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Rethinking Agile Leadership: Digital Organizational Culture, Lecturer Agility, and Self-Reported Teaching Performance

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Abstract
Digital transformation in universities requires organizational conditions that enable lecturers to respond to changing pedagogical demands. This cross-sectional study examined whether lecturers' perceptions of agile leadership and digital organizational culture were associated with lecturer agility and self-reported teaching performance, and whether lecturer agility mediated these relationships. Data were collected from 112 permanent lecturers at eight universities in West Sumatra and analyzed using partial least squares structural equation modeling. Digital organizational culture was positively associated with lecturer agility ($\beta = .484$, $p < .001$) and self-reported teaching performance ($\beta = .451$, $p < .001$). Agile leadership was not significantly associated with lecturer agility ($\beta = .167$, $p = .055$) or self-reported teaching performance ($\beta = .113$, $p = .279$), whereas lecturer agility was unrelated to performance ($\beta = .013$, $p = .915$). No significant indirect effects were identified. The model explained 28.0% of the variance in lecturer agility and 23.5% of the variance in self-reported teaching performance. Digital organizational culture therefore emerged as the most consistent perceived contextual factor in this sample. These findings provide context-specific explanatory evidence rather than causal or broadly generalizable conclusions.

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Introduction

Digital transformation in higher education is not only a matter of installing platforms or expanding access to devices. This changes how academic work is coordinated, how evidence informs decisions, and how teaching and assessments are designed in the future. Therefore, institutional digital readiness depends on the alignment of technology, organizational arrangements, and pedagogical practices (Chounta et al., 2024; Slade et al., 2024; Vial, 2019). Lecturer-level capabilities are central to this alignment: digital competence and confidence shape how faculty members translate institutional investment into teaching practice (Mardiana, 2024; Naim, 2025; Sun & Yoon, 2025). Indonesian evidence similarly associates ICT competence and value-based leadership with lecturer performance while showing that other institutional provisions may have no direct effect once basic expectations are met (Khaeroni et al., 2026). Thus, the management problem is not whether universities should digitalize but which organizational conditions help lecturers respond effectively to changing pedagogical demands.

Agile leadership is one possible condition. It emphasizes rapid learning, flexible decision-making, distributed authority, and collaboration under uncertainty. A higher education case study

illustrates how these behaviors can sustain institutional adaptation during disruption (Nissim & Simon, 2023), while evidence from South African universities links agile leadership to institutional performance (Samodien et al., 2024). A broader meta-analysis also reports generally positive organizational and employee outcomes (Porkodi, 2024). These studies establish the relevance of agile leadership; however, they do not demonstrate that it necessarily improves an individual lecturer's self-reported teaching performance. Leadership effects on adaptive performance may depend on intervening resources, opportunities, and contextual conditions (Bonini et al., 2024).

Digital organizational culture provides a different way of understanding the problem. It refers to shared norms and routines that support digital communication, knowledge sharing, experimentation, fault tolerance, continuous learning, and an agile mindset (Kiefer et al., 2021; Kocak & Pawlowski, 2022, 2023). Unlike technology availability, culture shapes whether digital resources are routinely exchanged, tested, and incorporated into academic work. Recent higher education research links digital transformation with lecturer performance, often through mechanisms such as digital self-efficacy, task-technology fit, or institutional support (Naim, 2025; Sun & Yoon, 2025; Titirloloby et al., 2025). However, whether lecturer agility carries this relationship remains underexamined.

Lecturer agility is treated here as an individual capacity to act proactively, adapt quickly, remain resilient, and respond to changing work demands. These attributes are consistent with the workforce agility literature (Sherehiy et al., 2007). Within higher education, organizational support, autonomy, learning, and innovation have been identified as important conditions for agility and adaptability (Holliman et al., 2022; Menon & Suresh, 2021). Studies of faculty and organizational agility further suggest that adaptive capacity is relevant to university performance, although the evidence often operates at an institutional rather than individual teaching level (Chahal & Gupta, 2024; Megawaty et al., 2023). This level-of-analysis distinction motivates a direct test of lecturer agility as a mechanism rather than an assumed link.

Dynamic capabilities theory connects these relationships. Dynamic capabilities enable organizations to sense change, seize opportunities, and reconfigure resources in turbulent environments (Teece, 2007). In digital transformation, these capabilities develop through continuous strategic renewal rather than isolated technology projects (Warner & Wäger, 2019). In the present individual-level model, agile leadership represents a lecturer-perceived governance condition that may accelerate decisions and enable adaptation; digital organizational culture represents the perceived work context through which information, experimentation, and learning become routine; and lecturer agility represents an individual adaptive capability. Self-reported teaching performance is the proximal work outcome against which these relationships are assessed. This framing keeps the level of inference aligned with the lecturer-level survey data.

Leadership can encourage adaptive behavior by reducing procedural delays, widening decision latitude, and legitimizing experimentation. Although earlier evidence concerns institutional or general adaptive outcomes rather than lecturer agility specifically (Bonini et al., 2024; Nissim & Simon, 2023; Porkodi, 2024), the theoretical expectation is that these behaviors create space for lecturers to respond more quickly to change. Accordingly, H1 proposes that agile leadership is positively associated with lecturer agility. A digital organizational culture should likewise make knowledge, tools, and collegial support easier to mobilize, leading to H2: digital organizational culture is positively associated with lecturer's agility.

Agile lecturers should be better positioned to revise their teaching strategies, respond to student needs, and remain effective when technologies or institutional demands change. Adaptability among university lecturers has been associated with supportive work conditions and favorable professional outcomes (Holliman et al., 2022), while agility research in higher education emphasizes learning, innovation, and rapid response (Megawaty et al., 2023; Menon & Suresh, 2021). Therefore, H3 proposes that lecturer agility is positively associated with self-reported teaching performance.

Agile leadership may also directly relate to self-reported teaching performance by clarifying priorities, accelerating support, and protecting lecturer autonomy. The association found between agile leadership and institutional performance in higher education provides a relevant, although higher-level, precedent (Samodien et al., 2024). H4 proposes a positive association between agile leadership and self-reported teaching performance. Digital organizational culture may have a direct relationship with self-reported teaching performance because shared digital routines can improve access to learning resources, collaboration, assessment processes, and feedback. Evidence linking digital transformation and lecturer performance supports this expectation without implying that culture and technology are interchangeable (Sun & Yoon, 2025; Titirloloby et al., 2025). H5 therefore proposes a positive association between digital organizational culture and self-reported teaching performance.

The dynamic capabilities argument also points to two indirect paths. If leadership and culture first strengthen lecturers' adaptive behavior, and that behavior improves teaching, lecturer agility should transmit part of each relationship. H6 proposes that lecturer agility mediates the relationship between agile leadership and self-reported teaching performance; H7 proposes the same mechanism for digital organizational culture. By testing both antecedents in one model, this study distinguishes leadership behavior from the wider digital work environment and examines whether either operates through lecturer agility in Indonesian higher education.

Method

This cross-sectional explanatory study involved permanent lecturers from eight universities in West Sumatra, Indonesia, that had implemented digital learning management systems. Eligibility required active lecturer status and at least one year of service. Purposive recruitment through institutional and professional networks was followed by snowball sampling to reach other eligible participants (Ting et al., 2025). The final sample comprised 112 lecturers: 31 completed the questionnaire online and 81 completed a supervised paper version (Table 1). Online participation was limited to one submission per email address, and all retained records were complete. Because the most complex endogenous regression contained three predictors, a sensitivity calculation indicated that $N = 112$ provided 80% power at $\alpha = .05$ to detect an effect size of approximately $f^2 = .101$. The archived dataset supported aggregate analysis; detailed demographic, institution-level, and respondent-level mode information was not available for subgroup or mode-effect analysis. The non-probability design therefore calls for caution when generalizing the results beyond the study context.

Table 1. Sample and data-collection profile

Characteristic	Value	Definition or procedure
Study setting	8 universities	West Sumatra, Indonesia; digital LMS implemented
Eligibility	Permanent lecturers	Active status and at least one year of service
Final analytical sample	112 (100.0%)	Complete retained questionnaires
Online questionnaire	31 (27.7%)	One submission permitted per email address
Paper questionnaire	81 (72.3%)	Completed under researcher supervision
Sampling approach	Nonprobability	Purposive recruitment followed by snowball sampling

The study used a study-specific five-point Likert questionnaire to operationalize four reflective constructs. The literature informed the operational domains rather than supplying a single published item bank. Agile leadership covered rapid decision-making, empowerment, policy flexibility, and cross-unit collaboration (Nissim & Simon, 2023; Porkodi, 2024; Samodien et al., 2024). Digital organizational culture covered digital communication and openness, knowledge sharing, experimentation and risk tolerance, and continuous digital learning (Kiefer et al., 2021; Kocak & Pawlowski, 2022, 2023). Lecturer agility covered proactivity, adaptability, resilience, and responsiveness (Holliman et al., 2022; Menon & Suresh, 2021; Sherehiy et al., 2007). Self-reported

teaching performance covered lecturers' assessments of instructional delivery, student engagement, content relevance, and assessment and feedback practices (Slade et al., 2024; Sun & Yoon, 2025; Titirloloby et al., 2025). The outcome therefore represents perceived performance rather than independently observed teaching quality.

The final analytical model retained 19 indicators. Supplementary Table S1 documents the refinement from the initial 32-indicator specification, while Supplementary Table S2 reports the final outer loadings and weights. The instrument is described as researcher-developed and literature-informed rather than as a verbatim adaptation of a single previously validated scale. PLS-SEM was estimated using SmartPLS 3 (Ringle et al., 2015). Reflective measurement quality was assessed using outer loadings, Cronbach's α, rho_A, composite reliability, average variance extracted (AVE), the Fornell-Larcker criterion, cross-loadings, the heterotrait-monotrait ratio (HTMT), and collinearity diagnostics (Hair et al., 2022; Henseler et al., 2015). Structural inference used the archived 500-sample BCa bootstrap output, two-tailed tests, and $\alpha = .05$. R^2, f^2, blindfolding Q^2, model-fit indices, and PLSpredict comparisons were used as explanatory and predictive diagnostics (Shmueli et al., 2019). Supplementary Figures S1 and S2 reproduce the final SmartPLS algorithm and bootstrap models. Supplementary Tables S2-S7B report measurement quality and collinearity; Tables S8-S11 report direct, indirect, and total effects; Tables S12-S19 report explanatory, fit, and predictive diagnostics; and Table S20 consolidates the hypothesis decisions. Appendix Figures SA1 and SA2 document the initial 32-indicator algorithm and bootstrap models. All values reported in the article and supplementary material were taken from the same archived final-model output.

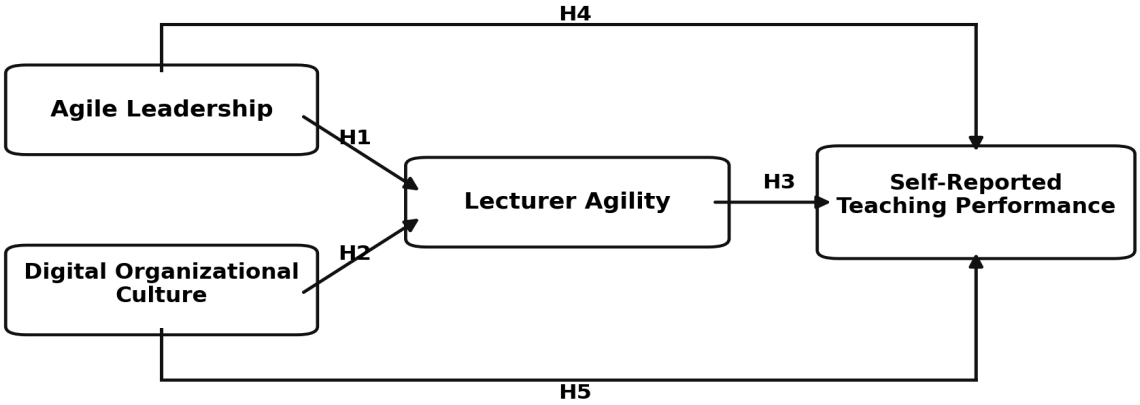

Figure 1. Conceptual model and hypotheses. H6 and H7 represent the two indirect paths through lecturer agility.

Results

1. Model Estimation

Figure 2 presents the final structural model based on the retained 19-indicator measurement solution and reports the standardized direct-path coefficients and R^2 values. Supplementary Figure S1 reproduces the final archived SmartPLS algorithm model, and Supplementary Figure S2 reproduces the corresponding bootstrap model. Supplementary Tables S2-S20 provide the complete final-model numerical output. Supplementary Table S1 and Appendix Figures SA1-SA2 document the transition from the initial 32-indicator specification to the final model.

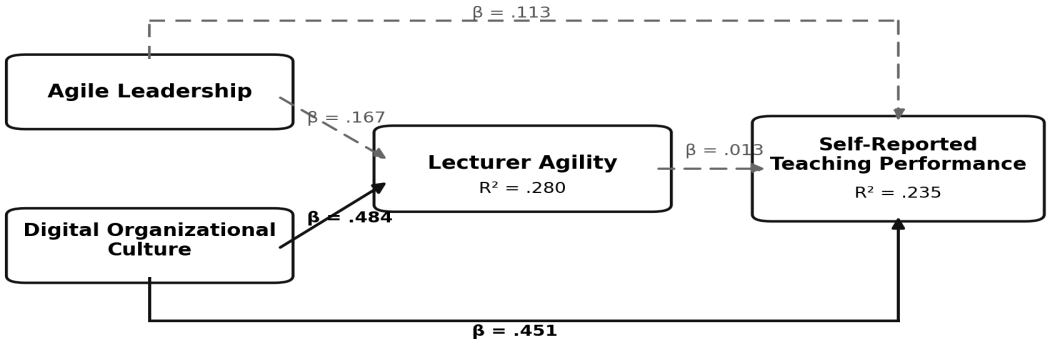

Figure 2. Final structural model based on the retained 19-indicator measurement solution. Solid paths are statistically significant ($p < .05$), and dashed paths are not significant. The coefficients are standardized, and R^2 values appear inside the endogenous constructs.

2. Measurement Model

The final measurement model included 19 indicators. Their outer loadings are reported in Table 2, with the outer weights in Supplementary Table S2. To preserve transparency without allowing the refinement history to dominate the final analysis, Supplementary Table S1 separately records the transition from the initial 32-indicator specification to the retained solutions.

Four of the 19 retained indicators had outer loadings below .70: AL3 (.634), DOC8 (.633), LA4 (.680), and LA5 (.686). They were retained because the corresponding constructs continued to meet the recommended composite reliability and AVE criteria, and because deletion based solely on loading size can unnecessarily narrow construct coverage (Hair et al., 2022). The outer weights and complete final measurement results are presented in Supplementary Tables S2-S7B.

Table 2. Outer loadings for the final 19-indicator measurement model

Final indicator	Agile Leadership	Digital Organizational Culture	Lecturer Agility	Self-Reported Teaching Performance
AL3	0.634			
AL4	0.883			
AL5	0.828			
AL6	0.867			
DOC5		0.772		
DOC6		0.789		
DOC7		0.853		
DOC8		0.633		
LA1			0.774	
LA2			0.717	
LA4			0.680	
LA5			0.686	
LA6			0.800	
LA7			0.801	
TP1				0.821
TP2				0.798
TP3				0.729
TP4				0.789
TP5				0.792

Internal consistency and convergent validity were evaluated with Cronbach's α, rho_A, composite reliability, and AVE. As Table 3 shows, all reliability coefficients exceeded .70 and all AVE values exceeded .50 (Hair et al., 2022); the complete values are also reported in Supplementary Table S3.

Table 3. Reliability and convergent validity of the final 19-indicator model

	Cronbach's α	rho_A	Composite reliability	Average variance extracted (AVE)
Agile Leadership	0.819	0.843	0.882	0.655
Digital Organizational Culture	0.760	0.764	0.849	0.587
Lecturer Agility	0.842	0.855	0.882	0.555
Self-Reported Teaching Performance	0.848	0.868	0.890	0.618

The four constructs met the conventional thresholds for internal consistency and convergent validity. Discriminant validity was also supported: each indicator loaded most strongly on its assigned construct, the Fornell-Larcker comparisons were satisfactory, and all HTMT values were below .85 (Table 4; Supplementary Tables S4-S6). The outer and inner VIF values were below the common concern thresholds (Supplementary Tables S7A-S7B).

Table 4. Heterotrait-monotrait ratios

	Agile Leadership	Digital Organizational Culture	Lecturer Agility
Agile Leadership			
Digital Organizational Culture	0.182		
Lecturer Agility	0.271	0.597	
Self-Reported Teaching Performance	0.190	0.563	0.289

The largest HTMT value was .597 between digital organizational culture and lecturer agility. This remained below the conservative criterion of.85, indicating that the constructs were empirically distinguishable (Henseler et al., 2015).

3. Structural Model

Direct and indirect relationships were evaluated using path coefficients, t-statistics, p-values, and BCa 95% confidence intervals. A relationship was considered statistically significant when $p < .05$ and the confidence interval excluded zero. Table 5 summarizes all seven hypotheses; complete direct, specific indirect, total, and total indirect effects are reported in Supplementary Tables S8-S11.

Table 5. Direct and indirect effects

Relationship	β	t	p	BCa 95% CI	Decision
H1 Agile Leadership → Lecturer Agility	.167	1.921	.055	[-.045, .315]	Not supported
H2 Digital Organizational Culture → Lecturer Agility	.484	5.777	< .001	[.281, .623]	Supported
H3 Lecturer Agility → Self-Reported Teaching Performance	.013	.107	.915	[-.167, .280]	Not supported
H4 Agile Leadership → Self-Reported Teaching Performance	.113	1.083	.279	[-.150, .287]	Not supported
H5 Digital Organizational Culture → Self-Reported Teaching Performance	.451	4.129	< .001	[.170, .616]	Supported
H6 Agile Leadership → Lecturer Agility → Self-Reported Teaching Performance	.002	.090	.928	[-.034, .057]	Not supported
H7 Digital Organizational Culture → Lecturer Agility → Self-Reported Teaching Performance	.006	.101	.920	[-.085, .161]	Not supported

Digital organizational culture was positively associated with lecturer agility ($\beta = .484$, $t = 5.777$, $p < .001$, 95% CI [.281, .623]) and self-reported teaching performance ($\beta = .451$, $t = 4.129$, $p < .001$, 95% CI [.170, .616]), supporting H2 and H5, respectively. Agile leadership was not significantly associated with lecturer agility ($\beta = .167$, $p = .055$), or self-reported teaching

performance (β = .113, p = .279). Lecturer agility was unrelated to the self-reported teaching performance (β = .013, p = .915). Therefore, H1, H3, and H4 were not supported.

Neither indirect relationship was supported. The indirect association between agile leadership and self-reported teaching performance through lecturer agility was β = .002 (t = .090, p = .928, 95% CI [-.034, .057]), and the corresponding indirect association for digital organizational culture was β = .006 (t = .101, p = .920, 95% CI [-.085, .161]). Both intervals included zero; therefore, H6 and H7 were not supported.

Table 6. Explanatory and predictive power

Endogenous construct	R^2	Adjusted R^2	Blindfolding Q^2
Lecturer Agility	.280	.267	.121
Self-Reported Teaching Performance	.235	.213	.113

Agile leadership and digital organizational culture explained 28.0% of the variance in lecturer agility. Together with lecturer agility, they explained 23.5% of the variance in self-reported teaching performance (Table 6). The blindfolding Q^2 values were positive but modest for lecturer agility (.121) and self-reported teaching performance (.113).

Table 7. Effect sizes (f^2)

	Lecturer Agility	Self-Reported Teaching Performance
Agile Leadership	0.038	0.016
Digital Organizational Culture	0.322	0.199
Lecturer Agility		0.000

Digital organizational culture had a moderate effect on lecturer agility (f^2 = .322) and on self-reported teaching performance (f^2 = .199). Agile leadership had only small or negligible effects (f^2 = .038 and .016), while lecturer agility added no explanatory contribution to self-reported teaching performance (f^2 = .000).

The approximate fit indices were SRMR = .090, NFI = .711, and rms Theta = .171. These descriptive diagnostics indicate that the model is better interpreted as an explanatory and predictive model than as a strict global fit model. The predictive assessment was more encouraging but remained moderate: PLS produced lower RMSE values than the linear-model benchmark for 10 of 11 indicators, while one lecturer agility indicator was marginally worse. Full explanatory, fit, blindfolding, and PLSpredict diagnostics are reported in Supplementary Tables S12-S19 (Shmueli et al., 2019).

Discussion

1. Digital Organizational Culture as the Central Contextual Factor

Digital organizational culture showed the most consistent relationship with the two endogenous constructs. It was associated with both lecturer agility and lecturers' assessments of their teaching performance, and both relationships had moderate effect sizes. This pattern suggests that digital transformation is carried out through shared routines rather than technology acquisition alone (Vial, 2019). When knowledge exchange, experimentation, fault tolerance, and continuous learning become part of everyday academic work, lecturers may be better able to mobilize digital resources quickly and use them consistently (Kiefer et al., 2021; Kocak & Pawlowski, 2022, 2023).

Similar patterns have been reported in higher education research, particularly in studies on digital readiness, professional competence, and institutional support (Chounta et al., 2024; Mardiana, 2024; Naim, 2025). Indonesian evidence also points to the importance of ICT competence in lecturer performance (Khaeroni et al., 2026). The results add a useful distinction to the literature: digital organizational culture remained associated with self-reported teaching performance even after agile leadership and lecturer agility were included in the same model.

The direct relationship was stronger than the indirect path through lecturer agility. One possible explanation is that shared digital routines give lecturers immediate access to systems,

expertise, assessment procedures, and peer support without first changing their broader disposition toward agility. Because the data were collected at one point in time, this pattern should be interpreted as an explanatory association rather than evidence that organizational culture caused better performance.

2. Why Agile Leadership Was Not Decisive

Agile leadership was not significantly associated with either outcome. This differs from studies linking agile leadership with institutional performance (Samodien et al., 2024) and broader organizational and employee outcomes (Porkodi, 2024), but the discrepancy is theoretically informative. These studies examined different levels of analysis and often assessed performance beyond the individual teaching role. Leadership may be too distal to predict a lecturer's self-reported teaching performance unless authority, resources, and implementation routines make its signals actionable.

Evidence on technology integration supports this contingent interpretation. Transformational leadership can influence demanding uses of technology through teachers' beliefs, skills, and empowerment rather than through a simple direct path (Schmitz et al., 2023). In the present model, the path from agile leadership to lecturer agility was close to the conventional threshold ($p = .055$), whereas the path to self-reported teaching performance was clearly weaker. With $N = 112$, this result denotes uncertainty around a small association; it should not be recast as proof that leadership is irrelevant.

3. Lecturer Agility and the Unsupported Mediation Paths

Lecturer agility was not associated with self-reported teaching performance and, therefore, did not mediate either antecedent. Agility reflects the capacity to respond, but adaptive capacity does not necessarily translate directly into a broad self-assessment of teaching performance. University lecturers' adaptability has been linked to autonomy support, commitment, and well-being (Holliman et al., 2022), while higher education agility research emphasizes management support, learning, and innovation (Menon and Suresh, 2021). These are enabling conditions rather than direct evidence of improved instruction quality.

The unsupported mediation paths suggest that other mechanisms may be involved. Digital organizational culture may support teaching through digital self-efficacy, professional knowledge, task-technology fit, pedagogical competence, or collaborative knowledge creation rather than through a generalized agility construct (Chahal & Gupta, 2024; Sun & Yoon, 2025). School-level evidence likewise connects technology integration performance with professional competence and self-efficacy (Sulistiani & Dewi, 2024), and Indonesian higher education research underscores the contribution of ICT competence to lecturer performance (Khaeroni et al., 2026).

The findings also caution against treating institutional, organizational, and individual capabilities as equivalent entities. These capabilities may develop through different processes and may not influence teaching during the same period. Longitudinal and multilevel research is needed to determine whether leadership first shapes shared routines, whether those routines build individual capabilities, and when that capability becomes visible in teaching outcomes.

4. Practical Implications

University managers need to make digital culture visible in everyday working arrangements. Lecturers need time to experiment, accessible peer support, shared teaching resources, responsive technical assistance, clear assessment procedures, and recognition for responsible innovation. Although it comes from a primary school setting, recent Indonesian evidence shows how a shared platform can reshape planning, coordination, and accountability when leadership support, digital competence, collaborative culture, and infrastructure work together (Rosyida et al., 2026). A similar managerial principle may be relevant to university digital systems.

Nonsignificant leadership paths should not be interpreted as evidence that leadership has no role. Leadership may influence teaching only when it is supported by usable systems, appropriate

decision authority, feedback channels, and established collaborative routines. Universities should therefore look beyond whether leaders communicate digital priorities and examine whether lecturers can obtain timely support, draw on colleagues' knowledge, and adapt assessment and instructional resources without unnecessary procedural delay.

5. Limitations and Future Research

The findings should be read within the boundaries of the research design. Because the data were collected at one point in time, the analysis cannot establish the direction of the relationships. The measures also represent lecturers' own perceptions rather than independently observed behavior. In addition, the regional, non-probability sample limits the extent to which the results can be extended to other university settings.

Further work could follow lecturers over time, combine survey data with interviews or observations, and include larger and more varied institutional samples. Peer observations, student feedback, and institutional records would also provide evidence beyond lecturers' self-reports. Future studies may also test digital self-efficacy, pedagogical digital competence, task-technology fit, and knowledge sharing as alternative pathways linking leadership and digital organizational culture with teaching outcomes.

Conclusion

This study separates two perceived institutional conditions that are often discussed together in accounts of digital transformation. Digital organizational culture was the only consistent predictor of both lecturer agility and self-reported teaching performance in this sample population. Agile leadership was not a significant predictor, lecturer agility did not explain self-reported teaching performance, and neither mediation pathway was supported in the study. Taken together, the results place greater emphasis on the routines surrounding digital academic work, including access to colleagues' knowledge, opportunities for experimentation, and reliable support.

Leadership still matters, but the findings suggest that leadership behavior alone may not be sufficient. Universities seeking to strengthen teaching practice may need to combine leadership development with a collaborative digital environment, usable systems, pedagogical support, and clear opportunities for lecturers to experiment and learn. These conclusions remain specific to the study context and should be examined in larger, longitudinal, and multilevel research.

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