

Journal of Emerging Trends in Social Sciences and Humanities

A Double-Blind, Peer-Reviewed, HEC recognized [Y-category](#) Research Journal

E-ISSN: [3006-7898](#) P-ISSN: [3006-788X](#)

Volume 3 Issue 4, 2026, 60-74



Institutional Perspectives on Faculty Technology Integration Competence: A Qualitative Study of Heads of Departments

Dr. Zia Ur Rehman¹

¹ Assistant Professor, Department of Educational Sciences, National University of Modern Languages (NUML), Islamabad, Pakistan.

Corresponding Author: ziaurrehman@numl.edu.pk

Article Information

Received:

2026-08-01

Revised:

2026-09-09

Accepted:

2026-10-01

ABSTRACT

This qualitative descriptive study examined Heads of Departments' (HoDs) perceptions of faculty competence in technology integration within Social Sciences and Management Sciences departments in public and private sector universities. Framed within an interpretivist paradigm, the study constituted the qualitative strand of a broader convergent parallel mixed-methods thesis. Thirty HoDs (13 from public-sector and 17 from private-sector institutions) were purposively selected and interviewed using a semi-structured interview protocol, supplemented by a standardized checklist used to document institutional technology provisions. Thematic analysis generated seven interconnected themes: uneven faculty competence in technology integration, institutional support as a key enabler, technological infrastructure and access constraints, professional development and pedagogical competence, individual and organizational barriers, leadership and institutional strategy, and progression from enhancement to transformation. HoDs perceived faculty as broadly competent with technology used for routine, substitution-level tasks, but comparatively limited in pedagogical technology integration competence, the capacity to redesign learning activities around technology. This deficit was not just due to a lack of faculty expertise, however, but to the combined effect of unreliable technology, technical-based faculty development, too much work, poor incentives, and inconsistent leadership and institutional support. It provides an institutional-level explanation, which is not found in the quantitative-only explanations, of why SS-MS faculty in sampled universities are stuck at Substitution and Augmentation levels and not moving towards Modification and Redefinition and recommends institutionally embedded strategies, based on the concept of leadership, to move them further.

Keywords

Technology Integration; Heads of Department; SAMR Model; Higher Education Leadership; Professional Development; Qualitative Research.



© 2026 by the authors. Licensee Rehman. This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license <https://creativecommons.org/licenses/by/4.0/>

Publisher: Institute for Educating Environmental Resilience and Governance

1. Introduction

Digital transformation is a key characteristic of modern higher education, transforming curricula, pedagogy and what is expected from faculty members across disciplines (Shal et al., 2025). Despite the increasing investments in LMSs, cloud infrastructures, and digital pedagogy at universities, the extent to which professors can apply these resources to transform their teaching is not uniform (Zamri & Mohamad, 2025). Current studies on faculty technology integration usually focus on the perspectives of faculty members by using faculty member self-report surveys to determine comfort, attitudes, or frequency of use (Panakaje et al., 2024; Tafese & Kopp, 2024). Much less is known about the phenomenon as viewed from the perspective of academic middle management, namely that of the Heads of Departments (HoDs) whose roles involve appraising faculty performance, allocating departmental resources, and liaising between faculty needs and the university administration (Abuowda et al., 2024; Mertens et al., 2024).

This positioning makes HoDs a distinctive and underused source of insight, shaped by comparative exposure to an entire department's practice and by proximity to the institutional decisions that enable or constrain technology use (Lomo et al., 2025). The Substitution-Augmentation-Modification-Redefinition (SAMR) framework offers a useful vocabulary for this inquiry. Substitution and Augmentation, jointly termed Enhancement, describe technology use that replaces or incrementally improves existing tasks without altering their pedagogical design; Modification and Redefinition, jointly termed Transformation, describe technology use that redesigns tasks or makes previously inconceivable learning activities possible (Zamri & Mohamad, 2025). Classroom and institutional practice tends to cluster at the Enhancement levels, with comparatively few instances of genuine Transformation (Buledi & Badariah, 2024). Quantitative studies can document this clustering but are poorly equipped to explain it; an institutional, leadership-informed account is needed.

This paper reports the qualitative strand of a larger convergent parallel mixed-methods thesis,

presented here as an independent qualitative inquiry into HoDs' perceptions of faculty technology integration competence in Social Sciences and Management Sciences departments across public- and private-sector universities. Framed within an interpretivist/constructivist paradigm, the study treats HoDs' accounts as socially constructed, context-embedded understandings of departmental practice and uses thematic analysis to surface patterns within them. The study was guided by five objectives: to explore HoDs' perceptions of faculty competence in technology integration; to identify institutional facilitators; to explore institutional and individual barriers; to examine professional development and technical support needs; and to explore institutional strategies for enabling progression from lower to higher levels of integration, operationalized as the five research questions presented in the Methodology section. The paper's principal contribution is an institutional explanation, grounded in the perspectives of those who lead departments rather than only those who teach within them for why faculty in the sampled institutions may remain concentrated at the Substitution and Augmentation levels rather than advancing toward Modification and Redefinition.

2. Literature Review

2.1. Conceptualizing Technology Integration and the SAMR Continuum

Technology integration is not just the presence of technology in the classroom, but the intentional and pedagogically purposeful use of technology. The SAMR model continues to be one of the most common models used to describe levels of this integration (Zamri & Mohamad, 2025): Substitution is when a tool is simply traded in for another one, but no difference is made to the task; Augmentation is when a tool is substituted with another one, but the task is made more functional; Modification is when a task is significantly redesigned with the help of technology; and Redefinition is when a task is one that would not have been possible without the use of technology. A linear assumption in this model can make it difficult to see contextual factors that influence whether or not tasks for Redefinition-level attainment are attempted (Zamri & Mohamad, 2025), and recent validation work confirms the

value of this model in describing observed practice, but also cautions that the linear pathway it assumes can mask these contextual factors (Buledi & Badariah, 2024), indicating that faculty competence is not simply an individual skill gap but also a product of the institutional context in which faculty practice.

2.2. Institutional Leadership and Technology Integration

Academic leaders play a key role in determining whether technology integration progresses from the individual to the sustained integration in departments. Abuowda et al., (2024) found that there are links between leadership behavior mediated using ICT and faculty members' organizational citizenship behaviors, which indicate that leaders that visibly demonstrate the use and adoption of technology will influence departmental climate. Various distributed and inclusive leadership models have been developed that focus on the need to distribute effective digital leadership across departmental leaders, instructional technologists, and faculty champions (Mertens et al., 2024). School leadership contexts make for additional evidence that positive headteachers' involvement is associated with more effective integration of ICTs, with the same functions reflected in the HoD role: communicating vision, providing resources, demonstrating use, and planning professional development (Lomo et al., 2025), which are both top-down and bottom-up in nature.

2.3. Institutional Facilitators and Barriers

Recent literature suggests that reliable infrastructure, access to digital content, policy clarity and recognition of technology enhanced teaching are factors that can help facilitate. Institutions in the Arab region's higher education sector tell of how digital resources extend curriculum relevance and allow for differentiated pedagogy, as institutions' readiness follows the technology (Shal et al., 2025), while sector-level analyses refer to core connective systems, such as identity management, cloud storage, and centralized learning platforms, as continuing priorities. Where infrastructure is aligned with pedagogical goals, integration is associated with enhanced teacher learning (Panakaje et al., 2024). On the other hand, if it is adopted without instruction, the digital inequities might widen

(U.S. Department of Education, Office of Educational Technology, 2025); at individual level, heavy workloads, resistance to change, and lack of confidence in technology constrain its use; and at institutional level, uneven infrastructure and inconsistent policy constrain movement toward higher levels of use (Zamri & Mohamad, 2025). These barriers do not typically work alone.

2.4. Professional Development, Support Needs, and Institutional Strategy

The need for professional development (PD) consistently is the predominant catalyst to help faculty transition to using technology in transformative ways. Research in Ghanaian colleges of education also reported that infrastructure issues and inhibitions persist even when tools were nominally available, so that continued in-service training is more effective than single shots of orientation (Mpuangnan, 2024a), and that structured, sustained training was more effective when it was part of an institutional process (Mpuangnan, 2024b). A study in Ethiopia revealed that PD needs were influenced by educational discipline and by the position of faculty on the Enhancement-to-Transformation continuum, indicating evidence that points to educators' PD being influenced by their own technological proficiency (Tafese & Kopp, 2024). The results of the comparative analysis provided by a European university alliance showed that academics' practices were more similar to those of the level of Higher Education 4.0 when the institution actively facilitated technology-based redesign, rather than leaving it up to individual initiative (Ulker, 2025), while SAMR reviews led to a similar conclusion that for academics to reach Modification and Redefinition, it is necessary for the institution to take a context-driven approach.

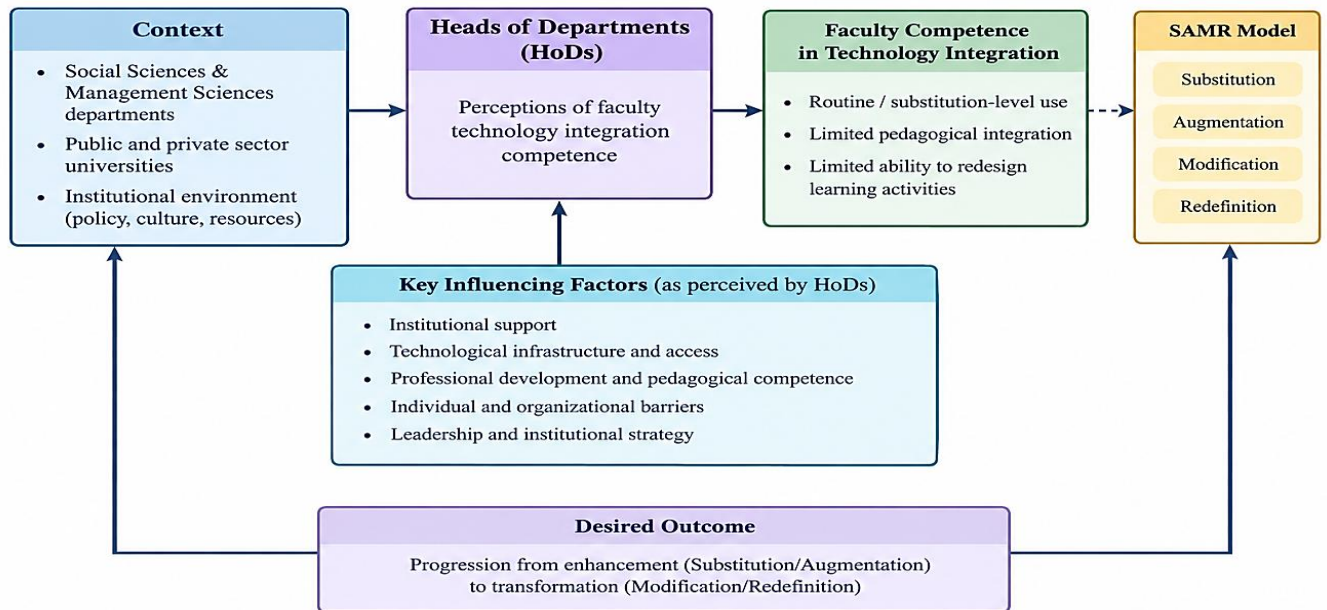
2.5. Theoretical and Conceptual Framework

This study is conducted in an interpretivist/constructivist paradigm, which views knowledge of faculty technology integration competence as a reality that is created during the lived experience of faculty members who observe and manage it (Shal et al., 2025). In this paradigm, the accounts of the HoD are considered valid and worthwhile, valid in their context and not just as approximations of an objective reality that can be quantified. The SAMR model is not a predisposing coding

scheme, but rather a sensitizing framework; it provides the vocabulary for Enhancement and Transformation, which is the organizing principle for the study's research questions and discussion,

and for the themes that were reported in the Findings, which were developed inductively from the participants' own accounts.

Figure 1: Conceptual Framework



3. Methodology

3.1. Research Paradigm and Approach

The study employed an interpretivist research paradigm that is suitable for inquiries that focus on the way by which the researcher understands and constructs meaning in faculty technology integration competence in the context of their respective institutions. A qualitative research approach was used throughout, consistent with the paradigm's emphasis on rich, contextualized understanding over statistical generalization.

3.2. Research Design

A qualitative descriptive design employing thematic analysis was used. As reported here, the study is framed as an independent qualitative inquiry; it also represents the qualitative strand of

a larger convergent parallel mixed-methods thesis, in which qualitative and quantitative data were collected during a similar timeframe, analyzed separately according to their own methodological logics, and subsequently considered together at the interpretation stage. Only the qualitative strand, data collection, analysis, and findings drawn from the HoD interviews, is reported in this paper.

3.3. Population and Sample

The population comprised Heads of Departments from Social Sciences and Management Sciences departments in public and private universities. A total of 30 HoDs participated in the study: 13 from public-sector universities and 17 from private-sector universities. Table 1 summarizes the sectoral distribution of the sample.

Table 1: Sectoral Distribution of Heads of Departments Sample (n = 30)

Institution Sector	n	%
Public-sector universities	13	43.3
Private-sector universities	17	56.7
Total	30	100.0

3.4. Sampling Technique

Participants were selected using purposive sampling, consistent with the sampling procedure documented in the underlying thesis methodology, because the study required participants with substantive experience of departmental oversight of faculty technology integration. Only those who were currently Head of Department in a department of Social Sciences or Management Sciences who had been in their position for a minimum of three years and had experienced departmental technology practice over at least one academic cycle, were selected, with conscious effort made to represent a cross section of public and private sector institutions.

3.5. Instrumentation

A semi-structured interview protocol was used to gather data, guided by the five research questions, and with the core questions asked in the same way, but with follow-up probes as necessary. The protocol focused on HoDs' perceptions of faculty competence, institutional facilitating and inhibiting factors, professional development and support needs for HoDs and strategies for moving from Enhancement to Transformation level use. The interviews were supplemented by a standardized checklist to record what was observed in terms of institutional support (learning management systems, smart classroom equipment, technical support staffing and policy documentation) as a point of structured comparison.

3.6. Data Collection and Analysis

The 30 HoDs were interviewed individually, with their permission, audio-recorded and transcribed verbatim with a duration of about 40–60 minutes and with a checklist administered prior to or after the interview to not 'prime' narrative answers. Transcripts were analyzed thematically, in an inductive, multi-phase analysis, involving familiarization, initial coding, collation of codes into candidate subthemes and themes, review of coded extracts and full set of data, definition and naming of final themes, and integration of illustrative extracts into the written account. The analysis was cross-checked for consistency; categories were sensitized using the categories of the SAMR framework and the study's research questions, but they did not dictate the analysis; 7

categories emerged inductively from the coded data and are reported below.

3.7. Trustworthiness and Ethical Considerations

Careful verbatim transcription and careful attention to the participants' language facilitated credibility, a thick description of the context of the sample facilitated transferability, and a detailed audit trail of coding decisions was cross checked against the transcribed data and checklist information facilitated dependability and confirmability. Educational principles were adhered to in conducting the study including securing institutional approval before data collection, informing participants of the purpose of the study and their right to withdraw without penalty and anonymizing data by removing or generalizing any information that could identify participants in the study by using sequential participant codes (P1-P30). The number of HODs by sector is reported aggregated (Table 1) to further contribute to the protection of confidentiality, as the number of HODs by each individual code is relatively small and may be identifiable within the individual sectors.

4. Findings

Through the thematic analysis of the 30 HoDs' interviews, seven themes emerged, which were interconnected and related to the faculty technology integration competence and the institutional conditions affecting technology use in teaching and learning:

- 1) Differences in faculty ability to integrate technology,
- 2) Institutional support as a key enabler, and
- 3) Limited technological infrastructure and access, and
- 4) Professional development and pedagogical competence, and
- 5) Individual/organizational barriers, and
- 6) Leadership and institutional strategy, and
- 7) Transformation to enhancement.

In all of these themes, faculty technology use was generally rated higher at the basic and enhancement levels than at the significant pedagogical transformation levels, and this was not linked to a single factor, but rather to the interplay between faculty competency and

institutional leadership, infrastructure, faculty professional development, technical support, faculty workload, and organizational culture.

Table 2 links each theme and subtheme to the main research question(s) that each theme addresses.

Table 2: Thematic Structure Linking Main Themes and Subthemes to Research Questions

SN	Main Theme	Subthemes	Related RQ
1.	Uneven faculty competence in technology integration	Basic digital competence; variation among faculty; confidence differences; generational/experience differences	RQ1
2.	Institutional support as a key enabler	Leadership support; technical assistance; access to resources; supportive departmental culture	RQ2
3.	Infrastructure and access constraints	Internet connectivity; hardware/software availability; classroom facilities; technical reliability	RQ2, RQ3
4.	Professional development and pedagogical competence	Training frequency; hands-on training; pedagogical integration; continuous learning	RQ4, RQ5
5.	Individual and organizational barriers	Resistance to change; workload; motivation; lack of confidence; institutional policies	RQ3
6.	Leadership and institutional strategy	HoD leadership; incentives; monitoring; collaboration; technology policies	RQ2, RQ5
7.	Movement from enhancement to transformation	Substitution/Augmentation; Modification; Redefinition; conditions for progression	RQ4, RQ5

Each theme below is presented as interpretive prose grounded in the coded transcripts, illustrated with brief excerpts from individual participants (P1-P30). The full coding structure, initial codes, subthemes, and contributing participants, appears in Appendix A.

Theme 1: Uneven Faculty Competence in Technology Integration

The first theme concerned differences in faculty members' ability, confidence, experience, and willingness to integrate technology into teaching. Participants generally indicated that faculty were familiar with commonly used technologies but differed considerably in their ability to employ these technologies for pedagogical purposes. Basic digital competence was described as reasonably widespread:

"Faculty members are generally able to use PowerPoint, the LMS, email, and online platforms for their regular teaching activities." (P1)

While this level of functional competence was

relatively common, participants pointed out that it wasn't consistent among faculty but influenced by personal confidence and past experiences.

"There is a clear difference between faculty members; some are very confident with technology while others still require assistance with basic applications." (P4)

An important distinction emerged, however, between knowing how to operate technology and knowing how to use it to redesign teaching and learning:

"A teacher may know how to operate an LMS, but that does not necessarily mean that the teacher knows how to redesign learning activities around it." (P7)

Overall, Theme 1 revealed that faculty's competence with technology varied, with a higher degree of competence in basic operating skills than in pedagogically innovative application and use, a level of competence that demanded more confidence, pedagogical knowledge, and the

willingness to change traditional pedagogical practices. These accounts show that faculty practice was aligned more with the Substitution and Augmentation levels of SAMR compared to the Modification and Redefinition levels, and this phenomenon was reported in the SAMR literature (Buledi & Badariah, 2024; Zamri & Mohamad, 2025).

Theme 2: Institutional Support as a Key Enabler

The second theme was institutional conditions for technology integration for faculty. The participants spoke about the integration of technology as an institutional process and not one that is entirely dependent on the competence of individual faculty. The importance of leadership support as an enabler was described:

“When senior management and departmental leadership encourage faculty to use technology, teachers are more willing to participate and try new approaches.” (P3)

consistent with e-leadership and distributed digital leadership research linking leader behavior to faculty technology outcomes (Abuowda et al., 2024; Mertens et al., 2024). Access to resources was similarly emphasized:

“Having computers, projectors, smart classrooms, internet access, and learning platforms makes it easier for faculty to incorporate technology into their teaching.” (P6)

Participants also highlighted the role of a collaborative departmental culture in reducing the extent to which technology adoption was perceived as an individual responsibility:

“A culture of collaboration makes technology integration less of an individual responsibility and more of a shared departmental practice.” (P5)

The accounts together suggest that institutional support fostered technology integration, where leadership support, technical assistance, provision of resources and departmental culture worked together, but not in isolation.

Theme 3: Technological Infrastructure and Access Constraints

The third theme was related to the constraints of infrastructure, accessibility, reliability and maintenance. The technology was not guaranteed

success in terms of effective integration:

“Internet connectivity remains one of the major problems because online activities become difficult when the connection is slow or unstable.” (P2)

“Not all classrooms have the same technological facilities, so faculty cannot use digital teaching methods consistently across their courses.” (P1)

The difference between the availability and reliability of technology became clear, and even if technology was available, the technology was not used consistently when it was not reliable:

“Equipment may be available, but if it stops working during class and there is no immediate technical support, teachers become reluctant to depend on it.” (P5)

Infrastructure thus served as a base and a restriction. When technology was available and reliable, faculty had more opportunities to incorporate it, while when there were fewer opportunities for reliable technology, faculty were more inclined to go back to the teaching practices and constraints they knew well, broadly similar to those the sector had identified as foundational connectivity constraints in higher education (Stebbins, 2026).

Theme 4: Professional Development and Pedagogical Competence

The fourth theme was the importance of professional development in the construction of technological skills and pedagogical skills. The current training was reported as not being often enough or even not being practical enough:

“Training is provided, but it is not always frequent enough for faculty to develop confidence and maintain their skills.” (P3)

One of the key differences was between technical training and pedagogical technology training:

“Training should not only teach faculty how to operate a tool; it should also demonstrate how the tool can improve teaching, assessment, and student engagement.” (P1)

Peer support was also described as a valuable, informal complement to formal training:

“Peer mentoring and informal knowledge sharing provide valuable opportunities for faculty to learn

how colleagues use technology in their teaching.” (P14)

The results showed that there exists a persistent divide between technology tool use and pedagogical integration, with participants suggesting that faculty might be able to learn to use the technological systems but lack the knowledge to redesign teaching around them as outlined in literature which calls for sustained, discipline-based training rather than technical orientation (Mpuangnan, 2024a & 2024b; Tafese & Kopp, 2024).

Theme 5: Individual and Organizational Barriers

The fifth theme identified barriers at individual and organizational levels often interacting with each other. On a personal level, participants sometimes talked about “apparent resistance” as being related to “confidence and workload” more than unwillingness:

“Some faculty members prefer the methods they have been using for years and are hesitant to change them.” (P2)

At the organizational level, workload and limited incentives were identified as significant constraints:

“Faculty already have teaching, research, and administrative responsibilities, so finding additional time to learn new technologies and redesign courses can be difficult.” (P1)

“There are limited incentives for teachers who spend additional time developing technology-supported teaching materials.” (P3)

The results indicated that individual and organizational factors that facilitated the use of technology in faculty were linked together, with less confidence, fear of failure, workload, established teaching routines, and less reinforcement for experimentation, suggesting that caution must be taken when attributing faculty hesitancy to individual deficits (Tafese & Kopp, 2024; U.S. Department of Education, Office of Educational Technology, 2025).

Theme 6: Leadership and Institutional Strategy

The sixth theme focused on the role of HoDs in making the expectations of technology at

university level, into reality at department level:

“The HoD has an important role in encouraging faculty to participate in training and in creating an environment where technology use is supported.” (P1)

Beyond encouragement, HoDs also described a communicative, intermediary function between faculty and senior management:

“HoDs also have to communicate faculty members' problems to senior management, particularly when the problem involves resources or technical support.” (P5)

The findings highlighted the role of the HoD beyond merely implementing an institutional strategy, emphasizing their ability to influence and inspire faculty members, facilitate communication, monitor progress, and advocate for faculty needs, aligning with distributed, inclusive practices of digital educational leadership (Lomo et al., 2025; Mertens et al., 2024).

Theme 7: Progression from Enhancement to Transformation

The seventh theme was the integrative dimension of the findings. At Substitution, the technology was introduced as a replacement to another technology, but the activity remained the same:

“Instead of giving students printed material, faculty provide the same material electronically through the LMS.” (P3)

At Augmentation, technology added functional improvement while the task remained similar:

“Online quizzes and digital feedback make assessment easier and faster, although the basic assessment activity remains similar.” (P4)

Modification, involving substantial redesign, was described less frequently, and Redefinition, activities that would be difficult to achieve conventionally, more rarely still:

“In some courses, students work collaboratively online, solve problems using digital tools, and submit work through redesigned assessment activities.” (P5)

“Students sometimes create digital products and collaborate with people outside the university, allowing them to complete projects that would not

have been possible through conventional classroom teaching alone.” (P18)

Faculty technology use was therefore more commonly associated with Substitution and Augmentation than with Modification and Redefinition, and progression toward higher levels appeared to depend on the interaction of technological competence, pedagogical knowledge, professional development, infrastructure, leadership, time, organizational culture, and incentives, a multidimensional institutional process rather than a simple progression in individual skill, echoing calls in the SAMR literature for a context-driven account of movement toward Redefinition (Ulker, 2025; Zamri & Mohamad, 2025).

Overall Synthesis of the Qualitative Findings

The seven themes were not standalone but rather held together. The basic technological competence served as a basis for routinized technological use; for higher levels of integration, further pedagogical knowledge, confidence, professional development, institutional support and opportunities for experimentation were needed. Pedagogically meaningful integration was not solely technology, but also the reliability of the technology, technical assistance, leadership support, faculty workload, training opportunities, institutional culture, and incentives.

So, one of the recurring differences that emerged in the interviews was between the use of technology and the incorporation of technology. Digital tools could be adopted for students' presentation, communication, sharing of resources, online submission and assessment, but required faculty members to make relatively few changes to the underlying design of learning activities. When examined through the SAMR framework, it was revealed that there is a higher frequency of Substitution and Augmentation, and a higher frequency of Modification and Redefinition which needed more comprehensive pedagogical and organizational conditions. In total, the results placed faculty technology integration as an institutional process whereby individual competence and pedagogical knowledge, institutional infrastructure, faculty professional development, leadership, institutional culture, technical support, faculty workload and incentives all played a role. They

complemented the quantitative results by offering explanations that accounted for the variability in faculty technology integration, while also providing an institutional perspective that accounted for how individual competence interacted with institutional conditions.

5. Discussion

The seven themes place faculty technology integration in a broader trend that has been observed in the literature: faculty clusters at the Enhancement level of the SAMR continuum; and that faculty clusters at the Transformation level of the SAMR continuum is better explained by institutional conditions than faculty individual skill (Buledi & Badariah, 2024; Zamri & Mohamad, 2025). Importantly, HoDs did not consider this clustering to be a lack of faculty digital literacy competencies, which were generally found to be strong across the themed scales of Theme 1; rather, a relatively lack of faculty pedagogical technology integration competencies was the capacity to redesign learning activities around technology, rather than simply use a digital tool. This reframes the study's central puzzle as a pedagogical-redesign gap rather than a skills gap, and Themes 2 through 6 identify the institutional conditions, infrastructure, professional development, workload and incentives, and leadership that determine whether that gap closes, acting as an accumulation of conditions rather than any single decisive factor. This layered account is consistent with recent scholarship linking e-leadership, distributed digital leadership, and sustained discipline-specific training to stronger faculty technology outcomes (Abuowda et al., 2024; Mertens et al., 2024; Mpuangnan, 2024a, 2024b; Tafese & Kopp, 2024), and extends it by showing, from the vantage point of departmental leadership, how these conditions interact.

This institutional framing carries a distinct contribution relative to faculty self-report or purely quantitative research, which can establish that faculty use technology predominantly at the Substitution or Augmentation level but is less able to explain the mechanism producing that concentration. HoDs identified the specific institutional levers, infrastructure reliability, pedagogically focused professional development, incentive alignment, and active departmental

leadership, that would need to shift for faculty to progress toward Modification and Redefinition (Mertens et al., 2024; Shal et al., 2025), positioning HoDs as active mediators who translate university-level policy into department-level practice. The findings also speak to the limits of treating SAMR as a purely linear ladder driven by individual skill acquisition: consistent with recent critiques (Zamri & Mohamad, 2025), Theme 7 indicates that movement toward Transformation is a multidimensional institutional process rather than a simple function of exposure or motivation, so institutional strategies should be read as creating conditions for higher-level integration where pedagogically appropriate, not as a mandate to redesign every task toward Redefinition regardless of disciplinary fit.

5.5. Implications for Practice and Policy

Universities seeking to move faculty beyond enhancement-level technology use should prioritize discipline-specific, sustained, pedagogically focused professional development over generic, one-off technical orientation (Mpuangnan, 2024a, 2024b), and invest in infrastructure reliability and technical support staffing at the departmental level, since gaps between policy intention and resourcing constrain practice regardless of individual competence (U.S. Department of Education, Office of Educational Technology, 2025). Departmental and institutional leaders should model technology-enabled instructional redesign themselves and actively translate university-level policy into department-level support (Abuowda et al., 2024; Mertens et al., 2024), and institutions should review workload allocation and recognition structures, since time constraints and weak recognition of technology-enhanced teaching constrained progression independently of infrastructure or training. Given differences in resourcing and governance flexibility between public- and private-sector institutions, sector-sensitive rather than uniform strategies may be needed to support faculty progression across varied contexts.

5.6. Limitations

This study is subject to several limitations. The purposive sample of 30 HoDs, while appropriate for an in-depth qualitative inquiry, was drawn only from Social Sciences and Management

Sciences departments and cannot be assumed to represent the perceptions of HoDs in other disciplinary areas, where infrastructure demands and pedagogical norms may differ substantially. The study relies on HoDs' perceptions of faculty competence rather than direct observation of classroom practice or faculty self-report, meaning the findings describe how technology integration is perceived by departmental leadership rather than an independently verified measure of faculty practice. As a cross-sectional qualitative study, the findings capture HoDs' perceptions at a single point in time and cannot speak to how these perceptions, or the underlying institutional conditions, may change over subsequent academic cycles. Finally, participant identifiers (P1-P30) were not linked to sector in reporting to protect confidentiality, so the Findings section as written cannot itself demonstrate public/private differences, though Table 1 documents the sectoral composition of the sample and such comparison remains possible in a sector-disaggregated re-analysis of the coded data.

6. Conclusion

This study examined Heads of Departments' perceptions of faculty technology integration competence in Social Sciences and Management Sciences departments across public- and private-sector universities, using a qualitative descriptive design and thematic analysis within an interpretivist/constructivist paradigm. Seven interconnected themes, spanning faculty competence, institutional support, infrastructure, professional development, individual and organizational barriers, leadership, and progression from enhancement to transformation, converged on a single central finding: faculty members were broadly capable of using technology to substitute for or augment existing instructional tools, but comparatively limited in the pedagogical redesign work required to move toward Modification and Redefinition, and this limitation was better explained by accumulated institutional conditions than by an individual faculty skills deficit. By centering the perspective of departmental leadership rather than faculty self-report alone, the study offers an institutional explanation, attentive to infrastructure, professional development design, workload, incentives, and leadership practice for why faculty in these departments remain concentrated at the

Substitution and Augmentation levels of the SAMR continuum rather than advancing toward Modification and Redefinition. This institutional lens complements, rather than replaces, quantitative accounts of faculty technology use,

and it points toward leadership-oriented, institutionally embedded strategies that universities can pursue to support faculty progression toward more transformative technology-enabled practice.

Conflict of Interest

The authors showed no conflict of interest.

Funding

The authors did not mention any funding for this research.

References

- Abuowda, A., Iwidat, H., & Alawnah, M. (2024). Impact of e-leadership on organizational citizenship behaviour of faculty members in higher education: Information and communication technology as a mediator. *Discover Education*, 3, Article 48. <https://doi.org/10.1007/s44217-024-00133-7>
- Buledi, M. H., & Tunku Badariah, T. A. (2024). Exploring digital technology usage among English language instructors at a Saudi higher education institution and validating a hierarchical structure of usage based on the SAMR model. *IIUM Journal of Educational Studies*, 12(1), 90–111. <https://doi.org/10.31436/ijes.v12i1.446>
- Lomo, D. A., Abonyi, U. K., & Ahwireng, D. (2025). Headteachers' support and challenges toward ICT integration into teaching and learning in Ghanaian basic schools. *Leadership and Policy in Schools*, 24(2), 330–345. <https://doi.org/10.1080/15700763.2024.2317300>
- Mertens, C., Schaper, F., & Kamin, A.-M. (2024). “ICT for inclusion” for educational leaders: Inclusive and digital distributed leadership. In M. Antona & C. Stephanidis (Eds.), *Universal access in human-computer interaction* (pp. 125–143). Springer. https://doi.org/10.1007/978-3-031-60884-1_9
- Mpuangnan, K. (2024a). Enhancing pedagogical strategies through technology integration in basic teacher education program. *Journal of Educational Management and Instruction*, 3(2), 106–125. <https://doi.org/10.22515/jemin.v3i2.7650>
- Mpuangnan, K. N. (2024b). Teacher preparedness and professional development needs for successful technology integration in teacher education. *Cogent Education*, 11(1), Article 2408837. <https://doi.org/10.1080/2331186X.2024.2408837>
- Panakaje, N., Ur Rahiman, H., Parvin, S. M. R., P., S., K., M., Yatheen, & Irfana, S. (2024). Revolutionizing pedagogy: Navigating the integration of technology in higher education for teacher learning and performance enhancement. *Cogent Education*, 11(1), Article 2308430. <https://doi.org/10.1080/2331186X.2024.2308430>
- Shal, T., Ghamrawi, N., Abu-Tineh, A., & Alshaboul, Y. (2026). Higher education 4.0: Capturing the voices of faculty members. *Frontiers in Education*, 10, Article 1626340. <https://doi.org/10.3389/feduc.2025.1626340>
- Stebbins, L. (2026, August 5). *Strategic technology integration in higher education: A roadmap*. EDspaces. <https://ed-spaces.com/news/strategic-technology-integration-in-higher-education-a-roadmap/987508680>
- Tafese, M. B., & Kopp, E. (2024). Teacher professional development and technological proficiency of educators: Empirical evidence from Ethiopia higher education institutions. *Journal of Educational Sciences*, 50(2), 186–207. <https://doi.org/10.3592/jes.2024.2.12>
- Ülker, N. (2025). Reflecting trends of the contemporary academic landscape in the context of Higher Education 4.0. *Frontiers in Education*, 9, Article 1522647. <https://doi.org/10.3389/feduc.2024.1522647>
- U.S. Department of Education, Office of Educational Technology. (2024). *2024 national educational technology plan: A call to action for closing the digital access, design, and use divides*. <https://tech.ed.gov/netp/>
- Zamri, M. T., & Mohamad, S. N. A. (2025). Technology integration in education: A review and analysis of SAMR model. *International Journal of Research and Innovation in Social Science*, 8(3S), 6195–6200. <https://doi.org/10.47772/IJRISS.2024.803463S>

Anneuxures

Appendix A

Full Thematic Coding Structure

This appendix presents the complete coding structure underlying the seven themes reported in the Findings section, showing each subtheme, its constituent initial codes, and the participants (P1-P30) whose statements contributed to that code. It is provided for transparency and audit purposes; the Findings section presents a condensed, illustrative subset of this structure.

Theme 1: *Uneven Faculty Competence in Technology Integration*

Subtheme	Initial Code	Participants
1.1 Basic Digital Competence	Ability to use routine digital tools	P1, P4, P29
	Routine instructional technology use	P2, P8, P17, P25
	Familiarity with common technologies	P3, P11, P19, P27
	Routine technology adoption	P5, P13, P21, P30
1.2 Variation in Faculty Competence	Uneven technological competence	P4, P7, P16, P24
	Differences in technology adoption	P5, P12, P20, P28
	Heterogeneous faculty competence	P6, P14, P22, P26
1.3 Confidence and Experience Differences	Confidence encourages experimentation	P1, P9, P18, P26
	Experience influences technology use	P3, P10, P15, P23
	Previous experience and confidence	P6, P13, P21, P29
1.4 Functional Use vs. Pedagogical Integration	Technical competence without pedagogical integration	P7, P13, P19, P30
	Technology as replacement	P2, P8, P16, P27
	Functional rather than transformative use	P4, P10, P21, P28

Theme 2: *Institutional Support as a Key Enabler*

Subtheme	Initial Code	Participants
2.1 Leadership Support	Leadership encouragement	P3, P9, P18, P24
	Supportive leadership climate	P5, P12, P20, P29
	Leadership-enabled participation	P1, P11, P17, P26
2.2 Technical Assistance	Availability of technical support	P4, P8, P19, P27
	Technical assistance and confidence	P2, P13, P21, P30
2.3 Access to Resources	Availability of technological resources	P6, P14, P22, P25
	Accessible technology resources	P3, P10, P18, P28
2.4 Supportive Departmental Culture	Peer knowledge sharing	P1, P7, P16, P23
	Collaborative technology culture	P5, P11, P20, P29

Theme 3: Technological Infrastructure and Access Constraints

Subtheme	Initial Code	Participants
3.1 Internet Connectivity	Unreliable internet	P2, P9, P17, P26
	Connectivity-related reluctance	P4, P12, P21, P28
3.2 Hardware and Software Availability	Limited technology access	P3, P8, P15, P24
	Resource limitations	P6, P13, P20, P30
3.3 Classroom Facilities	Unequal classroom facilities	P1, P10, P18, P27
3.4 Technical Reliability and Maintenance	Technology reliability concerns	P5, P14, P22, P29
	Maintenance and accessibility problems	P7, P11, P19, P25

Theme 4: Professional Development and Pedagogical Competence

Subtheme	Initial Code	Participants
4.1 Frequency of Training	Insufficient training frequency	P3, P9, P16, P24
	Need for continuous training	P5, P12, P21, P28
4.2 Hands-on Training	Need for practical training	P2, P8, P17, P26
	Contextual hands-on learning	P4, P13, P20, P29
4.3 Pedagogical Integration	Need for pedagogical training	P1, P7, P18, P25
	Technical training vs. pedagogical training	P6, P11, P22, P30
4.4 Continuous Learning and Peer Support	Continuous professional learning	P3, P10, P15, P23
	Peer-supported learning	P5, P14, P19, P27

Theme 5: Individual and Organizational Barriers

Subtheme	Initial Code	Participants
5.1 Resistance to Change	Preference for established practices	P2, P8, P16, P25
	Resistance associated with uncertainty	P4, P12, P21, P29
5.2 Workload	Workload constraints	P1, P9, P18, P27
	Time required for technology integration	P6, P13, P20, P24
5.3 Motivation and Incentives	Lack of institutional incentives	P3, P11, P17, P28
	Incentive-related motivation	P5, P14, P22, P30
5.4 Confidence and Fear of Failure	Fear of technology failure	P2, P10, P19, P26
	Lack of confidence	P7, P15, P23, P29

Theme 6: Leadership and Institutional Strategy

Subtheme	Initial Code	Participants
6.1 HoD Leadership	HoD facilitation	P1, P8, P17, P25
	Departmental implementation of institutional strategy	P4, P12, P20, P28
6.2 Monitoring and Institutional Expectations	Institutional expectations and monitoring	P3, P9, P18, P26
	Monitoring for support needs	P6, P14, P22, P30
6.3 Collaboration and Communication	Departmental collaboration	P2, P11, P19, P27
	Collaborative learning	P5, P13, P21, P29
6.4 Relaying Faculty Needs	Leadership as intermediary	P5, P13, P21, P29
	Institutional communication	P7, P16, P23, P28

Theme 7: Progression from Enhancement to Transformation

Subtheme	Initial Code	Participants
7.1 Substitution	Digital replacement	P3, P6, P14, P22
	Replacement of traditional tools	P3, P11, P19, P27
7.2 Augmentation	Functional improvement through technology	P4, P9, P17, P25
	Technology-enabled enhancement	P2, P12, P20, P29
7.3 Modification	Technology-supported task redesign	P5, P13, P21, P28
	Pedagogical redesign	P7, P16, P23, P30
7.4 Redefinition	Technology-enabled learning experiences	P3, P10, P18, P26
	Transformative digital learning	P6, P15, P24, P29
7.5 Conditions for Progression	Conditions supporting advanced integration	P1, P8, P17, P25
	Institutional conditions for transformation	P4, P12, P20, P27
	Multidimensional conditions for integration	P5, P14, P22, P30