A Study on the Influence of University Teachers' Digital Competence on Student-Centered Teaching: A Case Study of the Humanities and Social Sciences Faculty at a University in Kunming China

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ABSTRACT:

This study interrogates how the digital competence of university teachers shapes student centered teaching within the Humanities and Social Sciences faculty of a university located in Kunming China. The inquiry advances a mediational thesis in which teacher self efficacy operates as the transductive conduit that converts technodidactic capability into learner sovereign instruction (Redecker et al., 2017). A cross sectional dataset of 250 faculty members furnished responses on a five point Likert metric spanning eight digital competence indicators and three self efficacy indicators and eight student centered teaching indicators. Confirmatory factor analysis substantiated a three factor measurement architecture with excellent fit and robust psychometric integrity. Composite reliability and convergent validity surpassed conventional benchmarks while discriminant validity held under the Fornell and Larcker criterion and the heterotrait monotrait ratio. Structural equation modeling demonstrated that digital competence exerted a strong positive influence on self efficacy and on student centered teaching. Teacher self efficacy partially mediated the competence to pedagogy pathway. Digital training hours generated a distal yet significant cascade upon student centered teaching through digital competence. Bias corrected bootstrap intervals corroborated every indirect effect. The findings reframe self efficacy as an efficacial fulcrum within faculty digitalization and supply actionable guidance for capacity building in higher education (Zhang et al., 2025).

Keywords: digital competence and teacher self efficacy and student centered teaching and structural equation modeling and mediation analysis and higher education faculty.

1. Introduction

The accelerating digitalization of higher education has recast the professional remit of university teachers across the globe (Benavides et al., 2020). The Fourth Industrial Revolution dissolved the boundary between physical instruction and networked learning and demanded a teaching corps able to orchestrate technology with pedagogical intent (Schwab et al., 2017). In this reimagined landscape, digital competence is the defining skill of becoming a passive technology owner to an intentional instructional change (Ferrari et al., 2012). Chinese universities play a pivotal role in this transition, as the country's strategy is to link institutional modernization with faculty technopedagogical readiness (Wang et al., 2023). The Humanities and Social Sciences disciplines offer a telling example, as their traditions of knowledge emphasize conversation and interpretation over the automated procedures of science.

Digital competence is not an objective in itself. The value of its educational potential only becomes tangible when it is transferred to the classroom and when it brings a paradigm shift in pedagogy towards the learner (de las Obesso et al., 2023). Student centered teaching refers to a praxiological approach in which the student is an active agent in the inquiry process, and the teacher is a facilitator instead of a transmitter (Freire et al., 1970). A key scholarly issue is how faculty digital competence is transduced into this mode of learner sovereignty. Previous studies have consistently found a relationship between competence and innovative practice, but the intervening psychological processes have been poorly specified (Basilotta-Gómez-Pablos et al., 2022).

The Chinese higher education sector provides a strong context for this investigation as policy mandates have driven the spread of digital teaching and learning across faculties (Wang et al., 2023). However, the HSS have been given little empirical research attention compared to the applied sciences, despite the potential for their interpretive pedagogy to benefit significantly from the judicious use of technology (Compagnucci et al., 2020). Teachers in these fields face unique challenges in that the push for digital delivery may conflict with established practices of discursive and reflective teaching (Law et al., 2008). A local study in a university in Kunming thus fills a noticeable gap and provides a context for the mediational thesis that is not previously examined.

This study sees teacher self efficacy as that intervening machinery. Self efficacy is the teacher's confidence in his or her ability to provide instruction that leads to the desired learning outcomes (Dai et al., 2023). We hypothesize that digital competence increases self-efficacy, which in turn drives implementation of student centered practice. We also place digital training hours as a distal antecedent, which serves as a seed of competence and consequently triggers a transductive cascade towards student centred teaching (Pan et al., 2025). The research thus has four objectives. The first objective provides support for a multidimensional measurement model of the three focal constructs. The second objective is quantitative and measures the structural impact of digital competence on student centred teaching. The third objective is a test of the mediating role of teacher self efficacy. The fourth objective outlines the chain of causal effects starting with digital training hours.

2. Theoretical Framework and Hypothesis Development

2.1 Digital Competence and Its Multidimensional Measurement

Digital competence in higher education faculty is a polythetic construct, which covers technological fluency and informational discernment, communicative facility and content creation, and the safeguarding of digital wellbeing (Redecker et al., 2017). The European framework for the digital competence of educators outlines these interwoven aspects and conceptualizes competence as a continuum of development instead of either/or (Ferrari et al., 2012). Systematic syntheses have verified that the construct is not a single skill, but is rather a constellation of correlated proficiencies (Zhao et

al., 2021). Recent reviews also confirm that the construct is coherent in pre service and in service teacher populations as well as across cultural contexts (Smestad et al., 2023). This multidimensional architecture is operationalized in this study by the eight indicators used, which allow a confirmatory test of its latent unity (Tomczyk et al., 2024).

Empirical research has been connected to the quality of teaching that students receive (Dang et al., 2024). Faculty who control digital tools create more enriched learning environments and diversify assessment and personalize feedback (Al-Labadi et al., 2021). Competence also influences the readiness of teachers to give up the didactic control and to try out participatory formats (Akram et al., 2022). The construct then functions as a prerequisite for instructional reorientation and not as a mere technical accessory (Garzón-Artacho et al., 2021).

Digital competence needs to be measured in terms of its latent structure, not just a list of individual skills (Zhao et al., 2021). Indicators that tap technological operation and information management and digital communication and resource creation cohere because they share a common underlying proficiency (Anurogo et al., 2023). This shared variance is sufficient to consider competence as a reflective latent factor in which the indicators vary together (Vishnu et al., 2022). The current operationalization is consistent with existing operationalizations and thus provides a validated lineage of measurement (Redecker et al., 2017).

2.2 Teacher Self-Efficacy as a Mediating Mechanism

Teacher self efficacy refers to the belief that a teacher has the ability to mobilize the cognitive and behavioral resources needed to achieve the instructional objectives (Lee et al., 2023). The belief acts as a motivational fulcrum, influencing effort, persistence, and resilience when faced with pedagogical challenge (Robandi et al., 2025). We argue that digital competence feeds into this belief as mastery experiences with technology provide the strongest efficacy information (Dai et al., 2023). When a teacher is confident in using digital tools, they build a bank of mastery cues that increases the perception of personal teaching ability.

Self efficacy in turn drives the shift to student centered teaching. Learner sovereign instruction is cognitively challenging because the teacher must give up scripted control and because of the emergent classroom dynamics (Fox et al., 2011). It requires a teacher to believe in their ability to guide such complexity, to commit to participatory designs (Lloren et al., 2025). Self efficacy thus represents the "efficacial conduit" that transforms latent competence into manifest pedagogical change (Nagel et al., 2023). This thinking leads to a mediational model where competence supports efficacy and efficacy supports student centered practice.

The proposed relationship between competence and efficacy is based on the assumption that competence provides the raw material for the development of efficacy, which is experiential (Dai et al., 2023). Mastery experiences with digital instruction form the most credible source of efficacy since they provide firsthand evidence of personal achievement (Lee et al., 2023). Capable colleagues and convincing feedback from peers further reinforce the belief, but their strength is secondary to enacted mastery (Robandi et al., 2025). Thus, the number of successful technodidactic episodes increases the teacher's self-evaluation of his/her ability to teach (Machmud et al., 2021).

2.3 Causal Pathways from Digital Training Hours

Digital training hours are the total amount of formal professional development (PD) that a teacher receives in a structured, educational technology (ed tech) context (Momdjian et al., 2025). This exposure is a proximal factor for competence acquisition, as deliberate instruction and integrated practice and modeling both contribute to the development of competence (Pan et al., 2025). We thus hypothesize that the training hours sow the seeds of digital competence, which in turn leads to teacher self-efficacy, and ultimately to student centered teaching (Dolezal et al., 2025). The pathway is a

serial transductive pathway where an investment in training in a distal location cascades through two latent mediators to an instructional outcome (Machmud et al., 2021).

Literature in the field of digitalization of faculty members highlights that infrastructural and developmental supports do not necessarily impact on pedagogy directly (Garzón-Artacho et al., 2021). Their effectiveness depends on the transformation of resources into internalised capability and belief (AlMalki et al., 2023). This contingency is a driver for the mediational rather than direct specification of the training pathway (Mukul et al., 2023).

The intensity of training also influences the downstream effects, as a few exposures rarely result in lasting skills (Momdjian et al., 2025). Development that is sustained and deliberate, with instruction and guided practice, leads to the greatest gains in competence (Pan et al., 2025). Cumulative hours of training can therefore be used as an indicator of formal preparation a teacher has had (Dolezal et al., 2025). This rationale helps to explain why training hours is located at the distal end of the transductive chain that leads to student centered teaching (Burns et al., 2021).

2.4 Hypotheses

The preceding synthesis can be boiled down into the following six testable propositions. H1: Digital training hours have a positive prediction on digital competence. H2 posits that digital competence has a positive relationship with teacher self efficacy. H3 states that there is a positive relationship between digital competence and student centered teaching. H4 posits a positive relationship between teacher self efficacy and student centered teaching. H5 proposes that digital competence has an indirect effect on student centered teaching through teacher self efficacy. H6 posits that digital competence is a mediator between digital training hours and the impact of digital training hours on student centered teaching and that a serial pathway exists from competence to efficacy to student centered teaching (Vishnu et al., 2022).

3. Methodology

3.1 Participants and Procedure

The study employed a cross sectional survey design within the Humanities and Social Sciences faculty of a university in Kunming China. The achieved sample comprised 250 faculty members and contained no missing observations. The gender distribution was balanced because 128 respondents identified as male and 122 identified as female. The mean age was 43.83 years with a standard deviation of 11.49. Teaching experience averaged 12.95 years with a standard deviation of 8.74. Annual digital training exposure averaged 24.42 hours with a standard deviation of 12.76. The disciplinary composition spanned six domains and is detailed in Table 1. The sample size satisfies the conventional ratio of more than ten observations per estimated parameter and therefore furnishes adequate power for structural equation modeling (Smestad et al., 2023).

Table 1. Demographic profile of the faculty sample (N = 250)

Characteristic	Category	Frequency	Percentage
Gender	Male	128	51.2
	Female	122	48.8
Discipline	Political Science	46	18.4
	Sociology	44	17.6
	Language Studies	41	16.4

Characteristic	Category	Frequency	Percentage
	Psychology	41	16.4
	Education	39	15.6
	History	39	15.6
Age (years)	M = 43.83	SD = 11.49	25 to 65
Experience (years)	M = 12.95	SD = 8.74	1 to 35
Training (hours)	M = 24.42	SD = 12.76	0 to 57

3.2 Measures

All latent constructs were measured on a five point Likert metric anchored from strong disagreement to strong agreement. Digital competence was captured through eight indicators labelled DC1 through DC8 that reflected technological and informational and communicative and creative facets of capability (Redecker et al., 2017). Teacher self efficacy was captured through three indicators labelled SE1 through SE3 that reflected confidence in instructional execution (Dai et al., 2023). Student centered teaching was captured through eight indicators labelled SCT1 through SCT8 that reflected facilitation and learner agency and participatory design (de las Obesso et al., 2023). Digital training hours entered the model as an observed exogenous variable expressed in cumulative annual hours.

The indicators were screened for distributional adequacy before estimation proceeded. All items exhibited skewness and kurtosis within the bounds that denote approximate univariate normality and thereby justified the maximum likelihood estimator (Smestad et al., 2023). Participation was voluntary and responses were rendered anonymous to attenuate evaluative apprehension (Iskandar et al., 2024). The survey instrument was administered electronically and the resulting matrix contained complete data for every respondent. These procedural safeguards bolster the integrity of the measurement foundation upon which the structural analysis rests (Akram et al., 2022).

3.3 Analytic Strategy

The analysis proceeded through a two phase covariance based protocol. The first phase estimated a confirmatory factor analysis that evaluated the measurement model through maximum likelihood (Zhao et al., 2021). Internal consistency was appraised through the Cronbach alpha coefficient. Convergent validity was appraised through composite reliability and the average variance extracted. Discriminant validity was appraised through the Fornell and Larcker criterion and the heterotrait monotrait ratio. The second phase estimated a full structural model that articulated the hypothesized pathways. Model adequacy was judged through the ratio of chi square to degrees of freedom and the comparative fit index and the Tucker Lewis index and the root mean square error of approximation and the standardized root mean square residual (Mukul et al., 2023). Mediation was probed through bias corrected bootstrap resampling with one thousand replications. Competing nested models were contrasted through the chi square difference test and the Akaike and Bayesian information criteria.

4. Results

4.1 Descriptive Statistics and Measurement Model

Item level means ranged narrowly around the midpoint of the scale and all univariate skewness

and kurtosis values fell within the interval that signals approximate normality. The descriptive profile and the standardized loadings appear in Table 2. The confirmatory factor analysis returned an excellent fit to the observed covariance structure. The chi square statistic equalled 157.17 on 149 degrees of freedom and yielded a nonsignificant probability of 0.307. The ratio of chi square to degrees of freedom equalled 1.05 and fell well beneath the threshold of three. The comparative fit index reached 0.996 and the Tucker Lewis index reached 0.996. The root mean square error of approximation equalled 0.015 and the standardized root mean square residual equalled 0.033. These indices jointly authenticate the three factor architecture (Basilotta-Gómez-Pablos et al., 2022).

Table 2. Item descriptive statistics and standardized confirmatory loadings

Construct	Item	Mean	SD	Skewness	Kurtosis	Std. loading
Digital Competence	DC1	3.65	0.77	-0.06	-0.39	**0.728**
	DC2	3.66	0.79	-0.11	-0.43	**0.732**
	DC3	3.67	0.77	-0.31	0.08	**0.701**
	DC4	3.65	0.78	-0.01	-0.46	**0.729**
	DC5	3.64	0.79	-0.02	-0.47	**0.791**
	DC6	3.59	0.79	-0.13	-0.39	**0.674**
	DC7	3.66	0.82	-0.19	-0.23	**0.754**
	DC8	3.60	0.82	-0.22	-0.24	**0.766**
Self-Efficacy	SE1	3.47	0.73	-0.11	-0.31	**0.722**
	SE2	3.50	0.69	0.15	-0.23	**0.639**
	SE3	3.48	0.77	-0.16	0.45	**0.711**
Student-Centered Teaching	SCT1	3.62	0.77	-0.09	-0.09	**0.678**
	SCT2	3.62	0.74	-0.15	0.07	**0.721**
	SCT3	3.61	0.74	0.03	-0.35	**0.719**
	SCT4	3.57	0.73	0.24	-0.38	**0.712**
	SCT5	3.66	0.78	-0.12	-0.38	**0.708**
	SCT6	3.65	0.77	0.02	-0.47	**0.710**
	SCT7	3.58	0.77	0.06	-0.42	**0.738**
	SCT8	3.65	0.77	-0.20	-0.30	**0.694**

Note. N = 250. All loadings are significant at $p < .001$. SD = standard deviation.

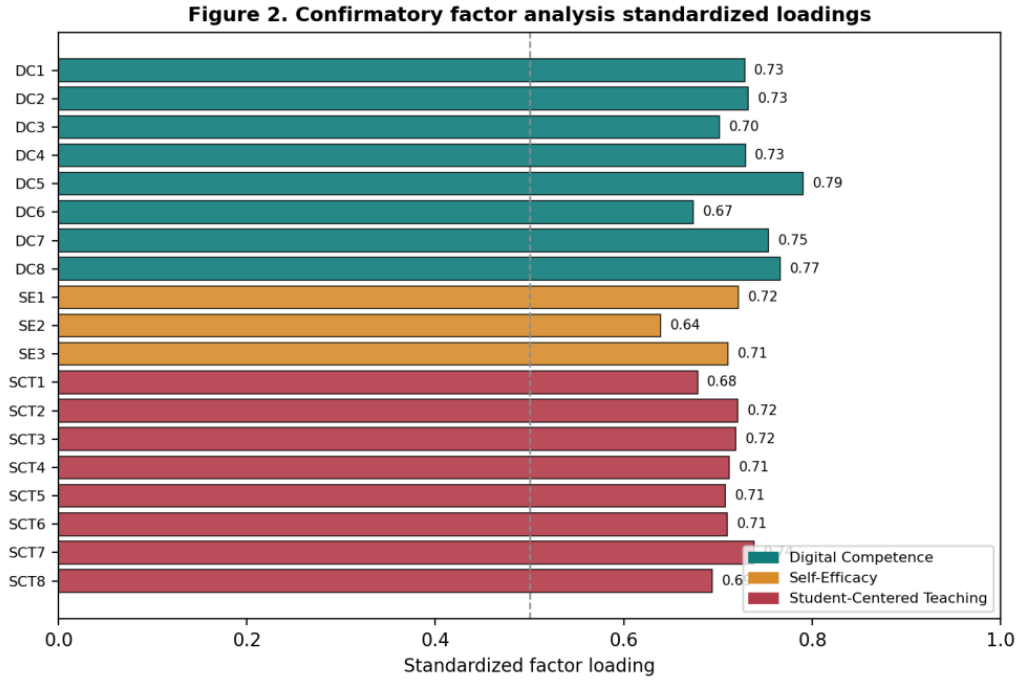

Figure 2. Confirmatory factor analysis standardized loadings

4.2 Reliability and Validity

The three constructs displayed sound internal consistency. The Cronbach alpha equalled .904 for digital competence and .732 for teacher self efficacy and .890 for student centered teaching. Composite reliability mirrored this pattern and exceeded the benchmark of .70 for every construct. The average variance extracted reached .541 for digital competence and .504 for student centered teaching and .478 for teacher self efficacy. The marginal value for self efficacy is acceptable because the corresponding composite reliability comfortably surpassed .70 and thereby preserves convergent validity (Alammari et al., 2022). Discriminant validity was confirmed because the square root of the average variance extracted exceeded every interconstruct correlation under the Fornell and Larcker criterion. The heterotrait monotrait ratios remained beneath the conservative ceiling of .85 and reinforced the discriminant evidence (Iskandar et al., 2024). Table 3 reports these coefficients and Figure 5 visualizes the discriminant matrix.

Table 3. Reliability convergent validity and discriminant validity

Construct	α	CR	AVE	DC	SE	SCT
Digital Competence	.904	.904	.541	**0.735**		
Self-Efficacy	.732	.733	.478	0.680	**0.692**	
Student-Centered Teaching	.890	.891	.504	0.708	0.619	**0.710**

Note. α = Cronbach alpha. CR = composite reliability. AVE = average variance extracted. Diagonal bold entries are the square root of the AVE. Off diagonal entries are interconstruct correlations. HTMT ratios were 0.682 for DC with SE and 0.706 for DC with SCT and 0.613 for SE with SCT.

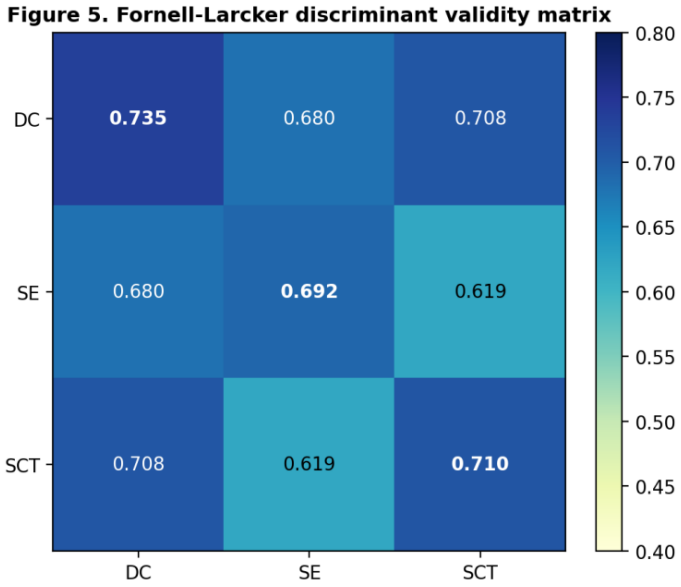

Figure 5. Fornell and Larcker discriminant validity matrix

4.3 Structural Model and Hypothesis Tests

The structural model reproduced the data with an exemplary fit. The chi square statistic equalled 172.12 on 167 degrees of freedom and the ratio to degrees of freedom equalled 1.03. The comparative fit index reached 0.998 and the Tucker Lewis index reached 0.997. The root mean square error of approximation equalled 0.011 and the standardized root mean square residual equalled 0.034. Figure 3 contrasts these indices against their benchmark thresholds. All four direct hypotheses received empirical endorsement. Digital training hours exerted a positive influence on digital competence with a standardized coefficient of 0.169. Digital competence exerted a strong influence on teacher self efficacy with a standardized coefficient of 0.682. Digital competence exerted a substantial direct influence on student centered teaching with a standardized coefficient of 0.535. Teacher self efficacy exerted a positive influence on student centered teaching with a standardized coefficient of 0.254. The model explained 47 percent of the variance in self efficacy and 54 percent of the variance in student centered teaching (Zhang et al., 2025).

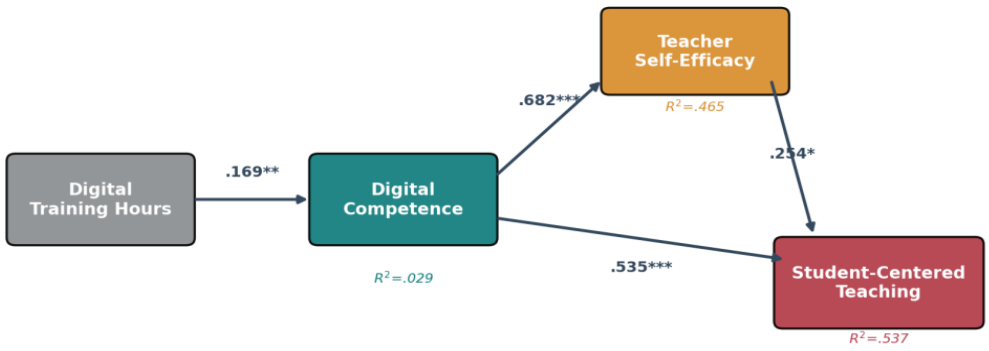

Figure 1. Standardized structural model with path coefficients

Table 4. Standardized structural path coefficients

Hypothesized path	β	Boot SE	z	Decision
H1 Training Hours → Digital Competence	0.169	0.062	2.72	Supported
H2 Digital Competence → Self-Efficacy	0.682	0.053	12.93	Supported
H3 Digital Competence → Student-Centered	0.535	0.093	5.79	Supported
H4 Self-Efficacy → Student-Centered	0.254	0.105	2.43	Supported

Note. β = standardized coefficient. Boot SE = bootstrap standard error from 1000 replications. All paths significant with $p < .05$ and the three competence linked paths significant at $p < .001$.

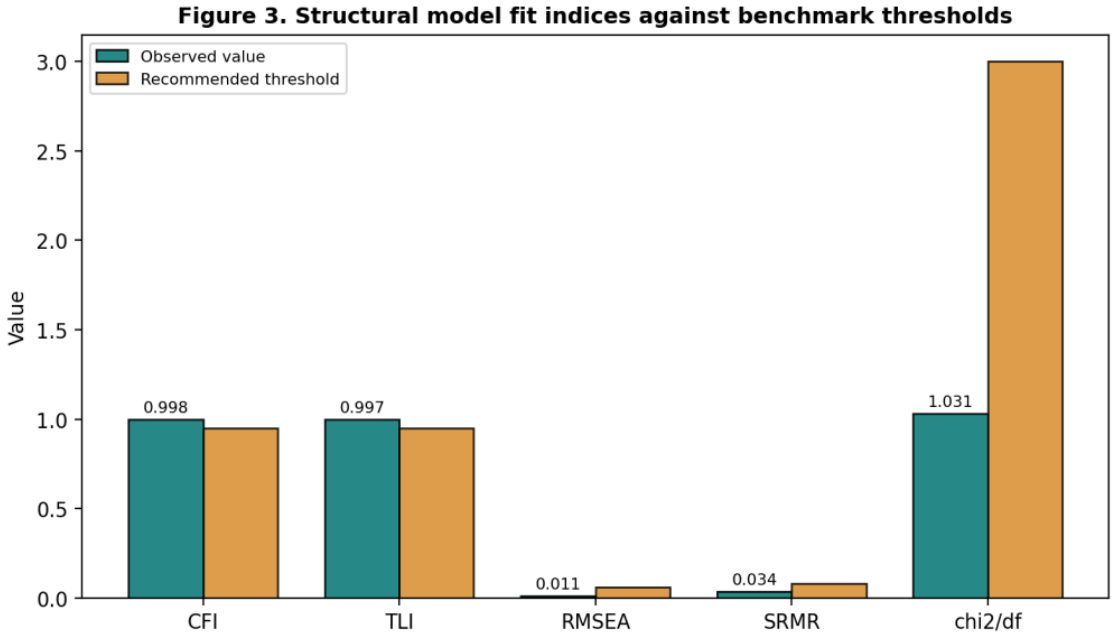

Figure 3. Structural model fit indices against benchmark thresholds

4.4 Mediation Analysis

The mediational architecture was probed through bias corrected bootstrap resampling. Teacher self efficacy partially mediated the influence of digital competence on student centered teaching. The indirect effect equalled 0.173 with a confidence interval that ranged from 0.040 to 0.327 and therefore excluded zero. The direct effect remained significant at 0.535 and the total effect equalled 0.709. The mediated portion accounted for 24.5 percent of the total competence effect which confirms a partial rather than a full mediation and thereby endorses H5 (Nagel et al., 2023). The distal pathway from training hours also operated through mediation. The indirect effect of training hours upon student centered teaching through digital competence equalled 0.091 with a confidence interval from 0.025 to 0.169. The serial pathway that proceeded through competence and then efficacy equalled 0.029 with a confidence interval from 0.006 to 0.074. Both intervals excluded zero and thereby endorsed H6 (Pan et al., 2025).

Table 5. Bootstrapped indirect and total effect estimates

Effect	Estimate	Boot SE	95% LL	95% UL	Inference
Indirect DC → SE → SCT	0.173	0.073	0.040	0.327	Significant
Direct DC → SCT	0.535	0.093	0.336	0.701	Significant
Total DC → SCT	0.709	0.042	0.618	0.785	Significant
Indirect TRH → DC → SCT	0.091	0.037	0.025	0.169	Significant
Serial TRH → DC → SE → SCT	0.029	0.017	0.006	0.074	Significant
Total TRH → SCT	0.120	0.045	0.028	0.202	Significant

Note. LL = lower limit. UL = upper limit. Intervals derive from bias corrected bootstrap with 1000 replications. TRH = digital training hours. DC = digital competence. SE = self efficacy. SCT = student centered teaching.

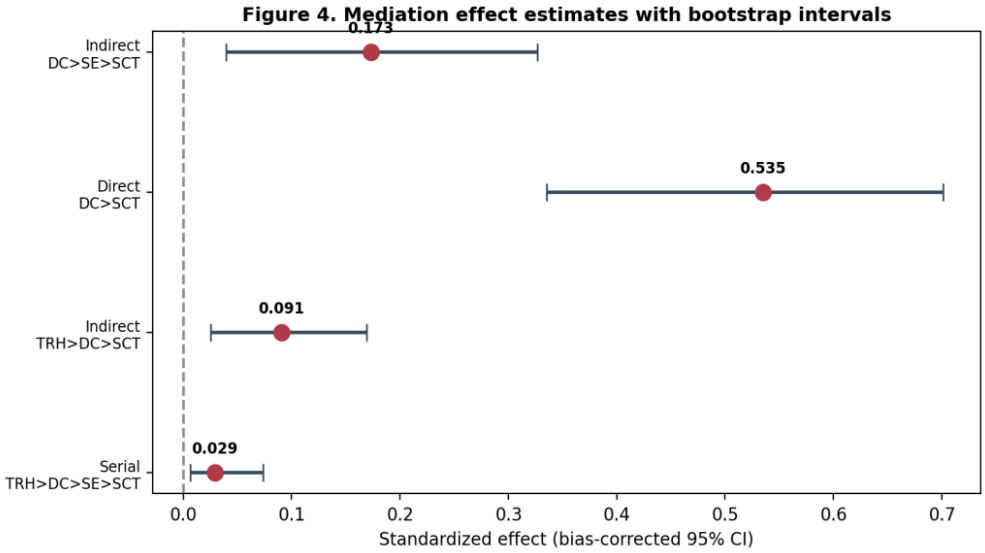

Figure 4. Mediation effect estimates with bootstrap intervals

4.5 Model Comparison

Three nested specifications were contrasted to adjudicate the optimal structural form. The hypothesized partial mediation model retained the direct competence pathway alongside the mediated routes. The full mediation model constrained the direct competence pathway to zero. The restricted no mediation model deleted the efficacy pathway toward student centered teaching. The partial mediation model recorded the lowest Akaike and Bayesian information criteria and the most favorable fit. The chi square difference between the full mediation model and the partial model equalled 28.06 on one degree of freedom and proved significant which demonstrates that the direct pathway is indispensable. The chi square difference between the no mediation model and the partial model equalled 7.21 on one degree of freedom and proved significant which demonstrates that the efficacy pathway is indispensable. Table 6 reports the comparative statistics (Mukul et al., 2023).

Table 6. Comparison of competing structural models

Model	χ^2	df	CFI	RMSEA	AIC	BIC
M1 Partial mediation	**172.12**	167	**0.998**	**0.011**	**258.12**	**409.54**
M2 Full mediation	200.18	168	0.985	0.028	284.18	432.08
M3 No mediation	179.33	168	0.995	0.016	263.33	411.24

Note. The partial mediation model is the preferred specification. $\Delta\chi^2$ for M2 versus M1 = 28.06 and $\Delta\chi^2$ for M3 versus M1 = 7.21 with one degree of freedom and $p < .01$ in both contrasts.

5. Discussion

The findings illuminate the psychological machinery through which faculty digital competence becomes pedagogical transformation. Digital competence emerged as the dominant antecedent of both teacher self efficacy and student centered teaching and thereby corroborates the contention that capability precedes innovation (Akram et al., 2022). The strength of the competence to efficacy linkage suggests that mastery over digital tools furnishes a potent reservoir of efficacy information (Dai et al., 2023). This pattern aligns with the proposition that technological mastery experiences feed the appraisal of personal teaching capability (Robandi et al., 2025).

The mediational outcome is the main concept of the study. Teacher self efficacy carried a significant portion of the competence effect yet a robust direct pathway endured. This partial mediation suggests that competence works on two tracks (Nagel et al., 2023). The first channel is direct, since there are skilled teachers who have the technical means of implementing participatory designs. The second channel is psychological, as competence strengthens the belief that fuels the commitment to learnermodernism in instruction (Lloren et al., 2025). The efficacial fulcrum thus does not supplant the direct impact of competence, but rather magnifies it.

The training cascade increases the explanatory scope of the model. Digital training hours had no direct influence on student centered teaching, but rather worked indirectly via the serial chain of competence and efficacy (Pan et al., 2025). This is an indirect signature which supports the fact that professional development does not directly change pedagogy (Garzón-Artacho et al., 2021). The value of training is only realized when it is metabolized into capability and belief (Momdjian et al., 2025). The outcome is to reimagine faculty development as an investment with a dividend that is dependent on a transductive process, not on simply attending (Machmud et al., 2021).

5.1 Theoretical and Practical Implications

The study offers a mediational model validated that places self efficacy as the conversion mechanism between digital competence and student centered teaching (Basilotta-Gómez-Pablos et al., 2022). It thus pushes the literature beyond documenting bivariate association to specifying causal throughput (Zhao et al., 2021). The results suggest a sequential approach for institutional practice. Faculty development should focus on developing digital competence and not merely superficial exposure (OECD et al., 2023). Mastery experiences and supportive feedback should also be provided to foster efficacy, as efficacy is a proximal lever for instructional change (Zhang et al., 2025). University leaders in similar contexts should thus combine with technological provision and purposeful efficacy cultivation (Wang et al., 2023).

The importance of these findings is highlighted by the disciplinary context, which favours learning in a dialogic and interpretive way, suitable to the learner sovereign instruction (Freire et al., 1970). Digital competence in this context is not a replacement for discursive pedagogy but an enhancement of it with tools

that expand participation and enhance inquiry (Al-Labadi et al., 2021). The efficacy mediated pathway implies that faculty members are only willing to adopt such tools when they feel confident in their ability to use them without sacrificing intellectual rigor (Lloren et al., 2025). Thus, institutional strategy must respect the epistemological difference of these disciplines for designing the development of digital subjects (Compagnucci et al., 2020).

The serial architecture of training hours, competence, efficacy and student centered teaching, is a theoretical development since it makes explicit what was implicit in earlier models, namely the throughput between them (Nagel et al., 2023). Each link in the chain is responsible for a part of the distal influence and the attenuation across successive stages demonstrates why proximal psychological resources are more important than distal structural inputs (Garzón-Artacho et al., 2021). This staged transmission sees faculty development as a process of developing capability and belief, not hours (OECD et al., 2023). The model thus provides a concise, but robust explanation of pedagogical change (Mukul et al., 2023).

5.2 Limitations and Future Directions

There are some limitations to the conclusions. Due to the cross sectional design, causal inferences cannot be drawn with certainty as it lacks temporal precedence and is based on only one measurement occasion (Smestad et al., 2023). As the data is self-reported, there is a risk of common method variance, although this is reduced by excellent discriminant evidence (Iskandar et al., 2024). The single institution focus strengthens the internal coherence but hinders the transferability of the estimates to other situations (Tomczyk et al., 2024). Future research should aim for longitudinal and multisite studies, while also considering the use of observational tools to assess student centered teaching (Dang et al., 2024). The incorporation of student perception data would also triangulate the instructional outcome (de las Obesso et al., 2023).

6. Conclusion

This study shows that the digital competence of the university teachers leads to student centred teaching by both direct and efficacy mediated pathways. Teacher self efficacy is the transductive fulcrum which transforms technodidactic capability into learner sovereign instruction. Digital training hours are like a distal seed, that only has an impact in the classroom when cascaded through competence and efficacy. The validated measurement model and the confirmed structural pathways provide a solid basis for faculty development policy in the Humanities and Social Sciences. Self efficacy as an efficacial fulcrum provides a simple yet potent lever to transform higher education pedagogy for the digital era.ces

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