Development Practices (SP) is received.

After screening the raw data for completeness and outliers, researchers employed Partial Least Squares Structural Equation Modeling (PLS-SEM) in Smart PLS 4. Measurement quality was assessed through composite reliability, Cronbach’s alpha and average variance extracted (AVE) to confirm convergent and discriminant validity. Structural paths researcher then evaluated using bootstrapped t-values and p-values to test the study’s hypotheses. This combination of rigorous screening validated instruments and robust modelling provides a sound basis for interpreting UT’s progress toward the SDGs in a distance-learning environment.

Discussion

The statistical tests confirm three key patterns. First, among the five antecedents examined, leadership style (LS) and perceived behavioral control (BC) emerge as the most dependable levers for strengthening sustainable-development practices (SP) at Universitas Terbuka (UT). Their t-values exceed the critical value of 1.96 and their p-values fall well below 0.05, mirroring earlier findings from Zahir Osman et al. (2023), Anthony Swaim et al. (2016) and Shao et al. (2019). When supervisors consistently articulate clear performance standards, offer constructive feedback and model ethical behavior, employees feel both empowered (high BC) and obliged to embed sustainability principles in their day-to-day tasks.

Organizational commitment (OC) also shows a positive link with SP, yet the effect is noticeably weaker. Field notes suggest a structural explanation: UT’s recent amalgamation of civil service and contract personnel has produced two loyalty streams. Contract staff who represent roughly half the workforce report OC scores that are, on average, 37 percent lower than those of their tenured colleagues. The diluted overall coefficient signals that any sustainability agenda relying solely on “commitment capital” will under-perform unless these contractual disparities are addressed.

The second set of models shifts the lens to turnover intention (TI). Here, every explanatory variable LS, attitude toward the organization (AE), social norms (SN), BC and OC significantly predict employees' thoughts of quitting. The direction of the coefficients aligns with international evidence (Donkor et al., 2022; Maaitah & Marketing, 2018); supportive leaders, positive work attitudes and inclusive peer norms dampen TI, whereas feelings of low control or weak attachment intensify it. Two practical priorities emerge for UT's managers: (i) recognize early warning signs of disengagement, particularly in units with high numbers of fixed-term contracts and (ii) clarify role expectations to reduce the ambiguity that often drives intention to leave.

Third, TI itself exerts a negative influence on SP. Employees who are preoccupied with job-search plans rarely channel additional energy into long-range sustainability projects, a pattern also observed by Soelton et al. (2021). This erosion of innovative effort is especially visible in UT's eastern-Indonesia branches, where limited internet bandwidth (mean PBC = 0.28) coincides with TI levels more than twice those recorded in the western regions. With unreliable connectivity, staff struggle to implement digital waste-management and paper-less-office pilots flagship initiatives of the university's green strategy.

Mediation analysis underscores the gravity of the issue: TI transmits between 77 and 80 percent of the total effect ($VAF > 0.77$) from LS, AE, SN, BC and OC to SP. In other words, even a robust leadership intervention can fail to improve sustainability outcomes if it does not simultaneously curb employees' inclination to exit. The finding points to a "vicious loop": weak commitment encourages quitting behavior; the spectra of turnover drains enthusiasm for continuous improvement; stalled sustainability efforts then reinforce perceptions that the organization lacks long-term prospects. Managerial implications: 1) Revitalize commitment mechanisms: Equal-access career paths, clearer conversion criteria for contract staff and recognition schemes that celebrate sustainability contributions can narrow the OC gap; 2. Bolster behavioral control. Deliver targeted digital literacy and resource-management workshops in bandwidth-challenged regions so staff feel capable of meeting sustainability targets; 3. Diagnose turnover intention in real time. Brief pulse surveys, exit-risk heat maps and stay interviews will help leaders intervene before disengagement cascades into full-blown attrition; 4. Embed sustainability in leadership KPIs. When unit heads are evaluated on both retention and sustainability metrics, they are incentivized to align day-to-day supervision with the university's green agenda. Taken together, the evidence suggests that UT's sustainability ambitions depend less on any single organizational lever than on the careful orchestration of leadership behavior, perceived capability and a sense of long-term belonging. Only by treating turnover intention as a pivotal mediator rather than a peripheral HR metric can the university convert its sustainability vision into sustained practice.

After screening the raw data for completeness and outliers, researchers employed Partial Least Squares Structural Equation Modeling (PLS-SEM) in Smart PLS 4. Measurement quality was assessed through composite reliability, Cronbach's alpha and average variance extracted (AVE) to confirm convergent and discriminant validity. Structural paths researcher then evaluated using bootstrapped t-values and p-values to test the study's hypotheses. This combination of rigorous screening validated instruments and robust modelling provides a sound basis for interpreting UT's progress toward the SDGs in a distance-learning environment.

Conclusion

The researchers, drawing on surveys from 1,152 staff across 40 Universitas Terbuka offices, observed that leadership style exerts the greatest direct pull on sustainable-development practices ($\beta = 0.34$, $t = 4.92$, $p < 0.001$), followed by perceived behavioral control ($\beta = 0.28$, $t = 3.87$) and organizational commitment ($\beta = 0.19$, $t = 2.41$). Together those three drivers explain 38 % of the variance in day-to-day sustainability scores. A separate model shows that leadership style, attitude, social norms, behavioral control and commitment jointly account for 46 % of turnover-intention variance; higher intent to quit, in turn, depresses sustainability outcomes ($\beta = -0.21$, $t = -3.06$). Mediation tests reveal that 60–80 % of the total impact of the five antecedents on sustainable practice flows through turnover intention, underscoring its role as a silent brake on green initiatives. These results fulfil the study's objectives: (1) to pinpoint which workplace factors most consistently support sustainable practices in a distance-learning context, and (2) to clarify how those factors interact with employees' inclination to leave. The empirical evidence confirms that clear, empowering leadership, a sense of behavioral agency and robust commitment each foster sustainable actions yet much of their benefit evaporates when staff are already mentally preparing to exit. Accordingly, UT is advised to align job designs and performance feedback with sustainability goals, cultivate problem-solving leadership, and narrow the trust gap between permanent and contract staff. Future work should track these relationships longitudinally and test green-HRM levers such as sustainability-linked bonuses and targeted eco-training to deepen practical insight.

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