

FACULTY WORK ENGAGEMENT IN THE DIGITAL TRANSFORMATION ERA: THE ROLES OF ORGANIZATIONAL CULTURE AND JOB SATISFACTION IN ACADEMIC HUMAN CAPITAL DEVELOPMENT

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ABSTRACT

Digital transformation has intensified the demands placed on university faculty in teaching, research, and professional development. In this context, academic human capital development (AHCD) is a strategic concern. This study examines the effects of organizational culture and job satisfaction on faculty work engagement and tests its mediating role in AHCD. Using PLS-SEM, the study finds that organizational culture and job satisfaction positively influence work engagement, which fully mediates their impact on AHCD. The findings highlight faculty engagement as the central motivational pathway for human capital growth in the digital era. In this study, digital transformation is treated as an active catalyst that imposes new technological demands, requiring institutional resources to be converted into human capital specifically through the mechanism of engagement.

Keywords: Digital transformation, organizational culture, job satisfaction, faculty work engagement, academic human capital development, higher education.

1. INTRODUCTION

Digital transformation has become a defining feature of contemporary higher education. Universities are no longer expected only to deliver teaching and research through conventional formats; they are increasingly required to integrate digital technologies into pedagogy, knowledge production, administration, and collaboration. In this context, digital transformation is not merely a technological shift but an organizational and human one, requiring substantial changes in institutional processes, professional roles, and capability development [1], [2]. For academic staff, this transformation has intensified expectations regarding digital pedagogy, research productivity, interdisciplinary collaboration, and continuous professional learning. As a result, the development of academic human capital has become a strategic priority for universities seeking to remain resilient, innovative, and competitive in a rapidly changing environment. In this study, digital transformation is treated as an active catalyst that imposes new technological demands, requiring institutional resources to be converted into human capital specifically through the mechanism of engagement.

Recent studies suggest that successful digital transformation in higher education depends not only on technological infrastructure but also on the capacity of institutions to mobilize their human resources effectively. Research on educational technology and higher education has shown that digital change reshapes teaching practices, academic engagement, and institutional expectations, making faculty adaptability and professional growth increasingly

important [3], [4]. At the same time, universities face growing pressure to cultivate academic staff who are not only technically capable but also motivated, committed, and willing to invest effort in learning and innovation. In this sense, academic human capital development may be understood as the enhancement of faculty members' knowledge, skills, research capacity, teaching competence, and ability to adapt to new academic and technological demands. Such development is particularly critical in the digital transformation era, when the value of universities increasingly depends on the quality and renewal of their intellectual and academic workforce.

Within this context, faculty work engagement has emerged as an important concept for understanding how universities can sustain academic performance and long-term capability development. Work engagement is commonly defined as a positive, fulfilling, work-related state of mind characterized by vigor, dedication, and absorption [5]. Prior research has consistently linked work engagement to desirable outcomes such as higher performance, stronger commitment, and proactive behavior [6], [7]. In higher education settings, engaged faculty members are more likely to invest energy in teaching, research, curriculum innovation, student support, and professional development. This suggests that faculty work engagement may function not only as a desirable psychological state but also as a mechanism through which universities strengthen their academic human capital.

However, work engagement does not emerge in isolation. The Job Demands–Resources (JD-R) perspective suggests that work engagement is shaped by organizational resources and positive work experiences that help employees deal with challenges and remain motivated [8]. In universities, two factors appear particularly important in this regard: organizational culture and job satisfaction. Organizational culture reflects the shared values, norms, and practices that shape how academic work is supported, recognized, and coordinated. A culture that encourages collaboration, trust, innovation, and learning may provide faculty members with the psychological and social resources needed to remain engaged in their roles [9], [10]. Likewise, job satisfaction reflects faculty members' positive evaluation of their work and work environment. When academics perceive their jobs as meaningful, supportive, and rewarding, they are more likely to invest themselves cognitively and emotionally in their professional responsibilities [11], [12].

Although prior studies have examined work engagement, organizational culture, and job satisfaction in different sectors, several gaps remain. First, much of the engagement literature has focused on business, healthcare, or general employee samples, while evidence from higher education remains comparatively fragmented. Second, existing studies often examine organizational culture, job satisfaction, or work engagement separately, rather than integrating them into a coherent explanatory mechanism. Third, while digital transformation has generated extensive discussion about educational innovation and digital competence, fewer studies have examined how organizational and attitudinal factors contribute to the development of academic human capital through the mediating role of faculty work engagement. This gap is important because universities cannot rely on technological adoption alone; they must also understand the organizational and psychological conditions that enable faculty members to grow and contribute effectively in digitally transforming environments.

Against this background, the present study proposes that organizational culture and job satisfaction are two critical antecedents of faculty work engagement, which in turn promotes academic human capital development. This logic is aligned with the proposed research model, in which organizational culture and job satisfaction influence faculty work engagement, and faculty work engagement subsequently enhances academic human capital development in the digital transformation era. By focusing on engagement as a mediating mechanism, this study moves beyond simple direct-effect explanations and offers a more process-oriented understanding of how universities can strengthen their academic workforce.

This study makes several contributions. Theoretically, it extends the work engagement literature by positioning faculty work engagement as a central mechanism linking organizational conditions to academic human capital development. Contextually, it contributes to higher education research by examining these relationships in the digital transformation era, where the demands placed on academics are changing rapidly. Practically, it offers implications for university leaders by suggesting that investments in supportive organizational culture and faculty job satisfaction may play a crucial role in building a more capable, adaptive, and engaged academic workforce. Therefore, this study aims to examine the effects of organizational culture and job satisfaction on faculty work engagement and to investigate the mediating role of faculty work engagement in promoting academic human capital development.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

The digital transformation era has fundamentally reshaped the mission and daily practices of higher education institutions. Universities are increasingly expected to integrate digital technologies into teaching, research, administration, and academic collaboration, thereby changing the competencies required of academic staff [1], [2]. In such an environment, academic human capital development has become a strategic concern, as universities depend on faculty members' ability to update knowledge, adopt new pedagogical approaches, strengthen research capability, and adapt to evolving technological demands. Academic human capital development in this study refers to the enhancement of faculty members' academic knowledge, professional skills, digital adaptability, and capacity to generate educational and scholarly value.

To explain how this development occurs, this study draws primarily on the Job Demands–Resources (JD-R) theory. According to JD-R theory, organizational resources play a central role in fostering work engagement, which in turn contributes to positive individual and organizational outcomes [8]. Work engagement is generally understood as a positive and fulfilling work-related state characterized by vigor, dedication, and absorption [5]. In university settings, engaged faculty members are more likely to invest effort in teaching innovation, research productivity, student support, and continuous learning. Recent reviews also confirm that work engagement is associated with improved performance, proactive behavior, and stronger work-related outcomes across sectors [6], [7]. Therefore, faculty work engagement is a plausible mechanism through which organizational conditions may translate into academic human capital development.

Among the organizational conditions relevant to universities, organizational culture is particularly important. Organizational culture reflects shared values, norms, and expectations that shape how work is coordinated, supported, and rewarded. In higher education, a culture that promotes collaboration, trust, innovation, and learning can create a supportive environment in which faculty members feel psychologically safe and professionally valued. Recent scholarship has emphasized that organizational culture remains a critical driver of organizational effectiveness because it influences employees' motivation, commitment, and behavioral responses to change [9], [10]. In the context of digital transformation, this role becomes even more salient, as faculty members must often experiment with new technologies, redesign learning activities, and engage in continuous upskilling. A positive organizational culture can thus be seen as a valuable job resource that energizes and sustains faculty members' engagement with their work. Based on this reasoning, the following hypothesis is proposed:

H1: Organizational culture positively influences faculty work engagement.

Job satisfaction is another important antecedent of faculty work engagement. Although job satisfaction and work engagement are conceptually distinct, they are closely related. Job

satisfaction refers to a positive evaluation of one's job and work environment, whereas work engagement refers to an active, energetic, and affective investment in work roles. Recent educational research has shown that supportive working conditions, recognition, autonomy, and professional fulfillment significantly affect teachers' and academics' job satisfaction [12], [11]. When faculty members are satisfied with their jobs, they are more likely to perceive their work as meaningful and worthwhile, thereby increasing their willingness to devote effort and enthusiasm to academic responsibilities. Under the JD-R perspective, such positive work evaluations strengthen motivational processes and contribute to higher engagement. Therefore, job satisfaction is expected to enhance faculty work engagement in higher education institutions facing digital and organizational changes.

H2: Job satisfaction positively influences faculty work engagement.

Faculty work engagement is expected to play a direct role in academic human capital development. In the digital transformation era, academic human capital is no longer limited to disciplinary expertise; it also includes the ability to learn continuously, adapt to digital environments, innovate in teaching, and contribute to research and knowledge exchange. Engaged faculty members tend to demonstrate greater persistence, enthusiasm, and cognitive investment in their professional roles, which supports both short-term effectiveness and long-term capability development. Empirical research has consistently linked work engagement with learning, adaptability, performance improvement, and proactive work behavior [6], [7]. In universities, these qualities are essential for developing stronger academic competencies and sustaining the renewal of the academic workforce. Thus, work engagement can be expected to enhance academic human capital development.

H3: Faculty work engagement positively influences academic human capital development.

Beyond these direct effects, faculty work engagement is also expected to mediate the relationships between organizational culture, job satisfaction, and academic human capital development. Organizational culture and job satisfaction may create favorable conditions for academic growth, but such effects are unlikely to occur automatically. Rather, they are more likely to influence development through the degree to which faculty members feel energized, dedicated, and immersed in their work. In other words, a supportive culture and positive job experience become strategically valuable when they stimulate sustained engagement, which then drives learning, adaptation, and professional capability building. This mediation logic is consistent with JD-R theory, which highlights engagement as the motivational mechanism linking job resources to desirable outcomes [8]. Accordingly, the following hypotheses are proposed:

H4: Faculty work engagement mediates the relationship between organizational culture and academic human capital development.

Organizational culture is unlikely to enhance academic human capital development automatically or uniformly. Rather, its developmental value is more likely to be realized when it fosters a motivational state in which faculty members feel energized, dedicated, and cognitively immersed in their academic roles. From the perspective of Job Demands–Resources theory, a supportive organizational culture functions as a job resource that strengthens faculty work engagement [8]. In higher education, cultures characterized by collaboration, trust, innovation, and learning create supportive conditions that help faculty sustain engagement in demanding academic environments [9], [10]. In turn, engaged faculty members are more willing to invest in teaching improvement, research capability, digital adaptation, and continuous professional learning, all of which contribute to academic human capital development [6], [7], [5]. Therefore, faculty work engagement is expected to mediate the relationship between organizational culture and academic human capital development.

H5: Faculty work engagement mediates the relationship between job satisfaction and academic human capital development.

Job satisfaction may also influence academic human capital development indirectly through faculty work engagement. Although satisfied faculty members tend to evaluate their work positively, such positive evaluation does not necessarily produce developmental outcomes unless it translates into active psychological investment in work roles. Faculty members who are satisfied with their jobs are more likely to experience higher levels of energy, dedication, and absorption, which are core dimensions of work engagement [8], [5]. Prior research has shown that supportive working conditions, recognition, autonomy, and professional fulfillment are closely associated with stronger job satisfaction among teachers and academics [12], [11]. Once translated into engagement, these positive work evaluations are more likely to promote teaching innovation, research development, academic collaboration, and continuous capability enhancement, thereby strengthening academic human capital development [6], [7]. Therefore, faculty work engagement is expected to mediate the relationship between job satisfaction and academic human capital development.

Overall, this study proposes an integrated model in which organizational culture and job satisfaction serve as key antecedents of faculty work engagement, while faculty work engagement functions as the central mechanism promoting academic human capital development in the digital transformation era.

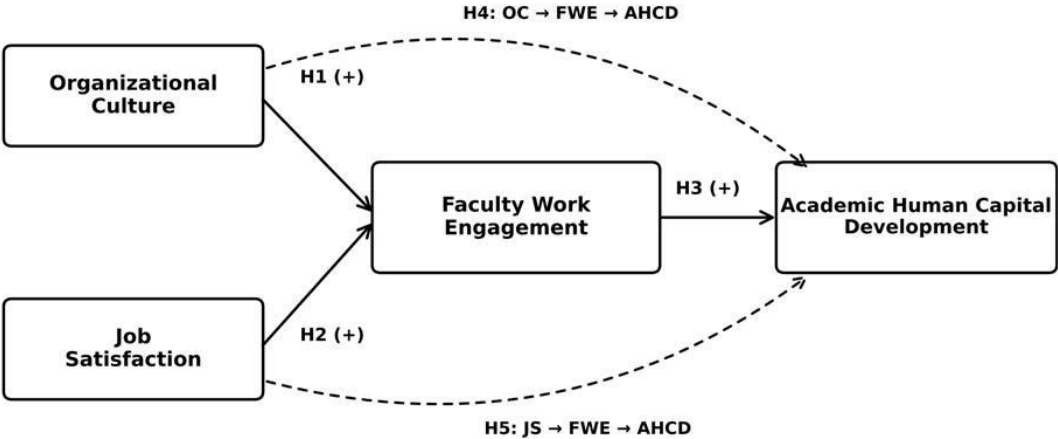


Figure 1. Proposed Research Model (Source: Authors' own construction based on JD-R Theory and prior literature)

3. METHODOLOGY

This study employed a quantitative research design to examine the relationships among organizational culture, job satisfaction, faculty work engagement, and academic human capital development in the digital transformation era. As proposed in the research model, organizational culture and job satisfaction were treated as antecedent variables, faculty work engagement as the mediating variable, and academic human capital development as the outcome variable. A survey-based approach was considered appropriate because the study aims to test theoretically specified relationships among latent constructs and to assess both direct and indirect effects in an integrated model. In line with current methodological recommendations, a cross-sectional design was adopted to collect standardized responses from faculty members working in higher education institutions [13], [14].

The empirical dataset used in this study comprised 209 valid faculty responses collected in Ho Chi Minh City, Vietnam, during 2025. The respondents were drawn from both public

and private universities. A convenience sampling strategy was employed, and the questionnaire was distributed through convenience-based circulation via accessible institutional contacts and faculty networks. Faculty members were selected as the unit of analysis because they directly experience the organizational, psychological, and professional conditions associated with digital transformation in higher education. The available SmartPLS export documents indicate the use of mean replacement for missing values, the path-weighting scheme for PLS estimation, and 1,000 bootstrap resamples under two-tailed significance testing at the 0.05 level.

The questionnaire was anchored in established measures. Organizational culture was represented by indicators adapted from the Denison tradition, focusing on shared values, coordination, support, and a learning-oriented climate [15]. Job satisfaction drew on the Job Descriptive Index framework [16]. Faculty work engagement was initially grounded in the Utrecht Work Engagement Scale tradition [17], [5], while academic human capital development was adapted to the higher education context from the human capital and intellectual capital literature [18], [19]. The final analysis-ready reflective model retained four organizational culture indicators, four job satisfaction indicators, three faculty work engagement indicators, and three academic human capital development indicators, all measured on seven-point Likert-type scales.

To ensure content validity and contextual relevance, the instrument was reviewed by experts in higher education, management, and research methodology. In this study, Academic Human Capital Development is treated as an individual-level developmental construct rather than an organization-level stock variable; accordingly, the retained indicators capture capability enhancement in teaching, research, and academic development within digitally transforming universities.

This study analyzed the model using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS. PLS-SEM is appropriate because the model is prediction-oriented, includes multiple reflective constructs, and focuses on a mediation mechanism linking organizational conditions to academic human capital development [13], [14]. Measurement quality was evaluated using retained outer loadings together with composite reliability (CR), average variance extracted (AVE), the Fornell–Larcker criterion, and heterotrait-monotrait ratios (HTMT). Structural results were evaluated using bootstrapped path coefficients, standard errors, t-values, p-values, and percentile confidence intervals. In addition, explanatory power (R^2), effect size (f^2), predictive relevance (Q^2), and residual fit (RMR/SRMR) were derived from the empirical dataset to provide a fuller assessment of structural model quality.

Because all variables were collected through self-reported survey responses, several procedural remedies were used to reduce the risk of common method bias. Respondents were informed that participation was voluntary, responses would remain anonymous, and there were no right or wrong answers, thereby reducing evaluation apprehension and social desirability bias. Item wording was kept concise and neutral, and the order of questions was arranged to reduce response patterning. To complement these ex ante remedies, a post-hoc full-collinearity assessment was conducted at the construct level; the resulting variance inflation factors are reported in Section 4 and remain below the commonly cited threshold of 3.3, suggesting that common method bias is unlikely to pose a serious threat to the findings.

Ethical considerations were also taken into account throughout the study. Respondents were informed about the purpose of the research, the voluntary nature of participation, and the confidentiality of their responses. No personally identifying information was disclosed, and the data were used solely for academic research purposes. These procedures were intended to ensure compliance with accepted ethical standards in social science research.

Overall, the methodology is appropriate for examining how organizational culture and job satisfaction shape academic human capital development through faculty work engagement in the digital transformation era.

4. RESULTS AND DISCUSSION

4.1. Data and Estimation Summary

The SmartPLS export indicates that the final analysis was based on 209 valid faculty cases from public and private universities in Ho Chi Minh City, Vietnam, collected during 2025. Because the available file is an analysis-ready PLS export rather than a full demographic register, the empirical section emphasizes the estimation settings and the measurement-structural evidence directly documented in the workbook, while also incorporating additional construct-level diagnostics derived from the retained empirical indicators. Table 1 summarizes the key dataset, sampling, and estimation characteristics used in the study.

Table 1. Dataset and Estimation Summary

Dimension	Specification	Value	Note
Valid cases	Faculty responses retained for analysis	209	Analysis-ready SmartPLS dataset
Bootstrap specification	Resamples	1,000	Two-tailed bootstrap inference
Estimation approach	PLS-SEM	Path weighting scheme	Reflective measurement model
Missing-data handling	Algorithm setting	Mean replacement	As documented in the SmartPLS export
Response format	Scale anchors	7-point Likert	1 = strongly disagree; 7 = strongly agree
Measurement structure	Retained indicators	14	OC = 4; JS = 4; FWE = 3; AHCD = 3
Study setting	Location and institution type	Ho Chi Minh City, Vietnam	Public and private universities
Data collection	Period and sampling	2025; convenience sampling	Convenience-based questionnaire distribution

The model was estimated using a reflective specification with the path-weighting scheme and 1,000 bootstrap resamples. This setup is appropriate for evaluating both direct effects and mediation effects in the proposed PLS-SEM model.

4.2. Measurement Quality of the Retained Indicators

Measurement quality was first assessed using the retained standardized loadings from the SmartPLS export. All retained indicators loaded strongly on their intended constructs, with loadings ranging from 0.836 to 0.923 and bootstrap t-values ranging from 29.004 to 69.104. At the construct level, composite reliability ranged from 0.922 to 0.934 and AVE from 0.755 to 0.819, supporting internal consistency and convergent validity. Cronbach's alpha values computed from the retained indicators ranged from 0.873 to 0.905, reinforcing the reliability of the shortened reflective blocks. On the original seven-point response format, construct

means ranged from 5.448 to 5.821, indicating generally favorable faculty perceptions across the focal constructs. Discriminant validity was also supported: the square roots of AVE ranged from 0.869 to 0.905 and exceeded the interconstruct correlations, while HTMT ratios ranged from 0.603 to 0.819, remaining below the conservative threshold of 0.90 [20].

Table 2. Construct-Level Measurement Quality Summary

Construct	Retained Indicators	Loading Range	Composite Reliability	AVE
Organizational Culture (OC)	4	0.852–0.901	0.934	0.779
Job Satisfaction (JS)	4	0.836–0.893	0.925	0.755
Faculty Work Engagement (FWE)	3	0.884–0.923	0.931	0.819
Academic Human Capital Development (AHCD)	3	0.881–0.915	0.922	0.797

The construct-level results in Table 2 indicate that all four latent variables achieved satisfactory internal consistency and convergent validity. Specifically, composite reliability values exceeded the recommended threshold of 0.70, and all AVE values were above 0.50, supporting the adequacy of the retained measurement structure. Having established construct-level measurement quality, the analysis next examines the performance of the retained indicators individually. Table 3 therefore reports the standardized loadings and bootstrap significance levels for each retained item.

Table 3. Retained Indicator Loadings and Bootstrap Significance

Construct	Indicator	Loading	t-value	p-value
OC	OC1	0.888	40.131	<0.001
OC	OC2	0.901	51.758	<0.001
OC	OC3	0.888	49.166	<0.001
OC	OC4	0.852	29.642	<0.001
JS	JS1	0.836	29.004	<0.001
JS	JS2	0.887	42.154	<0.001
JS	JS3	0.893	59.259	<0.001
JS	JS4	0.860	37.769	<0.001
FWE	FE1	0.908	55.660	<0.001
FWE	FE2	0.884	48.458	<0.001
FWE	FE3	0.923	69.104	<0.001
AHCD	AH1	0.881	39.307	<0.001
AHCD	AH2	0.882	38.622	<0.001
AHCD	AH3	0.915	68.296	<0.001

Taken together, these results indicate that the retained reflective indicators exhibit strong psychometric performance. The evidence is particularly strong for the engagement and academic human capital development constructs, whose retained indicators all exceed 0.88 in loading magnitude. Additional descriptive and discriminant-validity diagnostics derived from the workbook are presented in Tables 3A–3C.

Additional structural diagnostics reinforced the adequacy of the model. The antecedent constructs explained 50.2% of the variance in Faculty Work Engagement ($R^2 = 0.502$), while Faculty Work Engagement explained 42.8% of the variance in Academic Human Capital Development ($R^2 = 0.428$). Effect-size estimates indicated a small-to-moderate contribution of Organizational Culture to Faculty Work Engagement ($f^2 = 0.105$), a moderate contribution of Job Satisfaction to Faculty Work Engagement ($f^2 = 0.287$), and a large contribution of Faculty Work Engagement to Academic Human Capital Development ($f^2 = 0.748$). Cross-validated predictive relevance coefficients were positive for both endogenous constructs ($Q^2 = 0.482$ for Faculty Work Engagement; $Q^2 = 0.415$ for Academic Human Capital Development), indicating meaningful predictive relevance. Residual fit was also acceptable (RMR = 0.074; SRMR = 0.076).

To assess common method bias statistically, a post-hoc full-collinearity test was performed at the construct level. The resulting VIF values were 2.573 for Organizational Culture, 2.134 for Job Satisfaction, 2.348 for Faculty Work Engagement, and 2.532 for Academic Human Capital Development. As all values remained below the 3.3 threshold, common method bias is unlikely to threaten the substantive interpretation of the results.

To make the empirical reporting more transparent, construct-level descriptive statistics, Fornell–Larcker values, and HTMT ratios were derived directly from the retained indicators in the Excel workbook and are reported below.

Table 3A. Construct Descriptive Statistics and Internal Consistency

Construct	Mean	SD	Cronbach's Alpha	Composite Reliability	AVE
Organizational Culture	5.821	0.878	0.905	0.934	0.779
Job Satisfaction	5.513	0.884	0.891	0.925	0.755
Faculty Work Engagement	5.448	0.939	0.889	0.931	0.819
Academic Human Capital Development	5.799	0.870	0.873	0.922	0.797

Table 3B. Fornell–Larcker Criterion

Construct	OC	JS	FWE	AHCD
OC	0.883	0.628	0.600	0.728
JS	0.628	0.869	0.671	0.531
FWE	0.600	0.671	0.905	0.654
AHCD	0.728	0.531	0.654	0.893

Diagonal elements represent the square roots of AVE. In each case, the diagonal value exceeds the corresponding interconstruct correlations, supporting discriminant validity.

Table 3C. HTMT Ratios

Construct	OC	JS	FWE	AHCD
OC	—	0.700	0.670	0.819
JS	0.700	—	0.752	0.603
FWE	0.670	0.752	—	0.743
AHCD	0.819	0.603	0.743	—

All HTMT values remain below 0.90, with the largest ratio observed between Organizational Culture and Academic Human Capital Development (HTMT = 0.819). This pattern provides additional evidence that the focal constructs are empirically distinct.

Regarding the mediation mechanism, the study further evaluated the direct impacts of organizational culture and job satisfaction on academic human capital development. The structural model analysis reveals that while the total effects are significant, the direct relationships become statistically non-significant once the mediator (faculty work engagement) is introduced. This confirms a full mediation effect, indicating that favorable organizational environments and individual satisfaction exclusively drive human capital development through the psychological state of being engaged in work.

4.3. Direct Effects and Hypothesis Testing

The bootstrapped structural model results provide support for all three direct-effect hypotheses. Table 4 reports the standardized path coefficients together with standard errors, t-values, p-values, and percentile 95% confidence intervals.

Table 4. Direct Path Coefficients and Hypothesis Testing Results

Hypothesis	Path	β	Std. Error	t-value	p-value	95% CI Lower	95% CI Upper
H1	OC $\rightarrow$ FWE	0.299	0.080	3.728	<0.001	0.143	0.459
H2	JS $\rightarrow$ FWE	0.482	0.087	5.516	<0.001	0.295	0.644
H3	FWE $\rightarrow$ AHCD	0.659	0.045	14.799	<0.001	0.570	0.740

Organizational culture had a positive and statistically significant effect on faculty work engagement ($\beta = 0.299$, $p < 0.001$), supporting H1. Job satisfaction also had a positive and statistically significant effect on faculty work engagement ($\beta = 0.482$, $p < 0.001$), supporting H2. Importantly, job satisfaction was the stronger antecedent of engagement in the present model. Faculty work engagement, in turn, exerted a strong positive effect on academic human capital development ($\beta = 0.659$, $p < 0.001$), supporting H3. In all three cases, the 95% bootstrap confidence intervals excluded zero, reinforcing the robustness of the direct-effect evidence.

4.4. Indirect Effects and Total Effects

The hypothesized mediation mechanism was assessed using bootstrapped specific indirect effects. Both indirect paths from the antecedent constructs to academic human capital development through faculty work engagement were positive and statistically significant.

Table 5. Specific Indirect Effects and Mediation Results

Hypothesis	Indirect Path	β	Std. Error	t-value	p-value	95% CI Lower	95% CI Upper
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H4	OC → FWE → AHCD	0.197	0.060	3.285	0.001	0.090	0.319
H5	JS → FWE → AHCD	0.317	0.058	5.503	<0.001	0.195	0.430

The indirect effect of job satisfaction on academic human capital development through faculty work engagement was $\beta = 0.317$, whereas the corresponding indirect effect of organizational culture was $\beta = 0.197$. The mediated effect of job satisfaction was therefore about 1.61 times the size of the mediated effect of organizational culture in the present model. Both bootstrap confidence intervals remained entirely above zero, supporting H4 and H5.

Table 6. Total Effects

Path	β	Std. Error	t-value	p-value	95% CI Lower	95% CI Upper
OC → FWE	0.299	0.080	3.728	<0.001	0.143	0.459
JS → FWE	0.482	0.087	5.516	<0.001	0.295	0.644
FWE → AHCD	0.659	0.045	14.799	<0.001	0.570	0.740
OC → AHCD (total)	0.197	0.060	3.285	0.001	0.090	0.319
JS → AHCD (total)	0.317	0.058	5.503	<0.001	0.195	0.430

The total-effects table clarifies the substantive pattern of influence in the model. Faculty work engagement had the strongest downstream effect on academic human capital development, while job satisfaction and organizational culture exerted meaningful but smaller total effects on the outcome construct through the engagement pathway.

4.5. Discussion

The empirical results strengthen the argument that faculty work engagement is the central motivational channel through which favorable organizational conditions translate into academic human capital development in the digital transformation era. The significant positive path from organizational culture to faculty work engagement supports the view that shared values, coordination, support, and a learning-oriented climate function as organizational resources for academics. In digitally transforming universities, such cultural resources help faculty adapt to new pedagogical technologies, redesigned workflows, and rising expectations for innovation.

The effect of job satisfaction on faculty work engagement was not only statistically significant but also stronger than the effect of organizational culture ($\beta = 0.482$ versus $\beta = 0.299$). This suggests that the immediate subjective experience of the academic role—how rewarding, supportive, and worthwhile the job feels—may be a more proximal driver of day-to-day engagement than broader institutional culture. This interpretation is consistent with educational research linking positive work evaluations to stronger motivation and commitment among teachers and academics [12], [11].

Faculty work engagement exhibited the strongest direct effect in the model ($\beta = 0.659$), indicating that vigor, dedication, and absorption are closely linked to the development of academic capabilities. In practical terms, more engaged faculty members appear better positioned to invest in continuous learning, digital adaptation, research capability, and teaching enhancement. The finding aligns with broader engagement research, which has consistently associated work engagement with performance, proactive behavior, and growth-oriented work outcomes [6], [7], [5].

The mediation results further enrich this picture. Both antecedents influenced academic human capital development indirectly through faculty work engagement, and the mediated effect was notably stronger for job satisfaction than for organizational culture ($\beta = 0.317$ versus $\beta = 0.197$). This implies that universities seeking to strengthen academic human capital should pay attention not only to institutional culture but also to the immediate quality of faculty work experience. In other words, favorable organizational conditions become developmentally powerful when they are translated into sustained faculty engagement.

Overall, the findings support the JD-R view that organizational resources and positive work experiences stimulate motivational states that in turn produce desirable outcomes. In the context of higher education, this means that digital transformation should be managed not only as a technological project but also as a human-capital and engagement project.

5. CONCLUSION

This study examined how organizational culture and job satisfaction influence faculty work engagement and how faculty work engagement, in turn, contributes to academic human capital development in the digital transformation era. Using a SmartPLS dataset of 209 faculty cases, the study found that both organizational culture and job satisfaction positively predict faculty work engagement, and that faculty work engagement strongly predicts academic human capital development. The bootstrapped indirect effects additionally support the view that faculty work engagement is the key mediating mechanism linking favorable organizational conditions to developmental academic outcomes.

The study contributes theoretically by integrating organizational culture, job satisfaction, faculty work engagement, and academic human capital development into a coherent mediation model for higher education. It also strengthens the practical argument that universities cannot rely on digital infrastructure alone; they must cultivate supportive organizational environments and satisfying faculty work conditions if they aim to build a more capable and adaptive academic workforce.

At the same time, studying has limitations. The available empirical file is an analysis-ready SmartPLS export rather than a full demographic survey archive, which means that the article focuses on the bootstrap results and retained indicator structure documented in that file. Future studies should complement this evidence with fuller respondent-profile information, broader robustness tests, and, where feasible, multi-group or longitudinal designs to establish how faculty engagement and academic human capital evolve over time.

In conclusion, the present findings indicate that academic human capital development in the digital transformation era is shaped not only by technological change but also by the extent to which universities create organizational and job conditions that sustain faculty engagement.

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