

The role of faculty development in mediating the relationship between consultative management style and student learning outcomes in Cambodia's public higher education

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Abstract: This study examines the influence of consultative management style (CMS) on student learning outcomes (SLOs) in Cambodian public higher education institutions, with faculty development initiatives (FDIs) assessed as a mediating factor. A survey-based quantitative method was utilized, gathering data from 305 lecturers at selected public universities. Partial Least Squares Structural Equation Modeling (PLS-SEM) was applied to test four hypotheses, with validated constructs ensuring reliability and validity. The measurement model demonstrated strong reliability ($CR > 0.90$) and discriminant validity ($AVE > 0.70$). The structural model revealed that CMS significantly influences SLOs ($\beta = 0.154$, $t = 2.619$, $p = 0.009$) and FDIs ($\beta = 0.198$, $t = 3.713$, $p = 0.000$). FDIs, in turn, strongly enhance SLOs ($\beta = 0.450$, $t = 8.445$, $p = 0.000$) and significantly mediate the CMS–SLOs relationship ($\beta = 0.089$, $t = 3.367$, $p = 0.001$). The model explained 3.7% of the variance in FDIs and 25% in SLOs, with acceptable predictive relevance. CMS positively affects SLOs both directly and indirectly through FDIs. The findings underscore the importance of participatory leadership and structured faculty development programs in strengthening teaching quality and student achievement in resource-constrained higher education contexts.

Keywords: *Consultative management style, Faculty development initiatives, Mediating role, Public universities. Student learning outcome.*

1. Introduction

Public higher education institutions in Cambodia are vital to the nation's development, serving as key platforms for producing skilled professionals and future leaders. Among the various factors influencing educational quality, the management style adopted by institutional leaders significantly shapes student learning outcomes. In particular, consultative or participative management where leaders actively seek input from faculty, staff, and students has shown promise in enhancing student engagement, motivation, and academic performance [1]. This inclusive approach fosters a collaborative learning environment, encourages innovation in teaching, and strengthens faculty-student relationships. Unlike authoritative models that may suppress creativity, consultative management supports shared decision-making and cultivates a sense of community within institutions. Such a style not only improves organizational culture but also positively impacts curriculum delivery and instructional practices. However, the effectiveness of this approach can be further amplified when paired with robust faculty development initiatives. Professional training and pedagogical enhancement programs equip educators with the necessary skills to align with participative leadership, ultimately improving student outcomes. Despite its potential, the role of faculty development as a mediating factor remains underexplored in Cambodia's higher education landscape. This research aims to bridge that gap by examining how

consultative management, supported by faculty development, contributes to a more effective and responsive educational environment [2, 3].

1.1. Background of the Study

Public higher education plays a vital role in ensuring accessible and affordable learning opportunities, particularly for students from low-income backgrounds. It contributes to societal development by promoting inclusivity, advancing knowledge through research, and preparing students for dynamic labor markets [4]. In Cambodia, public higher education institutions (HEIs) such as the Royal University of Phnom Penh (RUPP) and the Institute of Technology of Cambodia (ITC) serve as crucial pillars in national development. These institutions implement Student Learning Outcomes (SLOs) to assess and improve academic quality, ensure curriculum relevance, and enhance graduate employability. SLOs typically encompass cognitive, affective, and psychomotor domains and are assessed through exams, projects, and practical work. However, Cambodian HEIs face challenges, including limited funding, outdated infrastructure, and the need for continuous curriculum reform. To address these, a consultative management style can play a transformative role. This approach encourages collaboration between administrators, faculty, and stakeholders, fostering shared decision-making in curriculum design, policy implementation, and quality assurance processes. By involving faculty in developing and accessing SLOs, consultative management enhances ownership, accountability, and alignment with both institutional goals and labor market needs. Faculty Development Initiatives (FDIs) also benefit from this style, as it supports inclusive planning and targeted capacity-building efforts. Such collaboration improves instructional strategies and assessment methods, ultimately advancing student learning. As Cambodian higher education continues to evolve, adopting a consultative management style can ensure more responsive, inclusive, and effective educational practices that align with the country's socio-economic aspirations [5-7].

1.2. Research Objective

This research is to examine the extent to which faculty development initiatives mediate the relationship between consultative management style and student learning outcomes within public higher education institutions in Cambodia. This study aims to explore how a consultative approach to management characterized by inclusive decision-making, open communication, and active faculty engagement impacts the implementation and effectiveness of faculty development initiatives. Furthermore, it seeks to determine whether these initiatives, in turn, enhance student learning outcomes by improving teaching practices, curriculum delivery, and assessment methods.

2. Literature Review

2.1. Consultive Management Style and Student Learning Outcomes

Consultative management style, characterized by inclusive decision-making and open communication, plays a crucial role in enhancing institutional performance and student outcomes in higher education. Margaret and Kazaara [8] found that transformational leadership, which shares similarities with consultative management through its focus on collaboration and empowerment, significantly increases employee satisfaction. Their study highlights the importance of strategic faculty development to strengthen leadership effectiveness and institutional success. Similarly, Sok and Bunry [9] emphasized the need for improved governance and proactive support in Cambodian higher education institutions, noting that consultative and strategic leadership approaches are essential to ensuring curriculum relevance, teaching innovation, and overall academic quality. Despite advancements in student assessment and technology use, limited investment in faculty training and consultative governance hampers the sector's progress. These findings underscore the need for consultative leadership styles that involve stakeholders in decision-making and prioritize continuous faculty development to drive improved learning outcomes and sustainable institutional growth [10].

2.2. Consultative Management Style and Faculty Development Initiatives

Consultative management in academic leadership emphasizes collaboration, faculty engagement, and informed decision-making key elements for effective faculty development. Servey, et al. [11] discussed a leadership development model tailored to mid-level academic roles in healthcare, such as programme and clerkship directors. Their approach included a thoughtful selection of trainees, faculty involvement in curriculum design, and responsive course planning based on institutional needs. This consultative model fosters leadership that balances educational goals with clinical responsibilities while addressing local contexts. Similarly, Behar-Horenstein, et al. [12] highlighted the importance of conducting needs assessments to inform faculty development initiatives. Their findings showed that faculty desired training in teaching, research, and leadership but had limited access to meaningful mentorship or prior development opportunities. A consultative approach where faculty input shapes programme design ensures alignment with actual needs, promotes ownership, and enhances engagement. Together, these studies advocate for a management style rooted in dialogue and shared responsibility to strengthen faculty performance and institutional effectiveness.

2.3. Faculty Development Initiatives and Student Learning Outcomes

Faculty development and leadership in higher education are crucial for improving teaching quality, supporting faculty engagement, and enhancing student outcomes. Matos and Kasztelnik [13] emphasized the importance of contingent labor, particularly online adjunct instructors, in sustaining online education during the COVID-19 pandemic. They highlighted the lack of clear leadership strategies to support and engage these part-time faculty members. Similarly, Rahman [14] investigated the impact of faculty development programs (FDPs) on early-career academics, finding that participants demonstrated improved performance in teaching, research, and technology integration compared to non-participants. The study underscored the role of FDPs in curriculum development, student assessment, and overall academic effectiveness. Both studies call for responsive academic leadership and structured development programs to address gaps in faculty support and instructional effectiveness. These findings point to the necessity of continued research and investment in leadership practices and professional development to ensure sustainable, quality education in evolving higher education environments.

2.4. Faculty Development Initiatives, Consultative Management and Student Learning Outcomes

In the context of public higher education institutions in Cambodia, consultative management style marked by inclusive dialogue and collaborative decision-making—has the potential to significantly enhance student learning outcomes, particularly when mediated through robust faculty development initiatives. Sok and Bunry [9]; Peng and Ali [15] and Wang and Ali [16] emphasized that improved governance, characterized by participatory leadership, is essential for advancing curriculum relevance, teaching innovation, and academic quality in Cambodian universities. However, limited investment in faculty training remains a major barrier. Similarly, Servey, et al. [11] demonstrated that consultative leadership models, which actively engage faculty in programme design and decision-making, foster stronger institutional alignment and professional growth. By incorporating faculty input into development planning and providing targeted training, institutions can address specific teaching and learning needs, thereby enhancing instructional quality [17]. These findings suggest that a consultative management style, when effectively integrated with continuous faculty development, plays a pivotal mediating role in promoting improved student learning outcomes and institutional advancement in Cambodia's higher education sector, aligning with broader trends in strategic leadership and innovation [18].

2.5. Hypotheses and Theoretical Framework

H: Consultative management style has positive influence on student learning outcomes in public HEIs of Cambodia.

- H₂*: Consultative management style has positive influence on faculty development initiatives in public HEIs of Cambodia.
- H₃*: Faculty development initiatives have positive influence on student learning outcomes in public HEIs of Cambodia.
- H₄*: Faculty development initiatives significantly influence the relationship between consultative management style and student learning outcomes in public HEIs of Cambodia

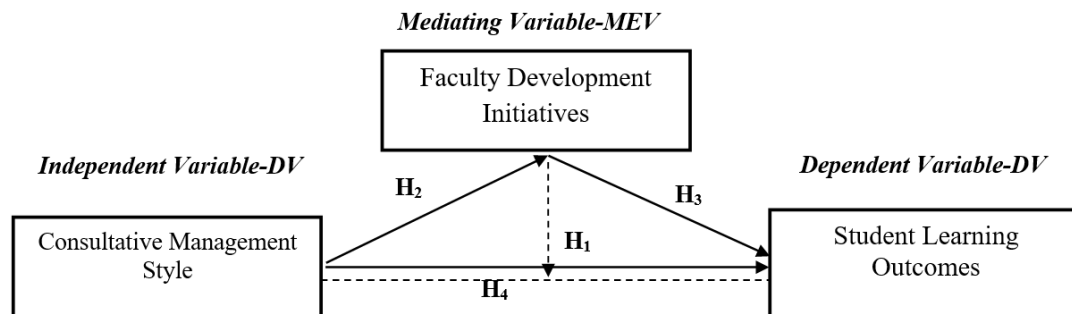


Figure 1.
Theoretical Framework

3. Methodology

3.1. Sampling and Data Collection

A well-planned research design provides the foundation for collecting meaningful data and reaching valid conclusions [19]. The present research focuses on lecturers from selected public universities in Cambodia. These public universities were chosen for this study for several key reasons. Meanwhile, the questionnaire was meticulously developed using validated items corresponding to the study's key constructs. A pilot study was carried out to evaluate the instrument's internal consistency and reliability. The results revealed that Cronbach's alpha coefficients for the majority of the constructs ranged from 0.730 to 0.908, thereby exceeding the commonly accepted threshold of 0.70 [20]. Following the pilot validation, hard copies of the finalized questionnaires were distributed to all academic staff at selected public universities in Cambodia to ensure efficient and effective data collection. In total, 460 hard-copy questionnaires were distributed to academic staff across selected public higher education institutions in Cambodia. This effort yielded 326 returned surveys, representing a response rate of approximately 70.9%. Upon screening the responses, 21 questionnaires were excluded due to substantial incomplete data. Consequently, 305 fully completed and valid questionnaires were retained for subsequent analysis. Thus, the overall response rate was 66.3%, which is considered acceptable for quantitative analysis in Table 1.

Table 1.

The demographic characteristics of the respondents.

Factors	Classification	Repetition	Proportion
Gender	Female	28	9.2
	Male	277	90.8
Marital Status	Single	36	11.8
	Married	258	84.6
	Other	11	3.6
Age	>30yrs	33	10.8
	31-40yrs	55	18.0
	41-50yrs	110	36.1
	51-60yrs	82	26.9
	> 61yrs	25	8.2
Academic Qualification	MSc.	274	89.8
	PhD	31	10.2
Working Experience	>5yrs	48	15.7
	6 – 10yrs	55	18.0
	11 – 15yrs	71	23.3
	16 – 20yrs	89	29.2
	> 20yrs	42	13.8
N		305	

3.2. Measurement

A five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), was employed to measure the various constructs in this study. The questionnaire was organized into seven sections. Items addressing consultative management style were created to evaluate the technological context, based on adaptations of existing measurement tools. The section on faculty development initiatives included items modified from established frameworks, while student learning outcomes was assessed using four key dimensions drawn from prior models and research.

3.3. Data Analysis

SmartPLS software was utilized in the present study to evaluate the proposed research framework, as it is a widely adopted tool for quantitative data analysis. Specifically, SmartPLS facilitated the assessment of the structural model, enabling the examination of the model's predictive capacity and the relationships among the constructs [21]. In this study, SmartPLS 3.0 was employed to estimate both the measurement model (external model), which involved evaluating constructs' consistency and strength, and the structural model (internal model), which assessed the hypothesized relationships between latent variables.

4. Result and Discussion

4.1. Measurement Model Evaluation

Table 2, the reliability and validity of the constructs were confirmed using Cronbach's alpha, composite reliability (CR), AVE, and discriminant validity, following [21]. All constructs demonstrated strong internal consistency (α and CR > 0.90) and convergent validity (AVE > 0.70). Items with factor loadings ranging from 0.80 to 0.90 were retained in the model.

Table 2.
Construct Reliability and Validity.

Construct	Items	Loadings	Cronbach Alpha	Composite Reliability	Average Variance Extracted
Consultative Management Style	CMS3	0.915	0.927	0.945	0.774
	CMS4	0.918			
	CMS5	0.863			
	CMS6	0.836			
	CMS7	0.863			
Faculty Development Initiatives	FDI1	0.830	0.935	0.948	0.754
	FDI2	0.834			
	FDI3	0.914			
	FDI4	0.859			
	FDI5	0.914			
	FDI6	0.853			
Student Learning Outcomes	SLO10	0.834	0.984	0.986	0.843
	SLO11	0.916			
	SLO12	0.930			
	SLO14	0.918			
	SLO15	0.929			
	SLO16	0.918			
	SLO17	0.931			
	SLO2	0.910			
	SLO3	0.921			
	SLO4	0.935			
	SLO5	0.936			
	SLO6	0.933			
	SLO7	0.920			

Table 3, discriminant validity was assessed using the Fornell–Larcker criterion, confirming that each construct in the model is empirically distinct from the others. The square root of the AVE for each construct. Consultative Management Style (0.880), Faculty Development Initiatives (0.868), and Student Learning Outcomes (0.918) exceeded its correlations with other constructs, meeting the threshold proposed by Fornell and Larcker [22]. These results support the discriminant validity and integrity of the measurement model [21].

Table 3.
Latent Variable Correlations (Fornel-Larcker Criterion).

Constructs	CMS	FDI	SLO
Consultative Management Style (CMS)	0.880		
Faculty Development Initiatives (FDI)	0.193	0.868	
Student Learning Outcomes (SLO)	0.237	0.477	0.918

Table 4, discriminant validity was further supported using the Heterotrait-Monotrait Ratio (HTMT), with all values below the 0.90 threshold [23]. Specifically, CMS–FDI (0.203), CMS–SLO (0.246), and FDI–SLO (0.487) indicate clear distinction among constructs, confirming strong discriminant validity in the measurement model.

Table 4.
Discriminant Validity (Heterotrait-Monotrait Ratio - HTMT).

Constructs	CMS	FDI	SLO
Consultative Management Style (CMS)			
Faculty Development Initiatives (FDI)	0.203		
Student Learning Outcomes (SLO)	0.246	0.487	

4.2. Structural Model Evaluation

Following the validation of the measurement model, the R^2 values indicate the extent to which the endogenous constructs are explained by the exogenous variables, with higher values denoting stronger explanatory power. The predictive power of the structural model was evaluated using R^2 values. According to Chin [24] R^2 values above 0.67 are considered high, values between 0.33 and 0.67 indicate moderate predictive power, and values between 0.19 and 0.33 are regarded as small. These thresholds help assess the extent to which the independent variables explain the variance in the dependent constructs. Table 5 presents the structural model indicators. The model accounts for 3.7% of the variance in Faculty Development Initiatives and 25% of the variance in Student Learning Outcomes, as indicated by the R^2 values. These values suggest the model has a weak explanatory power, which is accepted. The adjusted R^2 values (0.034 and 0.245, respectively) confirm the robustness of these results while adjusting for the number of predictors in the model.

Table 5.

Coefficient of Determination (R Square).

Constructs	R-square	R-square adjusted
Faculty Development Initiatives	0.037	0.034
Student Learning Outcomes	0.25	0.245

Furthermore, the f^2 effect sizes were computed to assess the impact of each exogenous variable on the R^2 value of the endogenous constructs, using [25] guidelines, where values of 0.02, 0.15, and 0.35 represent small, medium, and large effects, respectively. The f^2 effect size analysis reveals that Faculty Development Initiatives have a moderate impact on Student Learning Outcomes ($f^2 = 0.258$), while Consultative Management Style has only a small effect ($f^2 = 0.029$) on Student Learning Outcomes. Additionally, Consultative Management Style exerts a small effect on Faculty Development Initiatives ($f^2 = 0.039$). These findings underscore the stronger mediating role of faculty development in improving student learning, relative to the direct influence of leadership style. in Table 6.

Table 6.

Effect Sizes (f^2) Analysis.

Student Learning Outcomes	Effect Size	Decisions
Consultative Management Style	0.029	Weak
Faculty Development Initiatives	0.258	Moderate
Faculty Development Initiatives	Effect Size	Decisions
Consultative Management Style	0.039	Weak

Furthermore, Q^2 values were obtained using the blindfolding procedure to assess the model's predictive relevance. Values greater than zero indicate that the model has sufficient predictive accuracy, demonstrating its ability to predict the observed data effectively [26]. The Q^2 values obtained for the endogenous constructs demonstrate that the model possesses predictive relevance. Specifically, the Q^2 for Student Learning Outcomes is 0.205, reflecting a medium level of predictive relevance. The Q^2 for Faculty Development Initiatives is 0.027, suggesting a moderate to strong predictive power. Since both values exceed the threshold of Zero, it can be concluded that the model exhibits acceptable predictive relevance for these constructs in Table 7.

Table 7.

Construct Cross Validated Redundancy (Q^2).

Constructs	SSE	SSO	1-SSE/SSO
Faculty Development Initiatives	1,830.000	1,780.147	0.027
Student Learning Outcomes	3,965.000	3,152.803	0.205

Note: SSO - Systematic Sources of Output; SSE - Systematic Sources of Error.

Thus, the SRMR values for both the saturated model and the estimated model are both 0.068 below the recommended threshold of 0.10 it can be concluded that the model used in this study has a good fit [27, 28]. The indicators of the structural model are summarized in Table 8.

Table 8.
Goodness of Fit of The Model.

Item	Saturated Model	Estimated Model
SRMR	0.068	0.068
d_ULS	1.397	1.397
d_G	12.045	12.045
Chi-Square	9,346.382	9,346.382
NFI	0.48	0.48

4.3. Hypothesis Testing

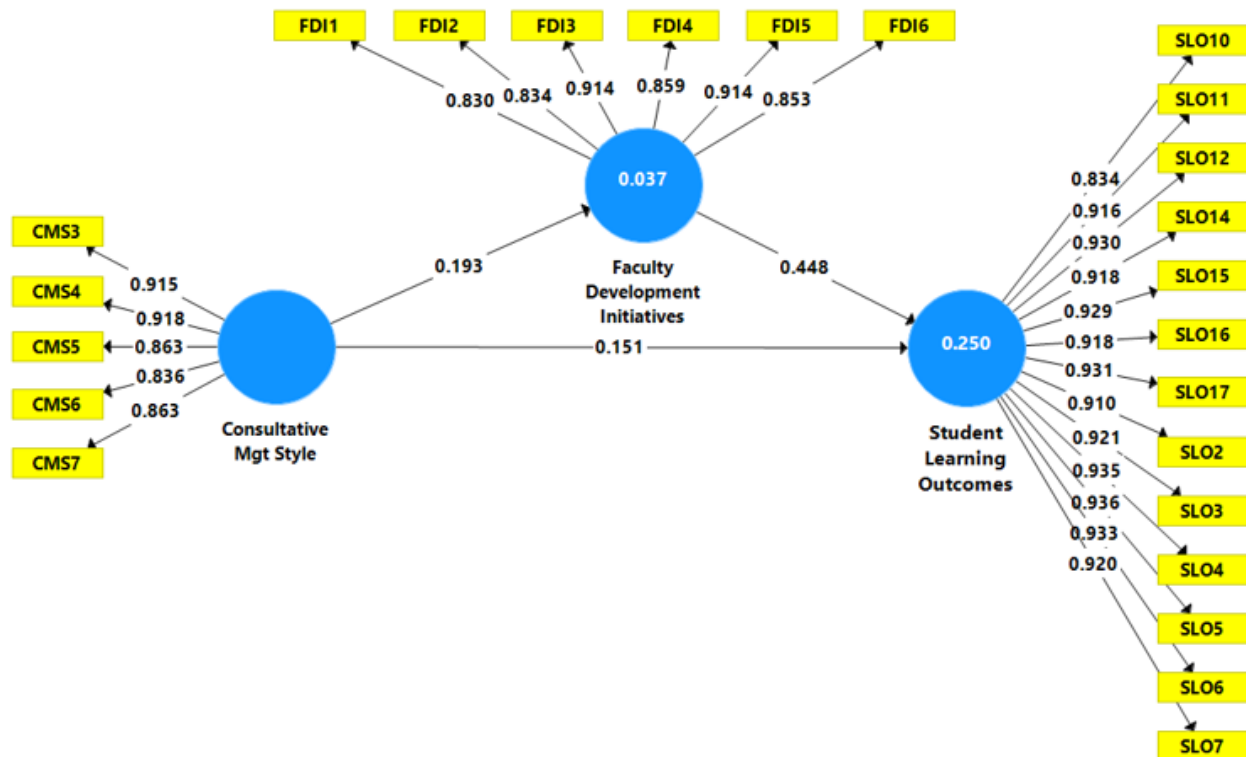


Figure 2.
Path Model Significant.

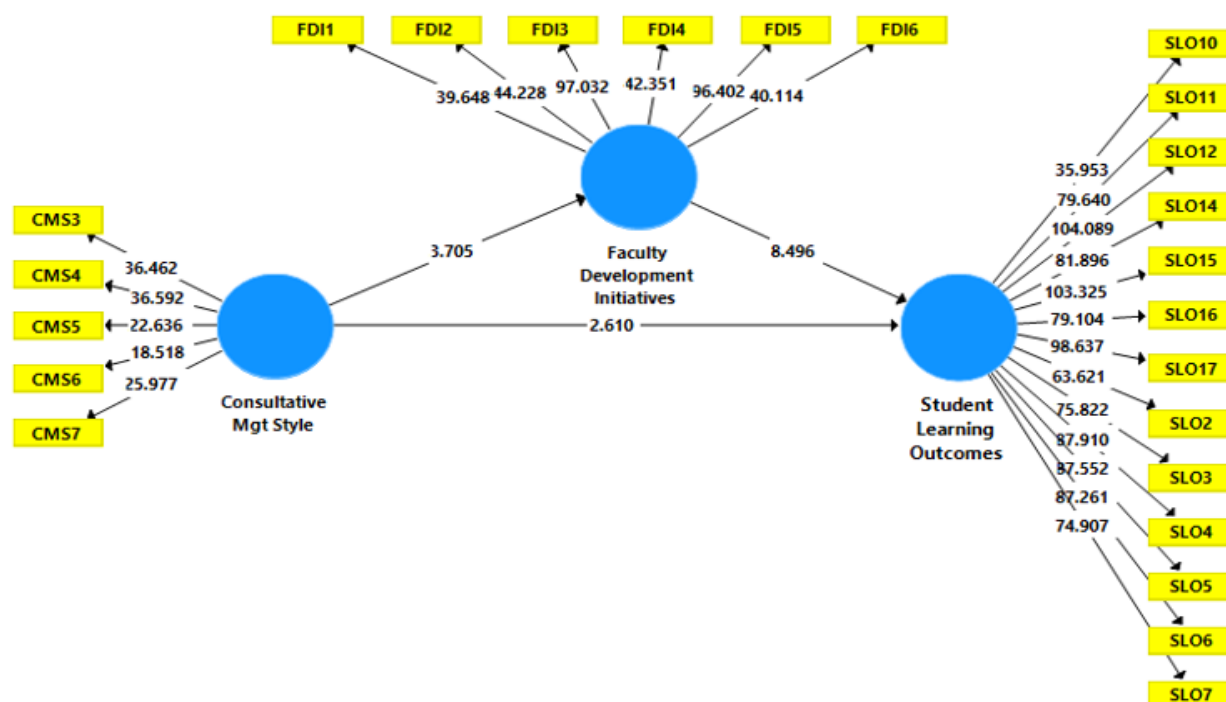


Figure 3.
Path Model Results of Mediation.

Table 9 shows direct hypotheses testing, H_1 indicating that a consultative management style exerts a positive influence on student learning outcomes in public HEIs in Cambodia. The standardized coefficient ($\beta = 0.154$, $t = 2.619$, $p = 0.009$), demonstrates a statistically significant, albeit modest, relationship. This suggests that consultative leadership—characterized by involving faculty and staff in decision-making can meaningfully contribute to enhancing student learning quality. These findings align with Far and Abedini [29] who reported that consultative leadership improves organizational effectiveness among teachers. Likewise, Ismail, et al. [30] found that participative leadership strengthens organizational commitment and job satisfaction, both of which are key drivers of educational performance. Thus, H_1 is supported, reinforcing the value of inclusive leadership practices within higher education environments.

For, H_2 the findings indicate that consultative management style positively influences faculty development initiatives in Cambodian public HEIs. The standardized coefficient ($\beta = 0.198$, $t = 3.713$, $p = 0.000$) confirms a statistically significant and meaningful relationship. This suggests that engaging faculty in decision-making and promoting open dialogue enhances the effectiveness of faculty development programs. These results align with Kressel [31] who emphasized the benefits of psychological consultation in faculty development, and Omar and Auso [32] who highlighted the role of consultative leadership in advancing administrative development.

Furthermore, H_3 faculty development initiatives have a positive influence on student learning outcomes in public HEIs of Cambodia. The coefficient ($\beta = 0.450$) indicates a substantial positive effect of faculty development on student learning outcomes. This is the strongest direct effect among all hypotheses tested. The large ($t = 8.445$) and highly significant ($p = 0.000$) confirm the robustness of this relationship. It suggests that enhancing faculty competence through structured initiatives leads to improved teaching quality, which positively impacts student performance. Therefore, H_3 is supported. These studies by Elliott and Oliver [33] and Steinert, et al. [34] confirm that targeted professional development enhances instructional effectiveness, which in turn leads to improved academic outcomes

for students. These findings emphasize the importance of aligning professional learning with educators' specific needs to foster effective teaching practices and promote student success.

Table 9 shows indirect hypotheses testing, H_1 is supported, confirming that faculty development initiatives (FDIs) significantly mediate the relationship between consultative management style and student learning outcomes in Cambodia's public HEIs ($\beta = 0.089$, $t = 3.367$, $p = 0.001$). This suggests that consultative leadership improves student outcomes in part by fostering faculty growth. These findings align with Nguyen, et al. [35] and Wang, et al. [36] who showed that inclusive leadership enhances teaching quality and student satisfaction through improved faculty engagement and innovation.

Table 9.
Direct and Indirect Effect Hypotheses Testing.

Hypothesis	Coef.	Se	T value	P values	Decision
CMS → Student Learning Outcomes	0.154	0.058	2.619	0.009	Supported
CMS → Faculty Development Initiative	0.198	0.052	3.713	0.000	Supported
FDI → Student Learning Outcomes	0.450	0.053	8.445	0.000	Supported
CMS → FDI → Student Learning Outcomes	0.089	0.026	3.367	0.001	Supported

Note: CMS – Consultative management style; FDI – Faculty Development Initiatives; Coef. = Coefficient; Se = standard error.

5. Conclusion

This study examined the direct and indirect effects of consultative management style (CMS) and faculty development initiatives (FDIs) on student learning outcomes (SLOs) in Cambodia's public higher education institutions. The measurement model showed strong reliability and validity, with all constructs exceeding recommended thresholds. Discriminant validity was confirmed, and the model demonstrated predictive relevance through positive Q^2 values, despite weak R^2 values for SLOs. In terms of effect size, faculty development initiatives have a moderate effect on student learning outcomes ($f^2 = 0.258$). consultative management style shows a small effect on both student learning outcomes ($f^2 = 0.029$) and faculty development initiatives ($f^2 = 0.039$). The Goodness-of-Fit (GoF) score further supports the model's adequacy. Direct hypothesis testing revealed a statistically significant but modest positive effect of CMS on SLOs ($\beta = 0.154$, $t = 2.619$, $p = 0.009$), emphasizing the value of participatory leadership. CMS also had a significant impact on FDIs ($\beta = 0.198$, $t = 3.713$, $p = 0.000$), indicating that inclusive governance supports faculty engagement in professional development. FDIs had the strongest direct effect on SLOs ($\beta = 0.450$, $t = 8.445$, $p = 0.000$), highlighting their essential role in enhancing teaching quality and student performance. Indirect hypothesis testing confirmed that FDIs mediate the relationship between CMS and SLOs ($\beta = 0.089$, $t = 3.367$, $p = 0.001$), showing that leadership improves learning outcomes both directly and indirectly through faculty development. These findings underscore the importance of consultative leadership and structured faculty development in improving student outcomes and provide practical guidance for leadership and policy in Cambodian higher education.

This study offers valuable insights but has several limitations. It focuses exclusively on public HEIs in Cambodia, which limits the generalizability of the findings to other contexts. Additionally, its cross-sectional design restricts the ability to draw causal inferences, and reliance on self-reported data may introduce response bias. Future research should consider including a more diverse range of institutions across different regions, employ longitudinal designs to track changes over time, and utilize multiple data sources to improve the reliability and validity of results.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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