

Empowering Collaborative Research among Academicians in Online Open Flexible Distance Learning Higher Education Institutions

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Abstract

Online Open Flexible Distance Learning (OOFDL) institutions are critical to breaking down barriers, encouraging innovation, and employing technology to bridge educational gaps. The impact extends beyond local bounds, resulting in a dynamic network of academic minds. Promoting collaborative research in OOFDL institutions lowers traditional barriers to knowledge dissemination. The Malaysian OOFDL higher education environment lacks a robust structure for encouraging joint research. Existing systems may not properly support interdisciplinary collaboration, limiting the potential for innovation and information sharing. The lack of a personalized strategy impedes the formation of dynamic networks among academic minds. This study seeks to assess the direct and indirect relationship between organizational culture and perceived collaborative research benefits, using attitude as a facilitator. After a thorough evaluation of earlier studies, reliable measures and primary data were chosen through surveys. A total of 383 academicians participated in the study through

a structured questionnaire. Using SmartPLS 4.0 and SPSS 23.0, the survey was analysed. Except for the relationship between organizational culture and collaborative research, the majority of the hypotheses were found to be confirmed by the results. Collaborative research is not only encouraged but also promoted by an open and supportive organizational culture. More importantly, this study has discovered the cascade effect, which explains how a positive attitude mediates this relationship and results in a more fruitful research experience with major advantages. The universities that have sought huge benefits of collaborative research are fostering both a positive attitude and a positive culture within their systems. Corporate culture and the advantages of collaborative research are closely related to attitude.

Keywords: Organizational Culture, Perceived Benefits, Attitude, Collaborative Research, Online Open Flexible Distance Learning.

Introduction

In the dynamic realm of higher education, a global perspective on empowering collaborative research in Online Open Flexible Distance Learning (OOFDL) institutions is pivotal (Fari & Ingawa, 2020). These institutions, transcending borders, lead innovation and use technology to bridge educational gaps. Emphasizing research collaboration catalyzes global knowledge exchange, uniting diverse perspectives (Ahmad et al., 2023). The impact extends beyond local boundaries, creating a dynamic network of academic minds. By fostering collaborative research in OOFDL institutions, traditional knowledge dissemination barriers are dismantled (Jung et al., 2021). This global synergy enhances research quality and understanding of higher education challenges (Puerta-Sierra et al., 2022). OOFDL institutions emerge as hubs for cross-cultural collaboration, shaping the global future of education and offering innovative solutions (Brundiens et al., 2021). In essence, empowering collaborative research transforms OOFDL higher education institutions into dynamic engines of global intellectual progress (Hutson, 2023). In Malaysia, empowering collaborative research in OOFDL Higher Education Institutions promises to advance the nation's education (Suhaimi et al., 2022). With a strong commitment to technological advancements, Malaysia emphasizes online and flexible learning platforms (Fauzi, 2023). Fostering research collaboration enhances academic capabilities, addressing contemporary educational challenges (Razali et al., 2024). The multicultural nature of Malaysian society is reflected in higher education, making collaborative research impactful. Encouraging cross-disciplinary collaboration in OOFDL settings taps into academic expertise, deepening the understanding of local needs (Muthu & Chelliah, 2022). This approach positions Malaysia as a hub for innovative online education solutions, aligning with its vision of a knowledge-driven economy. Ultimately, empowering collaborative research in OOFDL institutions contributes to Malaysia's global leadership in educational innovation (Mohmood et al., 2022). The landscape of Malaysian OOFDL Higher Education Institutions lacks a comprehensive framework for empowering collaborative research (Tee et al., 2022). Existing structures may not effectively facilitate cross-disciplinary cooperation, hindering the potential for innovation and knowledge exchange. The absence of a tailored approach limits the development of dynamic networks among academic minds (Paiman et al., 2023). Addressing this gap is crucial to unlocking the full potential of OOFDL institutions, ensuring they become thriving hubs for collaborative research, and driving advancements in online education (Fauzi, 2023). This study holds immense significance for policymakers, providing insights to shape effective educational policies. For academicians, it offers a framework to enhance collaboration, fostering interdisciplinary research and academic growth (Osman et al., 2018). Students stand to benefit from the study's outcomes,

as it aims to enrich the quality and accessibility of online education. Ultimately, the findings have the potential to revolutionize OOFDL institutions, making them more vibrant centers of collaborative research, and aligning with the evolving needs of policymakers, academicians, and students in the rapidly changing landscape of higher education. This study aims to assess the direct and indirect relationship between organizational culture and perceived benefits with collaborative research with attitude as a mediator.

Literature Review

Underpinning Theory

The Social Exchange Theory (Homans, 1958) provides a robust underpinning for understanding the intricate dynamics in the proposed research title. This theory, rooted in sociology and psychology, posits that social interactions are essentially a series of exchanges where individuals seek to maximize rewards and minimize costs. In the context of organizational culture and perceived benefits, the theory elucidates how employees engage in collaborative research as part of a reciprocal relationship within the organization. Organizational culture, acting as the contextual backdrop, influences the expectations and norms surrounding collaborative endeavors (Shore & Coyle-Shapiro, 2003). Individuals embedded in a positive organizational culture may perceive greater benefits from engaging in collaborative research, as the supportive environment fosters a sense of reciprocity and shared values. Perceived benefits, in turn, become a key driver of involvement in collaborative research initiatives, reflecting the principles of social exchange. Introducing attitude as a mediator adds another layer to the Social Exchange Theory (Kebah et al., 2019). Attitude, shaped by organizational culture and perceived benefits, becomes the lens through which individuals evaluate their commitment to collaborative research. Positive attitudes may strengthen the relationship between organizational culture, perceived benefits, and collaborative research engagement, whereas negative attitudes could hinder or mediate this connection. In essence, the Social Exchange Theory provides a comprehensive framework for unraveling the direct and indirect relationships among these variables, shedding light on the intricacies of collaborative research dynamics within the organizational context (Tepper & Taylor, 2003).

Relationship between Organizational Culture, Attitude and Collaborative Research

Organizational culture, attitude, and collaborative research are three critical interrelated components that shape the dynamics within higher education institutions. These elements strongly influence how an institution functions and progresses, and if nurtured well, can significantly enhance its academic and research prowess (Chedid et al., 2020). Organizational culture is the shared beliefs, values, and practices that an institution upholds. It molds the ethos and unique identity of the institution, governing how its members interact and conduct their work (Porto, 2020). A positive, inclusive, and supportive organizational culture fosters a conducive learning and research environment, motivates individuals and teams, promotes initiatives, and drives excellence in academic endeavors (Kienast, 2023). Attitude, as linked to organizational culture, reflects the mindset and belief system of the members of the institution (N Wickneswary et al., 2024). A positive attitude, as influenced by a productive organizational culture, stimulates motivation, encourages participation, and enhances commitment to research activities (Haider et al., 2022). The right attitude can influence one's openness to collaborations, risk-taking for innovative research, and perseverance to get through research complications (Li et al., 2020). Collaborative research, in higher education

institutions, serves as an essential tool to enhance knowledge, improve teaching methods, and push boundaries in science and technology (Leron & Bacongus, 2021). The culture and attitude in an institution greatly impact the success of collaborative research. When members share a culture of trust, respect, and mutual support, coupled with a positive attitude towards teamwork, learning, and knowledge sharing, collaborative research thrives, fostering knowledge creation and innovation (Puerta-Sierra et al., 2022). Hence, the following hypotheses were proposed for this study:

H1: Organizational culture has a relationship with attitude in collaborative research among academicians in open online flexible distance learning higher education institutions.

H2: Organizational culture has a relationship with collaborative research among academicians in open online flexible distance learning higher education institutions.

H3: There is a mediating effect of attitude on the relationship between organizational culture and collaborative research among academicians in open online flexible distance-learning higher education institutions.

Relationship between Perceived Benefits, Attitude, and Collaborative Research

Perceived benefits, attitudes, and collaborative research form an interconnected triad in the field of higher education institutions. The Perceived Benefits refer to the value or advantages that individuals or institutions believe they will gain through participating in collaborative research projects (Puerta-Sierra et al., 2022). These benefits can vary widely and may include increased knowledge, access to resources, exposure to different perspectives, enhanced reputation, potential for larger-scale research, and opportunities for networking and learning (Dubey & Sahu, 2021). Attitudes, on the other hand, are deeply ingrained predispositions that influence one's approach to collaborative opportunities (Kebah et al., 2019). An individual's or institution's attitude toward collaboration can greatly impact the perceived benefits (Punjani & Mahadevan, 2022). A positive attitude, characterized by openness, trust, and willingness to share and learn, can significantly enhance the perception of potential benefits. In contrast, a negative attitude, marked by insularity, lack of trust, or unwillingness to share knowledge and resources, can diminish the perceived benefits of collaboration (Rughoobur-Seetah & Hosanoo, 2021). Collaborative research in higher education institutions serves as the intersection of perceived benefits and attitudes. When institutions perceive significant benefits from collaborative research and exhibit positive attitudes towards such initiatives, the result is often increased participation, higher quality research, and better overall outcomes (Ali et al., 2021). Moreover, these three components create a spiraling effect. The greater the Perceived Benefits from collaborations, the more positive the attitudes, which in turn fuels greater interest and participation in collaborative research (Abbas et al., 2021). Conversely, if the perceived benefits are low, attitudes toward collaboration may become negative, hindering the effectiveness of collaborative research (Lucas & Vicente, 2023). Therefore, the following hypotheses were proposed for this study:

H4: Perceived benefits have a relationship with attitude in collaborative research

among academicians in open online flexible distance learning higher education institutions.

H5: Perceived benefits have a relationship with collaborative research among academicians in open online flexible distance learning higher education institutions.

H6: Attitude has a relationship with collaborative research among academicians in open online flexible distance learning higher education institutions.

H7: There is a mediating effect of attitude on the relationship between perceived benefits and collaborative research among academicians in open online flexible distance learning higher education institutions.

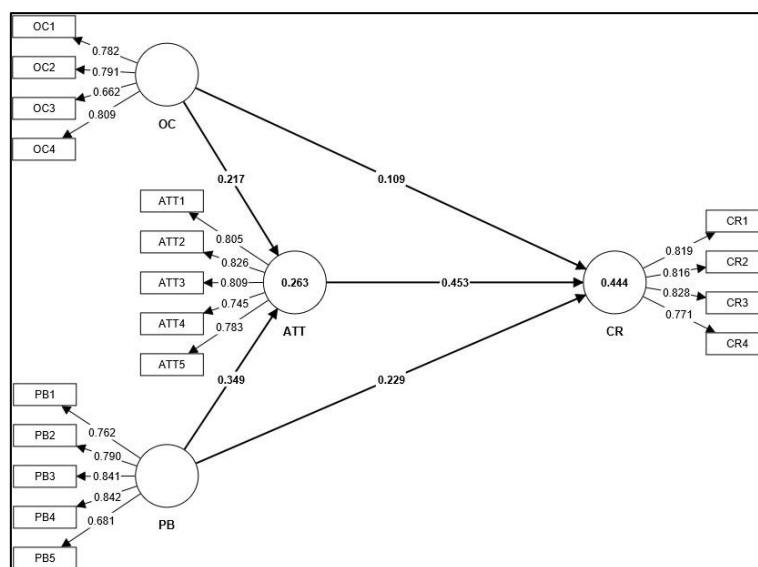


Figure 1: Research Framework

Note: OC=Organizational Culture PB=Perceived Benefits ATT=Attitude CR=Collaborative Research

Methodology

The objective of this study was to assess the academicians' perceptions of the direct and indirect relationships between organizational culture and perceived benefits with collaborative research in open online flexible distance-learning institutions in higher education, with attitude serving as a mediating factor. To achieve this, primary data was sourced through surveys, and credible measurements were selected after an extensive review of previous research. Purposive sampling was used to select the participants for the survey, which was sent via email, due to a lack of a complete list of the population. The analysis included a total of 18 observed variables, such as organizational culture (measured using a 4-item scale as per Van den Berg et al., 2004), and perceived benefits using 5 items (Garg et al., 2021). The mediator in the study, attitude, was measured through 5 items (Chu & Chen, 2016), while collaborative research, the endogenous variable, was measured through 4 items (Al-Rahmi & Othman, 2013). Every construct in the study was assessed using a 5-point Likert scale, where responses ranged from strongly disagreeing to strongly agreeing. Out of 507 surveys distributed, 397 were returned, registering a satisfactory response rate of 78.4% for

the application of structural equation modeling (SEM) in data analysis. A total of 383 of the returned surveys were deemed suitable for the subsequent analysis. Researchers chose Smartpls4 software for data analysis and hypothesis testing, owing to its robustness and ability to handle multivariate data analysis, following the directives proposed by Ringle et al. (2022). This software was instrumental in assessing the proposed hypotheses and executing detailed multivariate data analyses, enabling a comprehensive review of both the measurement and structural models. The respondents' profiles are presented in Table 1.

Table 1
Respondents' Profile

| | | Frequency | Percent |
|-----------------|---------------------|-----------|---------|
| Gender | Male | 227 | 59.3 |
| | Female | 156 | 40.7 |
| | Total | 383 | 100.0 |
| Age | <30 Years Old | 28 | 7.3 |
| | 31-40 Years Old | 87 | 22.7 |
| | 41-50 Years Old | 158 | 41.3 |
| | 51-60 Years Old | 78 | 20.4 |
| | >60 Years Old | 32 | 8.4 |
| Year of service | <5 Years | 21 | 5.5 |
| | 6-10 Years | 52 | 13.6 |
| | 11-15 Years | 117 | 30.5 |
| | 16-20 Years | 111 | 29.0 |
| | 21-25 Years | 48 | 12.5 |
| | 26-30 Years | 16 | 4.2 |
| | >30 Years | 18 | 4.7 |
| Position | Lecturer | 4 | 1.0 |
| | Senior Lecturer | 297 | 77.5 |
| | Associate Professor | 73 | 19.1 |
| | Professor | 9 | 2.3 |
| Recommendation | Yes | 380 | 99.2 |
| | No | 3 | 0.8 |
| | Total | 383 | 100.0 |

Data Analysis

Common Method Bias

Kock (2015) indicated that the recognition of common method bias happens when the Variance Inflation Factor (VIF) surpasses 3.3. This bias emerges when measured variations in responses are ascribed to the measurement tool rather than the authentic tendencies it aims to reveal. A comprehensive collinearity test was undertaken to ascertain the presence of collinearity and common method bias. As evidenced in Table 2, the results from the factor-level evaluation showcased that all VIFs fell below the 3.3 limit. This affirmation suggests that the model did not face any problems related to common method bias.

Table 2

Full Collinearity Test

| | CR | OC | PB | ATT |
|-----|-------|-------|-------|-------|
| CR | | 1.968 | 1.966 | 1.63 |
| OC | 1.717 | | 1.494 | 1.702 |
| PB | 2.250 | 1.960 | | 2.237 |
| ATT | 1.427 | 1.709 | 1.711 | |

Measurement Model

The study employed a measurement evaluation technique propounded by Hair et al. (2017) to conduct assessments on both first-order and second-order measurements. The main purpose was to identify any items with loadings below 0.7. Examination of construct reliability and validity showed that every construct exhibited Average Variance Extracted (AVE) values over 0.5, varying between 0.617 - 0.654 (Table 3), confirming convergent validity (Hair et al., 2017). Furthermore, the composite reliability of all constructs was above 0.7, varying from 0.761 - 0.865, and the values of Cronbach's alpha exceeded 0.7, from 0.758 - 0.853 (Table 3). To verify discriminant validity, cross-loadings were initially examined to make sure every construct was accurately represented and measured by corresponding elements (Table 3). Then, the Heterotrait-Monotrait (HTMT) ratio, endorsed by Henseler, Ringle & Sarstedt (2015) for assessing discriminant validity in Variance-Based Structural Equation Modeling (VB-SEM), was applied. The HTMT ratios for the constructs, along with the original sample, can be found in Table 3. These ratios were all under the 0.85 threshold, and the bias-corrected and accelerated bootstrap confidence intervals remained under 1, adhering to discriminant validity. Given this, we can have strong confidence in the uniqueness of the constructs and their ability to effectively measure various facets of the investigated phenomenon.

Table 3

Construct Reliability and Validity & Hetrotrait-Monotrait Ratio (HTMT)

| Constructs | Items | Loadings | | | | | | |
|------------------------|-------|----------|------|------|------|------|------|------|
| | | | CA | CR | AVE | ATT | CR | OC |
| ATTITUDE | | | 0.85 | 0.85 | 0.63 | | | |
| | ATT1 | 0.805 | 3 | 6 | 0 | | | |
| | ATT2 | 0.826 | | | | | | |
| | ATT3 | 0.809 | | | | | | |
| | ATT4 | 0.745 | | | | | | |
| COLLABORATIVE LEARNING | | | 0.82 | 0.83 | 0.65 | 0.72 | | |
| | CR1 | 0.819 | 4 | 0 | 4 | 3 | | |
| | CR2 | 0.816 | | | | | | |
| | CR3 | 0.828 | | | | | | |
| | CR4 | 0.771 | | | | | | |
| ORGANIZATIONAL CULTURE | | | 0.75 | 0.76 | 0.58 | 0.53 | 0.55 | |
| | OC1 | 0.782 | 8 | 1 | 3 | 4 | 7 | |
| | OC2 | 0.791 | | | | | | |
| | OC3 | 0.662 | | | | | | |
| | OC4 | 0.809 | | | | | | |
| PERCEIVED BENEFITS | | | 0.84 | 0.86 | 0.61 | 0.55 | 0.59 | 0.76 |
| | PB1 | 0.762 | 4 | 5 | 7 | 8 | 6 | 3 |
| | PB2 | 0.790 | | | | | | |
| | PB3 | 0.841 | | | | | | |
| | PB4 | 0.842 | | | | | | |
| | PB5 | 0.681 | | | | | | |

Structural Model

In this research, Hair et al. (2017) methodology was employed to evaluate the structural model, which involved simultaneous analysis of pathway coefficients (β) and determination coefficients (R^2). The Partial Least Squares (PLS) method was utilized with 5000 subsamples to determine the path coefficient significance level. Table 4 provides detailed outcomes of the hypothesis tests, including confidence intervals, path coefficients (beta), relative t-statistics, and p-values. The extensive assessment provides crucial insights into the significance and robustness of the relationships among the variables incorporated into the structural model. *Hypothesis 1* proposes that organizational culture has a direct impact on attitude, which is supported by a path coefficient of 0.217. The T-statistic of 3.731 and P-value of 0.000 further bolsters such influence, indicating a statistically significant effect at a confidence level of 95% or higher. This, hypothesis 1 is supported. In *Hypothesis 2*, the direct relationship between organizational culture and collaborative research is suggested but not supported statistically. The path coefficient of 0.109, a T-statistic of 1.871, and a P-value greater than 0.05 confirm that the level of OC insignificantly impacts CR. Therefore, hypothesis 2 is not supported. *Hypothesis 3* endorses that attitude has a mediating effect on the relationship between organizational culture and collaborative research. The statistical evidence of a path coefficient of 0.098, T-statistic of 3.291, and P-value less than 0.05 substantiates this indirect relationship. Hence, hypothesis 3 is supported. *Hypothesis 4* asserts that attitude has a mediating effect on the relationship between perceived benefits and

collaborative research, demonstrated by the high path coefficient of 0.349, T-statistic of 5.983, and P-value of 0.000, thereby establishing a robust positive relationship. Therefore, hypothesis 4 is supported. *Hypothesis 5* also concludes that perceived benefits directly influence collaborative research, with a path coefficient of 0.229, a T-statistic of 4.428, and a P-value of 0.000, again reflecting a considerable effect. Thus, hypothesis 5 is supported. *Hypothesis 6* reveals that attitude profoundly and directly influences collaborative research, given the path coefficient of 0.453, T-statistic of 8.866, and P-value of 0.000, inferring a strong direct relationship between these two variables. Therefore, hypothesis 6 is supported. *Hypothesis 7* confirms that attitude mediates the relationship between perceived benefits and collaborative research. The values of the path coefficient of 0.158 with a T-statistic of 4.939 and a P-value of 0.000. Hence, hypothesis 7 is supported.

The research's conducted analysis provided solid proof, supporting most hypotheses and confirming established links among analyzed variables. We evaluated the inherent Value Inflation Factor (VIF) values to ensure the structural model's reliability, all of which were below the accepted 5 thresholds, with the highest recorded value being 1.788 (referenced in Table 4). This low collinearity level enables the interpretation of the model's magnitudes and coefficients. An endogenous construct revealed a significant amount of explained variance, with an R² value of 0.444 (shown in Figure 1). The model explained roughly 26.3% of the variability in the framework, related to the mediator, supported by an R² value of 0.236. The capability of the model to make accurate projections and generate helpful management advice was tested with a predictive analysis out of sample, using the PLSpredict technique. This was done by the procedure set forth by Shmueli et al. (2016, 2019). The findings in Table 5 suggest that PLS-SEM predictions had values greater than zero and surpassed standard naive mean forecasts based on Q2 predictions. The PLS-SEM predictions also yielded Root Mean Square Error (RMSE) values that were lower than those acquired from the Linear Model (LM) prediction in 7 out of 9 cases, as seen in Table 5, thereby underlining the forecasting ability of the suggested model. These results point to the structural model's efficiency in delivering accurate forecasts and offering insightful recommendations for management. The addition of the Cross-Validated Predictive Ability Test (CVPAT) by Hair et al. (2022) and its employment together with PLSpredicts for evaluation by Liengard et al. (2021) contributes to continuous PLS-SEM model prediction evaluation. The CVPAT applies out-of-sample forecasting to compare mean loss values to two standards: indicator averages (IA) and the linear model (LM). Lower PLS-SEM loss values suggest improved predictive capacity. Based on Table 6, PLS-SEM is superior, as evidenced by lesser average loss values, indicating a strong predictive performance. The Importance Performance Map Analysis (IPMA) method, introduced by Ringle and Sarstedt (2016) and further elaborated on by Hair et al. (2018), was employed to assess the relevance and efficiency of latent variables in understanding acceptance. As shown in Table 7, attitude has the most significant impact (0.453) on all-inclusive collaborative research, followed closely by perceived gains (0.387) and then organizational culture (0.207). The data illustrates the comparative significance of each latent variable in the collaborative research scene. Regarding performance, organizational culture topped the table with a score of 66.786 out of 100, implying a strong performance, whereas attitude scored the lowest (60.850), reflecting a somewhat lower achievement. Despite being a crucial variable in collaborative research, attitude illustrated the poorest performance. Based on this data, it's advisable that online open flexible higher education institutions focus on improving the academicians' attitude, as improvement in this area can subsequently

enhance overall collaborative research within online open flexible higher education institutions.

Table 4

Hypotheses Testing Results, f^2 & VIF

| Hypotheses | Path | T statistics | P values | f^2 | VIF | 2.50% | 97.50% | Decision |
|---------------------|-------|--------------|----------|-------|-------|--------|--------|----------------------|
| H1: OC -> ATT | 0.217 | 3.731 | 0.000 | 0.039 | 1.623 | 0.099 | 0.327 | <i>Supported</i> |
| H2: OC -> CR | 0.109 | 1.871 | 0.061 | 0.013 | 1.687 | -0.003 | 0.226 | <i>Not Supported</i> |
| H3: OC -> ATT -> CR | 0.098 | 3.291 | 0.001 | | | 0.043 | 0.161 | <i>Supported</i> |
| H4: PB -> ATT | 0.349 | 5.983 | 0.000 | 0.102 | 1.623 | 0.227 | 0.454 | <i>Supported</i> |
| H5: PB -> CR | 0.229 | 4.428 | 0.000 | 0.053 | 1.788 | 0.127 | 0.329 | <i>Supported</i> |
| H6: ATT -> CR | 0.453 | 8.866 | 0.000 | 0.272 | 1.357 | 0.351 | 0.549 | <i>Supported</i> |
| H7: PB -> ATT -> CR | 0.158 | 4.939 | 0.000 | | | 0.100 | 0.225 | <i>Supported</i> |

Table 5

PLSpredict

| | Q ² predict | PLS-RMSE | LM-RMSE | PLS-LM |
|------|------------------------|----------|---------|--------|
| ATT1 | 0.197 | 0.627 | 0.628 | -0.001 |
| ATT2 | 0.170 | 0.629 | 0.636 | -0.007 |
| ATT3 | 0.132 | 0.678 | 0.682 | -0.004 |
| ATT4 | 0.127 | 0.689 | 0.699 | -0.010 |
| ATT5 | 0.156 | 0.629 | 0.633 | -0.004 |
| CR1 | 0.260 | 0.652 | 0.651 | 0.001 |
| CR2 | 0.189 | 0.636 | 0.642 | -0.006 |
| CR3 | 0.189 | 0.700 | 0.702 | -0.002 |
| CR4 | 0.078 | 0.758 | 0.757 | 0.001 |

Table 6

Cross Validated Predictive Ability (CVPAT)

| | Average loss difference | t-value | p-value |
|---------|-------------------------|---------|---------|
| ATT | -0.078 | 4.426 | 0.000 |
| CR | -0.102 | 5.014 | 0.000 |
| Overall | -0.089 | 5.571 | 0.000 |

Table 7

Importance-Performance Matrix Analysis

| | Total Effect | PerfOrnance |
|-----|--------------|-------------|
| ATT | 0.453 | 60.850 |
| OC | 0.207 | 66.786 |
| PB | 0.387 | 66.591 |

Discussion

In the realm of open online flexible distance learning higher education institutions, it is evident that both organizational culture and perceived benefits significantly influence collaborative research, albeit with attitude serving as a crucial mediating factor. The findings that Hypotheses 1 and 3-7 have been supported affirm the influence these elements have. Firstly, an effective strategy echoes the premise of Hypothesis 1 — organizations should foster

a culture that positively impacts the attitude toward collaborative research. By cultivating an environment that encourages open-mindedness, cross-discipline communication, and shared objectives, attitudes toward collaboration can improve. However, the findings under Hypothesis 2 highlight the need for caution while assuming a direct link between organizational culture and collaborative research. The insignificant relationship implies that the focus should be on other strategies than solely relying on cultural aspects. The essential role of attitudes is further verified by Hypothesis 3, which implies that promoting a mindset favoring teamwork, appreciation for diverse perspectives, and a willingness to share knowledge can facilitate collaborative outcomes. Perceived benefits play a pivotal role in influencing collaborative research, as suggested by Hypotheses 4 and 5. Institutions can emphasize the potential rewards of shared research, such as expanded intellectual capacity, increased innovation, and greater funding opportunities. Moreover, the importance of attitude, as underlined in Hypothesis 6, indicates the necessity of nurturing enthusiasm, dedication, and a collaborative spirit among researchers. Thus, it's essential to create a supportive environment where researchers feel acknowledged for their contributions, heightening their proclivity for collaboration. Lastly, the outcomes of Hypothesis 7 underscore the crucial mediating role of attitudes in connecting perceived benefits to collaborative research. Optimism toward collaborative benefits can only lead to productive research if moderated by a positive attitude, reinforcing the intertwined relationship between these elements in shaping successful collaborative research outcomes.

Theoretical Implications

This research demonstrates how organizational culture and perceived benefits may be directly or indirectly related to collaborative research, with attitude serving as a crucial mediator. At a theoretical level, it underpins the idea that organizational culture affects not just day-to-day operations but also broader collaborative research efforts. It highlights the importance of fostering a strong, positive culture that supports cooperation, which could, in turn, boost research initiatives. The research also reinforces the theory that organizations' perceived benefits influence their willingness to engage in collaborative research. The findings imply that the more benefits an organization foresees in such partnerships, the more likely it is to foster a climate conducive to the same. The research further introduces a novel theoretical argument suggesting that attitude plays a central role as a mediator in these relationships. This supports the broader organizational behavior theory that attitudes have significant impacts on behaviors and outcomes, a viewpoint that can be extended to the realm of collaborative research. In general, this research expands our theoretical understanding of how internal factors within an organization can shape its external relationships and collaborative activities, providing a platform for future explorations in the field.

Contextual Implications

This research explores the complex dynamics between organizational culture, perceived benefits, and collaborative research, with an emphasis on the mediating role of attitude. Organizational culture can both directly and indirectly influence the perceived benefits of collaborative research. A positive and supportive culture may directly foster a perception of greater benefits, while a culture that discourages collaboration may negatively impact this perception. However, there's also an indirect path of influence, regulated by the attitudes of employees. When individuals have a favorable attitude towards collaboration, they are likely to perceive more benefits, regardless of the prevailing organizational culture. This underlines

the importance of attitudes as a mediator. Moreover, the research might hypothesize that two organizations with similar cultures can still experience different outcomes in terms of perceived benefits from collaborative research if the attitudes of their personnel differ significantly. It may also shed light on how changes in organizational culture can transform attitudes and perceptions of collaboration benefits. Therefore, these associations are crucial in organizational strategy and policy-making, as enhancing a culture that encourages collaboration, matched with positive attitudes, can lead to a more productive, innovative, and successful research environment. Overall, the research title signifies a comprehensive study of interdependent variables holistically rather than in isolation, providing an in-depth understanding of organizational mechanisms.

Practical Implications

This research reveals that organizational culture and perceived benefits both directly and indirectly related to collaborative research, with attitudes serving as a key mediatory influence. From a practical perspective, this implies that fostering a positive organizational culture could significantly enhance the effectiveness of collaborative research efforts. Organizations should consider strengthening a positive and inclusive culture to promote a conducive working environment and increase employee satisfaction, which directly impacts collaborative research prospects. This may include activities that encourage teamwork, openness to diverse perspectives, and constructive criticism. Such a culture can further motivate employees leading to increased engagement in research collaborations. Additionally, informing employees about the potential benefits of collaborative research could influence their attitudes toward these initiatives. If the perceived benefits are significant, employees are likely to have a more positive attitude, thereby increasing their involvement and the overall potential for the success of collaborative research. Benefits to employees could include opportunities for learning and professional growth, potential for innovation, or improvement of problem-solving skills.

Limitation of the Study

This study may be limited by the subjective measure of perceived benefits and attitudes, which can vary greatly among individuals and may not accurately reflect actual benefits or attitudes. It also assumes a direct and indirect relationship between organizational culture and collaborative research, which may not hold in all cases. The cultural specificity of the organizations involved may not universally apply to all types of organizations. Furthermore, this study only examines the role of attitude as a mediator, ignoring the potential mediating effects of other factors such as organizational structure or leadership. Lastly, causality can't be established based on the study design.

Suggestions for Future Study

Future research could extend this study by exploring the role of other potential mediating variables, such as leadership style or communication patterns, in the relationship between organizational culture and the perceived benefits of collaborative research. Additionally, longitudinal or experimental designs could shed more light on causality. It would also be beneficial to investigate the effects of different types of organizational culture or how similar relationships function in diverse sectors or geographical locations. Lastly, a comparative study on how different attitudes mediate this relationship in high-performing versus low-performing organizations could provide practical insights.

Conclusion

This study has profoundly illuminated the intricate nexus existing between organizational culture and the perceived benefits of collaborative research, with attitude serving a pivotal role as the mediator. It is evident that a nurturing and open organizational culture not only encourages but also enhances collaborative research. More imperative is our finding on the cascading effect whereby a positive attitude mediates this relationship, thus creating a more productive research experience yielding substantial benefits. It is recommended that organizations keen to harness the immense gains of collaborative research should ensure to cultivate not only a positive culture but also a favorable attitude within their systems. This will lay a robust foundation for successful collaborations and consequently, higher research benefits. Therefore, it is clear that attitude is integral to tying organizational culture and the perceived benefits of collaborative research.

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