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Unveiling Direct Influence on Collaborative Research among Academicians in Online Open Flexible Distance Learning Higher Education Institutions

Zahir Osman*
Open University Malaysia
Corresponding Author Email: zahir_osman@oum.edu.my

Noral Hidayah Alwi
Open University Malaysia
Email: noral@oum.edu.my

Bibi Nabi Ahmad Khan
Open University Malaysia
Email: bibi_ahmadkhan@oum.edu.my

Huong-An Thi Nguyen
Hanoi Open University
Email: huongan.nguyen@hou.edu.vn

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Abstract

This study investigates the critical factors influencing collaborative research among academicians within open flexible distance learning (OFDL) higher education institutions, emphasizing the roles of attitude, organizational support, and self-efficacy. Collaborative research is pivotal in these settings, enhancing resource utilization, innovation, and sharing of expertise across geographical distances. The study aims to delineate how organizational culture, perceived benefits, and self-efficacy impact collaborative research, with attitude as a mediating variable. Data was collected using structured surveys distributed via email, targeting academicians involved in OFDL institutions. Out of the 507 surveys distributed, 383 responses were deemed suitable for analysis, yielding a response rate of 78.4%. The analysis employed Partial Least Squares Structural Equation Modeling (PLS-SEM) to evaluate the data and test the proposed hypotheses. Hypotheses testing results revealed that attitude, organizational support, and self-efficacy significantly enhance collaborative research, whereas organizational culture and perceived benefits showed no substantial impact. These

findings suggest that interventions should bolster positive attitudes, provide robust institutional support, and foster self-efficacy among academicians to drive collaborative efforts. The study suggests further exploration of organizational culture and perceived benefits across varied contexts and employing qualitative methods to gain deeper insights into the experiences of academicians. Longitudinal studies could also be beneficial in understanding the evolution of these influences over time. The implications of this study stress the importance of tailored strategies within OFDL institutions to promote effective collaboration. Enhancing institutional support structures and developing programs that build self-efficacy and positive attitudes are crucial steps toward achieving more impactful collaborative research outcomes.

Keywords: Attitude, Organizational Culture, Organizational Support, Perceived Benefits, Self-Efficacy, Collaborative Research

Introduction

Collaborative research in higher education institutions is significant, driven by the need for interdisciplinary approaches to tackle complex societal issues. By pooling resources, expertise, and perspectives, academicians can innovate and address questions that a single discipline might not fully resolve (Pedersen, 2021). This interdisciplinary collaboration is crucial for advancing knowledge and developing comprehensive solutions to global challenges, enhancing the societal impact of academic research (Gredig et al., 2021). Globally, collaborative research is characterized by its dynamic and evolving nature (Kebah et al., 2019). There is a growing trend towards Open Science 2.0, which advocates for transparency in research processes and accessible data sharing to foster global collaboration (Thibault et al., 2023). Despite these positive trends, several challenges persist, such as issues related to data management, intellectual property rights, and ensuring equitable participation among collaborators (Mittal et al., 2023). Furthermore, integrating diverse methodologies and knowledge systems requires sophisticated management and coordination skills, often lacking in traditionally siloed academic environments (Moreno-Cely et al., 2021). One critical research gap in collaborative research is the development of effective frameworks for bridging methodological and cultural differences between disciplines (Wine et al., 2022). These gaps necessitate focusing on communication strategies and collaborative project management skills to foster productive partnerships (Beeker et al., 2021). Additionally, while there is increased emphasis on stakeholder engagement and co-produced knowledge, systematic evaluation methods to measure the effectiveness of these collaborations are underdeveloped (Singletary et al., 2022). Understanding these collaborative frameworks can inform policymakers' creation of policies that support flexible funding models and resource-sharing mechanisms needed for international and cross-disciplinary research collaborations (Gasparrini et al., 2024). Enhancing collaborative research infrastructures can promote academic excellence and innovation in higher education institutions. Developing strategic partnerships globally can lead to significant advancements in research and development (Zurba et al., 2022). For academicians, engaging in collaborative research offers opportunities for professional growth and a more substantial research impact. Enhancing interdisciplinary skills and networking capabilities can lead to new research avenues and richer academic contributions (Ryan et al., 2024). Thus, these collaborative efforts foster scientific progress and drive social and economic advancements worldwide. This study aims to assess the direct influence of attitude, organizational culture, perceived benefits, organizational support, and

self-efficacy on collaborative research among academicians in open flexible distance learning higher education institutions.

Literature Review

Underpinning Theory

The Theory of Planned Behavior (TPB), developed by Icek Ajzen (1991), offers a framework for understanding how psychological and contextual factors influence intentions and behaviours. It is suitable for examining collaborative research among academicians in open, flexible distance learning (OFDL) contexts. TPB suggests that behavioral intentions, critical to actual behavior, are influenced by attitudes toward the behavior, subjective norms, and perceived behavioral control. In OFDL settings, the attitude component reflects how academicians view collaborative research, whether beneficial or necessary, impacting their motivation and intention to participate. Organizational culture influences subjective norms by setting collective expectations and pressures that support or hinder collaboration, signifying how the environment promotes joint research. Perceived benefits relate to assessing the advantages of collaboration and fostering a positive attitude toward partnership. Organizational support is crucial for perceived behavioural control, indicating how empowered academicians feel by institutional resources and policies to pursue collaborative ventures. This support enhances self-efficacy, bolstering confidence in achieving research goals collaboratively. By integrating these variables, TPB provides insights into the dynamics of collaborative behaviours, emphasizing how personal beliefs, perceived institutional support, and organizational culture shape intentions and participation in collaborative activities within OFDL institutions.

Relationship between Attitude and Collaborative Research

Attitudes significantly influence the dynamics and effectiveness of collaborative research. Positive attitudes towards collaboration can enhance motivation and trust among researchers, fostering a conducive environment for teamwork and shared goals (Bhalla, 2023). Studies show that attitudes toward collaboration can be shaped by multiple factors, including personal experiences and the perceived benefits of collaborative work (Li et al., 2021). The typology of attitudes, ranging from avid to apathetic, highlights researchers' diverse dispositions toward collaboration (Tran, 2023). An enthusiastic attitude often correlates with openness to sharing ideas and a willingness to engage in interdisciplinary research, improving outcomes and innovation (Kebah et al., 2019). Conversely, apprehension or aversion may hinder effective collaboration, leading to communication barriers and reduced group cohesion. In educational settings, students' positive attitudes toward collaborative learning also reflect the importance of fostering supportive and inclusive environments that promote collective efficacy and collegiality (Azar et al., 2021; Mudhar et al., 2024). These environments help build trust and emotional support, which are essential for successful collaborative research (Kebah et al., 2019). Thus, cultivating positive attitudes about collaboration is crucial for maximizing the potential of collaborative research, ensuring that participants are motivated, engaged, and capable of achieving shared research objectives. Thus, the following hypothesis was proposed for this study:

H1: There is a relationship between attitude and collaborative research among academicians in open flexible distance learning higher education institutions.

Relationship between Organizational Culture and Collaborative Research

Organizational culture is pivotal in shaping collaborative research efforts within academic institutions. A supportive and open organizational culture fosters an environment that encourages academic researchers to engage in collaborative efforts, facilitating the sharing of ideas and resources (Kienast, 2023). This culture diminishes the impact of bureaucratic hurdles, or 'red tape,' that can otherwise stifle innovation and collaboration (Van Dijck, 2024). Leadership support within this cultural framework further enhances collaborative initiatives by bridging gaps between individual researchers and fostering a collective approach to innovation (Wiroonrath et al., 2024). Digital business strategies, when aligned with the organizational culture, can improve collaborative innovation by promoting a culture that supports knowledge-sharing and joint problem-solving endeavours (Al-Mariah, 2024). Furthermore, the interrelation between organizational culture and knowledge management significantly enhances the institution's innovation capability, which is crucial for sustaining open innovation in collaborative research settings (Lam et al., 2021). Thus, cultivating an organizational culture emphasizing trust, flexibility, and communal support is essential for advancing collaborative research and maximizing innovation potential within academic settings, leading to improved outcomes and more impactful research endeavours. Therefore, the following hypothesis was proposed for this study:

H2: There is a relationship between organizational culture and collaborative research among academicians in open flexible distance learning higher education institutions.

Relationship between Organizational Support and Collaborative Research

Organizational support is crucial in enhancing collaborative research by providing resources, encouragement, and infrastructure to facilitate collective innovation (Li et al., 2020). This support includes fostering a collaborative culture and ensuring that knowledge management processes mediate effectively between cultural practices and innovation outcomes (Shehzad et al., 2023). Organizational support also significantly influences researchers' motivation, especially in academia, where such backing can ignite and sustain research initiatives (NGUYEN et al., 2021). Illustrative examples from international practices show that structured organizational support systems enhance collaboration by providing frameworks and tools necessary for effective research partnerships (Austin et al., 2024). This support extends beyond traditional boundaries, aligning technical and organizational needs to facilitate seamless cooperation across collaborative networks, as emphasized in Collaborative Networks 5.0 (Carminati et al., 2024). Moreover, leadership styles, such as transformational leadership, can amplify organizational support's impact by energizing organizational and individual innovative behaviours, mainly mediated through collaborative human resource management (Awan & Jehanzeb, 2022). Thus, solid organizational support is vital for maximizing the potential of collaborative research and fostering an environment that encourages shared knowledge, adaptability, and collective problem-solving. Hence, the following hypothesis was proposed for this study:

H3: There is a relationship between organizational support and collaborative research among academicians in open flexible distance learning higher education institutions.

Relationship between Perceived Benefits and Collaborative Research

Perceived benefits are a crucial driver of collaborative research, as they directly influence researchers' inclination to participate in joint efforts (Intaratat et al., 2024). When individuals recognize significant benefits such as enhanced learning opportunities, access to diverse

expertise, and improved research outcomes, they are more likely to engage in collaborative research activities (Seals, 2024). For instance, collaborative endeavours in higher education positively impact self-efficacy, with participants reporting increased confidence in their ability to effectively manage and contribute to research tasks (Santos & Alliprandini, 2023). Additionally, integrating collaborative learning in educational settings fosters a sense of efficacy and engagement, which is pivotal in increasing participation in group research tasks (Gan et al., 2023). Studies further emphasize this relationship between perceived benefits and participation, highlighting that self-efficacy boosts individuals' willingness to engage in collaborative projects, even amidst uncertainty (Intaratat et al., 2024). Furthermore, perceived benefits in collaborative tasks are strongly linked to students' situational self-efficacy beliefs, enhancing their participation in collective regulation of learning (Ahola et al., 2023). Therefore, emphasizing the perceived benefits of collaborative research is essential for encouraging active involvement and achieving successful collaborative outcomes. Therefore, the following hypothesis was proposed for this study:

H4: There is a relationship between perceived benefits and collaborative research among academicians in open flexible distance learning higher education institutions.

Relationship between Self-Efficacy and Collaborative Research

Perceived benefits are a crucial driver of collaborative research, as they directly influence researchers' inclination to participate in joint efforts (Osman et al., 2018). When individuals recognize significant benefits such as enhanced learning opportunities, access to diverse expertise, and improved research outcomes, they are more likely to engage in collaborative research activities (Seals, 2024). For instance, collaborative endeavours in higher education positively impact self-efficacy, with participants reporting increased confidence in their ability to effectively manage and contribute to research tasks (Santos & Alliprandini, 2023). Additionally, integrating collaborative learning in educational settings fosters a sense of efficacy and engagement, which is pivotal in increasing participation in group research tasks (Gan et al., 2023). Studies further emphasize this relationship between perceived benefits and participation, highlighting that self-efficacy boost individuals' willingness to engage in collaborative projects, even amidst uncertainty (Hotamış, 2024). Furthermore, perceived benefits in collaborative tasks are strongly linked to students' situational self-efficacy beliefs, enhancing their participation in collective regulation of learning (Ahola et al., 2023). Therefore, emphasizing the perceived benefits of collaborative research is essential for encouraging active involvement and achieving successful collaborative outcomes. Hence, the following hypothesis was proposed for this study:

H5: There is a relationship between self-efficacy and collaborative researchamong academicians in open flexible distance learning higher education institutions.

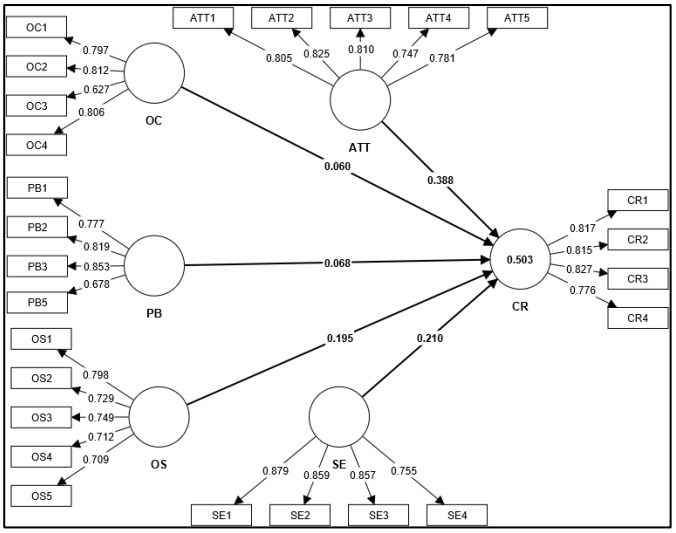

Figure 1: Research Framework

Note: ATT=Attitude OC=Organizational Culture PB=Perceived Benefits OS=Organizational Support SE=Self-Efficacy

Methodology

This study investigated how academicians perceive the direct relationships between attitude, organizational culture, organizational support, perceived benefits, and self-efficacy influence collaborative research in open, online, and flexible distance-learning higher education institutions. Data was primarily gathered through surveys, utilizing reliable instruments identified from a comprehensive literature review. Participants were selected via purposive sampling, and surveys were emailed to them due to the lack of a complete population list. The study analyzed 27 observed variables in total. Independent variables included organizational culture, assessed with a 4-item scale by Van den Berg et al. (2004); perceived benefits, evaluated using a 5-item measure by Garg et al. (2021); organizational support, measured with a 5-item scale by Eisenberger et al. (1986); and self-efficacy, assessed using four items from Kang et al. (2019). Attitude, the mediating variable, was measured using five items from Chu & Chen (2016), while the dependent variable, collaborative research, was assessed with four items adapted from Al-Rahmi & Othman (2013). All constructs were evaluated on a 5-point Likert scale, from strongly disagree to strongly agree. Of 507 distributed surveys, 397 were returned, resulting in a response rate of 78.4%, which was sufficient for structural equation modeling (SEM) analysis. From these, 383 surveys were deemed suitable for further analysis. Data analysis and hypothesis testing were performed using Smartpls4 software, selected for its robustness and capability in multivariate data analysis, as recommended by Ringle et al. (2022). This tool was essential for testing the proposed hypotheses and conducting detailed multivariate analyses, offering insights into both measurement and structural models.

Data Analysis

Respondents' Profiles

The study sampled 383 academicians. Regarding gender, the majority were male, comprising 59.3% of the participants, while females constituted 40.7%. The age distribution revealed that the predominant group was aged 41-50, accounting for 41.3% of respondents, followed by those aged 31-40 at 22.7% and 51-60 at 20.4%. Smaller portions were seen in those under 30 years old (7.3%) and those over 60 (8.4%). Examining years of service, the largest segment

was those with 11-15 years of experience, representing 30.5% of the sample, closely followed by those with 16-20 years at 29%. Furthermore, 13.6% had 6-10 years of service, while 12.5% had been in service for 21-25 years. In terms of academic rank, senior lecturers dominated, making up 77.5% of the respondents, with associate professors comprising 19.1% and smaller numbers being lecturers (1%) and professors (2.3%). A significant 99.2% of participants expressed their willingness to participate in the study, indicating a high level of cooperation.

Common Method Bias

The full collinearity test evaluates common method bias by analyzing the variance inflation factor (VIF) for each construct. As outlined by Kock (2015) and Kock & Lynn (2012), a VIF value exceeding 3.3 might suggest the presence of common method bias. In our data set, all constructs exhibit VIF values well below the 3.3 threshold, ranging from 1.299 to 2.252 (Table 1). These results imply minimal multicollinearity, indicating that common method bias is unlikely to impact this study significantly. Consequently, the relationships observed between the constructs seem to be free from significant common method variance.

Table 1
Full Collinearity Test

	CR	OC	PB	OS	SE	ATT
CR		1.968	1.966	1.909	1.851	1.63
OC	1.717		1.494	1.711	1.693	1.702
PB	2.250	1.960		1.84	2.252	2.237
OS	1.976	2.029	1.664		2.022	2.026
SE	1.299	1.362	1.381	1.371		1.386
ATT	1.427	1.709	1.711	1.714	1.729	

Measurement Model

The study employed the measurement evaluation approach recommended by Hair et al. (2017) to perform both first-order and second-order assessments, particularly targeting items with loadings under 0.7. An analysis of construct reliability and validity indicated that all constructs had Average Variance Extracted (AVE) values above 0.5, ranging from 0.548 to 0.704 (Table 2), thereby establishing convergent validity (Hair et al., 2017). Moreover, composite reliability values for all constructs exceeded 0.7, between 0.770 and 0.867, while Cronbach's alpha values were also above 0.7, ranging from 0.758 to 0.859 (Table 2). Initial examination of cross-loadings confirmed discriminant validity and ensured accurate measurement and representation of constructs (Table 3). Further, the Heterotrait-Monotrait (HTMT) ratio, as suggested by Henseler et al. (2015), was employed to evaluate discriminant validity in Variance-Based Structural Equation Modeling (VB-SEM). The HTMT ratios for the constructs and the original sample are provided in Table 3, all of which are below the 0.85 threshold.

Table 2
Construct Reliability and Validity & Items Loadings

Constructs	Indicators	Loadings	CA	CR	AVE
Attitude	ATT1	0.805	0.853	0.856	0.630
	ATT2	0.825			
	ATT3	0.810			
	ATT4	0.747			
	ATT5	0.781			
Collaborative	CR1	0.817	0.824	0.829	0.655
Research	CR2	0.815			
	CR3	0.827			
	CR4	0.776			
Organizational	OC1	0.797	0.758	0.770	0.584
Culture	OC2	0.812			
	OC3	0.627			
	OC4	0.806			
Organizational	OS1	0.798	0.794	0.795	0.548
Support	OS2	0.729			
	OS3	0.749			
	OS4	0.712			
	OS5	0.709			
Perceived	PB1	0.777	0.793	0.830	0.616
Benefits	PB2	0.819			
	PB3	0.853			
	PB5	0.678			
Self	SE1	0.879	0.859	0.867	0.704
Efficacy	SE2	0.859			
	SE3	0.857			
	SE4	0.755			

Notes: CA=Cronbach Alpha CR=Composite Reliability AVE=Average Variance Extracted

Table 3
Hetrotrait-Monotrait (HTMT) Ratios

	ATT	CR	OC	OS	PB
CR	0.723				
OC	0.534	0.557			
OS	0.575	0.655	0.648		
PB	0.568	0.598	0.792	0.812	
SE	0.398	0.556	0.479	0.492	0.472

Structural Model

In this study, the structural model evaluation followed the methodology described by Hair et al. (2017), which includes a detailed analysis of the pathway coefficients (β) and coefficients of determination (R^2). The Partial Least Squares (PLS) approach was implemented, using 5000 sub-samples to assess the significance of path coefficients. Results from the hypothesis testing, along with confidence intervals for path coefficients (beta), t-statistics, and p-values, are thoroughly detailed in Table 4. This careful method provides critical insights into the

strength and significance of the relationships among variables in the structural model. Table 4 presents a detailed review of each hypothesis, including beta coefficients, T-statistics, P-values, and the outcomes regarding hypothesis support. This approach ultimately strengthens the study's conclusions by providing a more accurate and comprehensive understanding of the interactions among the variables examined.

The analysis of the hypotheses related to collaborative research reveals varied impacts of the evaluated factors, as shown in the provided table. *Hypothesis 1 (H1),* which posited that attitude positively affects collaborative research, is supported by a beta value of 0.388. This indicates a moderate positive relationship, further strengthened by a highly significant t-statistic of 7.798 and a p-value of 0.000, leading to the acceptance of the hypothesis. These results highlight the critical role of a positive attitude in fostering collaborative research efforts. Conversely, *Hypothesis 2 (H2)* proposed that organizational culture influences collaborative research. However, the beta value of 0.060, paired with a t-statistic of 1.109 and a p-value of 0.267, indicates a statistically insignificant relationship, resulting in the rejection of this hypothesis. This suggests that organizational culture may not have a substantial direct impact on collaborative research within the studied context. *Hypothesis 3 (H3)* regarding the effect of organizational support on collaborative research is accepted, with a notable beta value of 0.195 and a t-statistic of 3.278, along with a p-value of 0.001. This finding underscores the importance of organizational support in enhancing collaborative initiatives. Similarly, *Hypothesis 4 (H4),* which examined the influence of perceived benefits on collaborative research, is rejected due to an insignificant beta value of 0.068, a t-statistic of 1.126, and a p-value of 0.260, indicating no substantial effect. Lastly, *Hypothesis 5 (H5)*, concerning the impact of self-efficacy on collaborative research, is accepted, supported by a beta value of 0.210 and a t-statistic of 4.140, with the p-value at 0.000. This result emphasizes the significant positive impact that self-efficacy has on collaborative research, reinforcing its role as a key driver in such academic endeavours.

Table 4
Hypotheses Testing Results

Hypotheses	Beta	T statistics	P values	2.50%	97.50%	Decision
H1: ATT -> CR	0.388	7.798	0.000	0.289	0.482	*Accepted*
H2: OC -> CR	0.060	1.109	0.267	-0.045	0.167	*Rejected*
H3: OS -> CR	0.195	3.278	0.001	0.080	0.315	*Accepted*
H4: PB -> CR	0.068	1.126	0.260	-0.052	0.184	*Rejected*
H5: SE -> CR	0.210	4.140	0.000	0.108	0.306	*Accepted*

Effect Sizes (f^2) & Variance Inflation Factor (VIF)

Table 5 provides a detailed overview of effect sizes (f^2), categorized according to Cohen's (1992) benchmarks, which classify them as small (0.020 to 0.150), medium (0.150 to 0.350), or large (0.350 and above). The effect sizes in this research range from small (0.004) to large (0.210), indicating the varied influence of the variables studied. Additionally, the Intrinsic Value Inflation Factor (VIF) values in Table 5 remain well below the more relaxed threshold of 5, with the highest value being 2.292, suggesting minimal collinearity. This low level of collinearity enhances the reliability of comparing effect sizes and interpreting coefficients within the structural model. Furthermore, the endogenous construct demonstrates a

substantial amount of explained variance, with an R^2 value of 0.503 (Figure 1), indicating a significant level of predictability within the model.

Table 5
Effect Sizes (f^2) & Variance Inflation Factor (VIF)

Constructs	CR(f^2)	CR(VIF)
ATT	0.210	1.439
OC	0.004	1.739
OS	0.039	1.964
PB	0.004	2.292
SE	0.068	1.303

PLSpredicts & Cross-Validated Predictive Ability Test (CVPAT)

The model's inference and managerial implications were thoroughly evaluated using out-of-sample predictive analysis via the PLSpredict method, as suggested by Shmueli et al. (2016, 2019). According to Table 6, the use of PLS-SEM produced substantially better Q^2 predictions (>0) when compared to naive mean predictions, consistently achieving lower Root Mean Square Error (RMSE) values than those from linear model (LM) benchmarks, which emphasizes its strong predictive abilities. Specifically, in four instances, all RMSE values from PLS-SEM predictions surpassed those of the LM prediction benchmark, demonstrating the predictive robustness of the proposed model, as shown in Table 7. The application of the Cross-Validated Predictive Ability Test (CVPAT) by Hair et al. (2022), in conjunction with its integration with PLSpredict analysis by Liengaard et al. (2021), represents significant progress in predictive modelling. Moreover, Table 7 affirms the superior predictive capabilities of PLS-SEM, evidenced by lower average loss values when compared to indicator averages and LM benchmarks, providing compelling evidence of its enhanced predictive performance.

Table 6
PLSpredicts

Items	Q^2predict	PLS-RMSE	LM-RMSE	PLS-LM
CR1	0.398	0.588	0.603	-0.015
CR2	0.279	0.600	0.612	-0.012
CR3	0.308	0.647	0.670	-0.023
CR4	0.260	0.679	0.685	-0.006

Table 7
Cross-Validated Predictive Ability Test (CVPAT)

	Average loss difference	t-value	p-value
CR	-0.179	7.981	0.000
Overall	-0.179	7.981	0.000

Importance-Performance Map Analysis (IPMA)

The Importance-Performance Map Analysis (IPMA), as outlined by Ringle and Sarstedt (2016) and Hair et al. (2018), offers a strategic approach to enhancing collaborative research by concentrating on constructs with varying importance and performance levels. In this case, organizational culture and perceived benefits have lower importance (0.060 and 0.068, respectively) yet relatively high performance (66.777 and 66.537). To boost collaborative

research, focus should be placed on strategically elevating the importance of these constructs. Interventions could include aligning organizational policies more closely with collaborative goals and communicating the tangible benefits of research collaboration to enhance engagement and effectiveness.

Table 8
Importance-Performance Map Analysis (IPMA)

	Importance	Performance
ATT	0.388	60.894
OC	0.060	66.777
OS	0.195	67.328
PB	0.068	66.537
SE	0.210	66.736

Discussion & Conclusion

Discussion

Enhancing the impact of collaborative research among academicians requires targeted strategies to amplify the influence of key factors like attitude, organizational support, and self-efficacy. The beta values from the analysis highlight the significant roles of attitude (β = 0.388), organizational support (β = 0.195), and self-efficacy (β = 0.210), which underscores their critical contributions to collaborative engagement. To boost attitudes, institutions might implement development programs emphasizing the value and benefits of collaboration, reinforcing positive perceptions among faculty members (Seals, 2024). These initiatives can include workshops showcasing successful collaborations and integrating collaborative projects into regular academic workloads, thereby normalizing and valuing cooperative efforts. Enhancing organizational support involves creating a conducive environment with accessible resources and clear support structures. Institutions should ensure that resources such as research funding, administrative assistance, and collaborative tools are readily available and tailored to facilitate cross-departmental partnerships (Santos & Alliprandini, 2023). Strong leadership support that endorses collaborative efforts and provides incentives can further reinforce these support structures. Boosting self-efficacy among academicians is critical as well. Professional development initiatives aimed at building skills and confidence in research methodologies can empower faculty to engage more proactively in collaborative research (Gan et al., 2023). Mentorship programs that pair experienced researchers with less experienced ones could also nurture self-efficacy, providing necessary guidance and feedback that improve collaboration skills. Regarding organizational culture and perceived benefits, their lack of significant influence (β = 0.060 and β = 0.068, respectively) on collaborative research may stem from several factors. Organizational culture might not be directly aligned with the specific needs of collaborative research; cultural norms may be more symbolic and less directive in practical collaborative scenarios (Hotamış, 2024). As for perceived benefits, the value of collaboration might be recognized, but not adequately communicated or incentivized, which can lead to underutilization in fostering actual research partnerships. Ultimately, while enhancing the impact of attitude, organizational support, and self-efficacy, it is crucial to address the disconnect between perceived benefits and organizational culture's role in collaboration. By aligning institutional strategies with these insights, academies can create a robust environment conducive to thriving collaborative research.

Theoretical Implications

The theoretical implications of this study offer significant insights into the application of the Theory of Planned Behavior (TPB), developed by Icek Ajzen (1991), particularly in understanding collaborative research among academicians. TPB posits that attitudes, subjective norms, and perceived behavioral control influence intentions and behaviors. In this study, the variables examined, including attitude, organizational support, self-efficacy, organizational culture, and perceived benefits, align with these core components. The positive influence of attitude on collaborative research reaffirms TPB's assertion that favorable perceptions drive behavioral intentions, suggesting that boosting positive attitudes is crucial for enhancing collaboration (Seals, 2024). Organizational support and self-efficacy also align with TPB, where perceived behavioural control reflects researchers' confidence in receiving adequate resources and possessing the necessary skills for collaboration (Santos & Alliprandini, 2023; Gan et al., 2023). However, the minimal impact of organizational culture and perceived benefits suggests these factors might not strongly influence subjective norms within the model, indicating an area where TPB might be expanded to consider the nuanced roles of these elements in academic settings (Hotamış, 2024). Thus, integrating TPB with these additional insights provides a more comprehensive understanding of collaborative research dynamics.

Practical Implications

The practical implications of this study emphasize strategies higher education institutions can adopt to foster collaborative research among academicians. By enhancing positive attitudes, institutions can develop training programs and workshops that highlight the benefits and opportunities of collaboration, thereby encouraging a culture of shared learning and innovation (Seals, 2024). Strengthening organizational support is equally crucial; providing resources and infrastructure tailored to facilitate joint projects can lead to more effective collaborations (Santos & Alliprandini, 2023). Training and mentorship programs to build self-efficacy among faculty members can empower them to engage more confidently in research partnerships, maximizing their potential contributions (Gan et al., 2023). The relatively low influence of organizational culture and perceived benefits indicates a need for institutions to align these factors with collaborative objectives better, ensuring that cultural values and communicated benefits directly support academic partnerships (Hotamış, 2024). By addressing these areas, universities can create an environment conducive to successful and impactful collaborative research.

Suggestions for Future Study

Future delve deeper into the nuanced roles of organizational culture and perceived benefits, given their unexpectedly low impact on collaborative research as identified in this study. Exploring these variables in diverse cultural and institutional contexts might reveal underlying factors or barriers affecting their significance. Additionally, qualitative studies involving interviews or focus groups could provide rich insights into academicians' perceptions and experiences, offering a more detailed understanding of these dynamics. Longitudinal studies could assess how changes in organizational support and self-efficacy over time influence collaboration outcomes. Investigating the interplay between digital platforms and collaborative efficacy might also yield valuable insights, especially as more institutions integrate technology into their research practices. Finally, expanding the research model to include other potentially influential factors, such as leadership style or institutional policies,

could enhance our understanding of the mechanisms driving successful collaborative research efforts. These approaches will contribute to refining strategies that effectively promote collaborative academia.

Conclusion

This study underscores the pivotal roles of attitude, organizational support, and self-efficacy in fostering collaborative research among academicians within higher education institutions. By leveraging the Theory of Planned Behavior (TPB), it is evident that these elements significantly influence the willingness and capacity of faculty members to engage in joint research efforts. Although organizational culture and perceived benefits were found to have minimal impact, this highlights areas for further exploration and refinement. Practical strategies, such as increasing institutional support through training, resource allocation, and mentorship programs, can significantly boost collaboration. Future research might explore these underperforming variables across different contexts to better understand their potential barriers. By addressing these factors, institutions can create environments that not only encourage but also empower collaborative research, thereby enhancing academic innovation and productivity. This comprehensive approach supports the goal of building robust, collaborative academic networks that can effectively tackle complex research challenges.

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