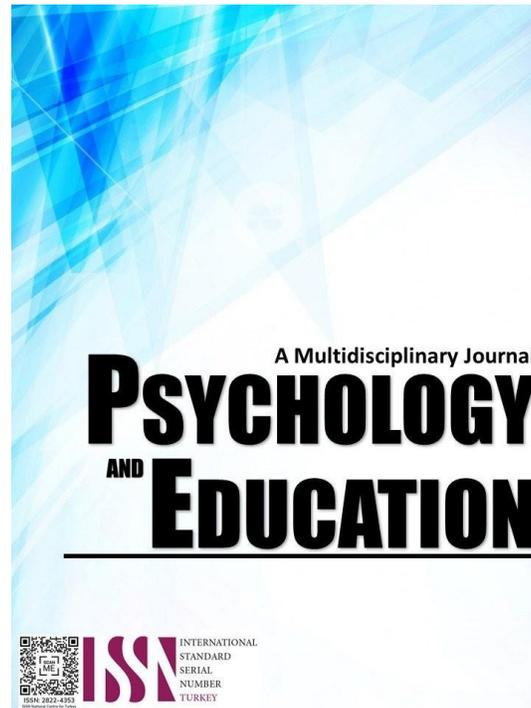


EDUCATIONAL PRACTICES, TECHNOLOGICAL ADVANCES, MANAGEMENT SKILLS, AND QUALITY INSTRUCTION AMONG HIGHER EDUCATION INSTRUCTORS



PSYCHOLOGY AND EDUCATION: A MULTIDISCIPLINARY JOURNAL

Volume: 36

Issue 10

Pages: 1085-1100

Document ID: 2025PEMJ3528

DOI: 10.70838/pemj.361002

Manuscript Accepted: 04-11-2025

Educational Practices, Technological Advances, Management Skills, and Quality Instruction among Higher Education Instructors

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Abstract

In today's ever-evolving educational landscape, the ability to deliver high-quality instruction is shaped by multiple factors that require close examination. This study explored the impact of educational practices, technological advancements, and management skills on the quality of instruction among higher education instructors in Misamis Oriental, Philippines, aiming to develop a framework that enhances educators' instructional capacity in community colleges and promotes high-quality, equitable education. Predictive Correlational design assessed the relationships between variables, while the Causal Comparative design examined cause-effect relationships. Data were collected from full-time instructors at four local colleges in Misamis Oriental in the school year 2024-2025 using proportionate stratified random sampling. The results revealed that modern educational practices, which integrated digital tools and collaborative learning, significantly improved student engagement, while traditional educational practices remained commonly used. Blended learning was less frequently implemented due to technological and institutional limitations. For technological advances, instructors showed proficiency with open educational resources and learning management systems, but the integration of AI tools was limited. Management skills, particularly communication and leadership, were the strongest predictors of quality instruction. The causal model confirmed that management skills mediated the relationships between educational practices, technological advances, and quality instruction. This study emphasized the importance of ongoing professional development in educational practices, technology integration, and management skills to improve the overall quality of higher education instruction. Thus, the proposed framework provided actionable insights for enhancing the instructional capacity of educators in Region 10, with potential applicability to higher education systems.

Keywords: *educational practices, higher education, management skills, quality instruction, technological advances*

Introduction

Quality education is a cornerstone for societal progress, economic resilience, and global competitiveness. This notion aligns with Nelson Mandela's assertion that education is a transformative tool for change, a perspective increasingly relevant in today's knowledge-driven society. Higher education institutions (HEIs) worldwide face mounting pressure to adapt to rapid technological advancements, evolving learner demands, and calls for greater accountability in instructional quality. The United Nations Educational, Scientific and Cultural Organization (UNESCO, 2022) highlights how the global learning crisis, intensified by the COVID-19 pandemic, has deepened educational disparities, compelling educators to innovate within complex teaching environments.

Globally, HEIs are tasked with reimagining instructional practices to prepare graduates for a dynamic workforce. The World Bank (2024) underscores that enhancing instructional quality is pivotal to tackling challenges such as poverty, innovation, and gender equity. Effective teaching extends beyond traditional content delivery to encompass technology integration, responsive pedagogies, and holistic learner engagement. Nevertheless, as the Organization for Economic Co-operation and Development noted, many educators face obstacles, including limited professional development and institutional support (OECD, 2022). The emergence of artificial intelligence, open educational resources (OERs), and digital learning platforms further necessitates a shift in pedagogical approaches and technological proficiency.

In the Philippines, national efforts to elevate instructional quality in tertiary education reveal persistent challenges. The Commission on Higher Education (CHED, 2022) identifies a disconnect between educators' instructional strategies and the competencies required by graduates in the workforce. Despite curricular reforms, inconsistent implementation and inadequate teacher training impede progress. Aquino and Garcia (2021) found that many Filipino college instructors rely heavily on lecture-based methods, struggling to adopt modern approaches like flipped classrooms or blended learning, which limits instructional innovation and long-term quality improvements.

In Northern Mindanao (Region 10), these issues are amplified by regional socio-economic disparities, diverse student demographics, and varying institutional capacities. Local HEIs must align with global educational trends while addressing community-specific needs, often with constrained access to training in emerging technologies and inclusive pedagogies. This study examines the interplay of traditional, modern, and blended teaching practices, technological advancements, and management skills to assess their impact on instructional quality. Doing so addresses a pressing need to enhance the region's educational landscape through evidence-based insights.

Theoretically, this research is grounded in the Technological Pedagogical Content Knowledge (TPACK) framework, which integrates content, pedagogy, and technology as core elements of effective teaching (Mishra & Koehler, 2006). Self-Determination Theory further

informs the study by linking instructors' motivation to autonomy, competence, and relatedness (Deci & Ryan, 2015). Additionally, Expectancy-Value Theory highlights how educators' beliefs and perceived value of teaching shape their practices (Wigfield & Eccles, 2020), while Gardner's Theory of Multiple Intelligences emphasizes the importance of differentiated instruction for diverse learners (Gardner, 2017). Together, these frameworks provide a multidimensional lens for investigating instructional quality.

This study explores how educational practices (traditional, modern, and blended), technological advancements (AI tools, OERs, and learning management systems), and management skills (conceptual, human, and technical) influence instructional quality among HEI instructors in region 10. Contextualizing the inquiry within global and local perspectives seeks to generate actionable insights for developing a responsive instructional model. This model aims to foster teaching excellence, empower educators, and enhance student outcomes in higher education.

Research Questions

This study investigates the intricate relationships among educational practices, technological advancements, management skills, and instructional quality in HEIs in Region 10. It aims to pinpoint strengths and deficiencies in current teaching approaches and their effects on instructional delivery. Ultimately, the research seeks to propose a causal model to improve instructional effectiveness and inform professional development strategies for HEI instructors. The study addresses the following research questions:

1. What do higher education instructors employ the educational teaching practices in terms of:
 - 1.1. Traditional Teaching;
 - 1.2. Modern Teaching; and
 - 1.3. Blended Teaching?
2. How do instructors in higher education assess their level of technological advancement in terms of:
 - 2.1. Artificial Intelligence;
 - 2.2. Open Educational Resources; and
 - 2.3. Learning Management Systems?
3. What is the level of management skills among instructors in higher education in terms of:
 - 3.1. Conceptual Skills;
 - 3.2. Human Skills; and
 - 3.3. Technical Skills?
4. What is the level of quality instruction delivered by instructors in higher education in the aspect of:
 - 4.1. Adequate preparation and effective classroom management skills;
 - 4.2. Content and Currency of Knowledge; and
 - 4.3. Technological Competency?
5. Is there a significant relationship among educational practices, technological advances, management skills, and instruction quality of higher education instructors?
6. Which among the variables, singly or in combination, best predicts the quality of instruction?
7. What causal model best fits the predictors of instructional quality in higher education?

Literature Review

Educational Practices

Educational practices in higher education have evolved significantly due to technological advancements and shifting pedagogical demands. This section examines traditional, modern, and blended teaching approaches, highlighting their implications for instructional quality and student outcomes.

Traditional Teaching

Traditional teaching, characterized by face-to-face instruction in physical classrooms, remains a foundational practice in higher education. However, its effectiveness depends on instructors' ability to adapt to diverse student needs. Holzberger et al. (2023) investigated factors mitigating declines in student motivation, finding that perceived instructional quality, including cognitive activation and effective classroom management, sustains student interest over time. Similarly, Gao et al. (2023) explored teacher support's role in online learning among Chinese university students, revealing that it enhances academic self-efficacy and engagement, suggesting transferable principles for traditional settings. In the Philippines, Nobin et al. (2020) used Rasch modeling to assess university teachers' development of teaching behaviors, noting that structured skill progression enhances instructional consistency. These studies collectively underscore that traditional teaching benefits from intentional strategies to maintain engagement, yet gaps persist in addressing individualized learning needs within this model.

Modern Teaching

Modern teaching reflects a shift toward flexible, technology-enhanced, and inclusive pedagogies that address contemporary educational challenges. Sogunro (2017) emphasized that andragogical competency and instructor disposition are pivotal motivators for graduate

students, enhancing engagement through learner-centered approaches. Gaudry and Lorenz (2018) advocated decolonizing educational practices, arguing that inclusive paradigms better serve diverse student populations, a principle relevant to the multicultural context of Region 10. Guppy et al. (2022) examined digital learning's evolution during the COVID-19 pandemic, highlighting stakeholders' reliance on adaptive technologies to maintain instructional quality. Furthermore, Fawns (2019) explored post-digital educational design, suggesting that flexibility in teaching methods is essential for relevance in a rapidly changing landscape. These findings indicate that modern teaching bridges traditional gaps by fostering adaptability, though its success hinges on instructors' willingness to embrace innovation.

Blended Teaching

Blended teaching integrates traditional and online modalities, offering a hybrid approach to enhance instructional flexibility and student engagement. Garrison and Kanuka (2004) demonstrated that blended learning fosters critical thinking and communication skills, transforming higher education when thoughtfully implemented. Medina (2018) reported improved retention and performance among students in blended environments, attributing success to increased interactivity. Bredow et al. (2021) emphasized the necessity of teacher training for effective blended learning adoption, noting that unprepared instructors struggle to leverage its potential. In the Philippine context, Srivastava et al. (2024) traced blended learning's evolution, calling for continuous innovation to align with technological advancements. These studies suggest that blended teaching enhances instructional quality by personalizing learning, though its efficacy depends on robust institutional support and educator preparedness.

Technological Advances

Technological advances have reshaped instructional delivery in higher education, offering tools to personalize learning and streamline teaching processes. This section reviews AI, OER, and LMS, focusing on their contributions to instructional quality and associated challenges.

Artificial Intelligence

Artificial Intelligence (AI) enhances education by providing personalized learning paths and automating administrative tasks. Zhang et al. (2020) found that AI improves student outcomes through customized feedback, positioning it as a transformative tool for instruction. Chiu and Chai (2020) noted that AI-related skills enable teachers to facilitate knowledge acquisition, though technical barriers necessitate ongoing training. In the Philippines, Seo et al. (2021) highlighted AI's potential to scale learner-instructor interactions, tempered by ethical concerns such as privacy and bias. Murray et al. (2024) further emphasized the need for governance frameworks to mitigate algorithmic bias, ensuring AI aligns with educational equity goals. These findings indicate that AI elevates instructional quality but requires careful integration to address ethical and practical challenges.

Open Educational Resources

Open Educational Resources (OER) democratize access to educational materials, fostering inclusive and innovative teaching practices. Tang (2020) demonstrated that OER enhances teaching effectiveness in K-12 settings, a finding applicable to higher education's diverse learners. Huang et al. (2020) showcased OER's role in maintaining learning continuity during the COVID-19 pandemic in China, underscoring its adaptability. In the Philippines, Ocean et al. (2019) found that community college students perceive OER as affordable and accessible, improving equity in learning outcomes. However, Stagg et al. (2018) identified barriers such as limited awareness and technical difficulties, suggesting that OER's benefits depend on institutional commitment to implementation. This literature highlights OER's potential to enrich instruction, contingent on overcoming adoption challenges.

Learning Management Systems

Learning Management Systems (LMS) centralizes educational delivery, enhance interactivity and assessment in higher education. Al-Fraihat et al. (2020) found that LMS fosters engaging learning environments, improving teaching practices and student outcomes. In the Philippines, Punsalan et al. (2022) reported that motivated students benefited significantly from LMS during the pandemic, emphasizing the need for tailored implementation. Fearnley and Amora (2020) applied the Technology Acceptance Model to Brightspace adoption in Manila, identifying system quality and self-efficacy as key adoption factors. However, Vo et al. (2020) noted technical challenges, such as outages, that hinder LMS effectiveness, underscoring the importance of training and equitable access. These studies affirm LMS's role in quality instruction, provided institutions address logistical and pedagogical barriers.

Management Skills

Management skills underpin instructors' ability to orchestrate effective learning environments in higher education. This section examines conceptual, human, and technical skills, linking them to instructional quality and student success.

Conceptual Skills

Conceptual skills enable instructors to strategize and align teaching with institutional goals, influencing instructional quality indirectly. Fauth et al. (2019) found that teacher competence, including pedagogical knowledge, enhances students' conceptual understanding, though its impact varies by context. Abulencia and Rungduin (2018) reported a weak relationship between principals' conceptual skills

and teachers' instructional effectiveness in the Philippines, suggesting that broader leadership factors may overshadow individual skills. Teig et al. (2022) found no significant link between principals' conceptual skills and teaching outcomes, indicating that classroom-level factors may dominate. These findings suggest that while conceptual skills are foundational, their direct influence on instruction requires further exploration within specific educational settings.

Human Skills

Human skills, encompassing interpersonal abilities, are critical for fostering supportive classroom climates. Alhija (2017) revealed that students value instructors' communication and approachability, linking these traits to perceived instructional quality. Kahu and Nelson (2018) emphasized instructor-student relationships as drivers of engagement, a finding echoed by Schneider and Preckel (2017), who identified enthusiasm and supportiveness as key to achievement. In the Philippine context, Buskist and Groccia (2018) advocated for learner-centric teaching, reliant on empathy and flexibility. These studies highlight human skills as essential for quality instruction, particularly in culturally relational settings like region 10.

Technical Skills

Technical skills equip instructors to integrate technology into teaching, enhancing instructional delivery. Runge et al. (2023) found that teachers' digital competence correlates with effective technology use, fostering supportive learning environments. Hero et al. (2021) reported high ICT competence among teachers in the Philippines, positively linked to integration practices. The OECD (2021) emphasized Technological Pedagogical Knowledge (TPK) as vital for transforming teaching through technology. Yilmaz (2021) further noted that technology integration boosts students' critical thinking and 21st-century skills. These findings affirm technical skills as a cornerstone of modern instruction, necessitating continuous development to maximize their impact.

Quality Instruction

Quality instruction integrates preparation, content knowledge, and technological competency to optimize student outcomes. In the Philippines, the World Bank (2018) reported that only 15% of teachers use effective pedagogy, with weak content mastery and high absenteeism undermining quality. Tan (2019) attributed this to inadequate teacher training, contrasting with global benchmarks. PIDS (2020) highlighted resource shortages, exacerbating instructional challenges in resource-constrained regions like Northern Mindanao. Conversely, Manigbas et al. (2024) found that pre-service teachers exhibit strong classroom management skills, suggesting potential for improvement with targeted support. Cheng et al. (2022) emphasized balancing academic knowledge with employability, a dual focus relevant to workforce-oriented Filipino HEIs. These studies reveal systemic barriers to quality instruction, underscoring the need for strategic interventions tailored to local contexts.

Methodology

Research Design

This study utilized a predictive correlational research design to examine the relationships between educational practices, technological advances, management skills, and instructional quality without manipulating variables. According to Smith (2023), this design is ideal for assessing natural associations among variables, enabling the identification of predictive patterns relevant to instructional effectiveness. A causal-comparative design was employed to explore potential cause-effect relationships by comparing groups exposed to different conditions, such as varying institutional experiences. Johnson and Brown (2022) note that this approach suits investigations into how specific factors influence outcomes, aligning with the study's aim to develop a causal model of instructional quality. These designs provide a comprehensive quantitative framework for understanding variable interplay and their impact on teaching excellence in Region 10's community colleges.

Respondents

The study targeted full-time instructors from four local colleges in Northern Mindanao: Tagoloan Community College, Opol Community College, Salay Community College, and City College of El Salvador. These institutions, established to provide accessible tertiary education, serve diverse communities and reflect varying operational histories, with Tagoloan and Opol exceeding 15 years of service, and Salay and El Salvador operating for less than 5 years. Only instructors with at least two years of continuous service at their current institution were included to ensure sufficient experiential depth, following Trochim and Donnelly's (2008) recommendation for representative sampling in educational research. Instructors with less than two years of service or those not employed full-time were excluded to maintain focus on established teaching practices.

Participants were selected using proportionate stratified random sampling to capture the diversity of the instructor population across the four colleges. This method, as Trochim and Donnelly (2008) suggest, reduces sampling bias and enhances precision by proportionally representing subgroups based on institutional population size. The total instructor population across the colleges was 440, from which a sample of 206 was drawn: 88 from Tagoloan (43%), 37 from Opol (18%), 23 from Salay (11%), and 58 from El Salvador (28%). Recruitment occurred through institutional channels, including department heads and faculty associations, ensuring a contextually appropriate and diverse sample.

Instrument

Data was collected using a survey questionnaire featuring a 5-point Likert scale, structured into four sections aligned with the study's variables. The first section assessed educational practices across traditional, modern, and blended modalities, with items adapted from Mercado (2008) to reflect Philippine higher education contexts. The second section evaluated technological advances, focusing on artificial intelligence, open educational resources, and learning management systems, drawing on Ramey's (2016) framework. The third section measured management skills (conceptual, human, technical), adapted from Ibay's (2020) study of managerial competencies. The final section examined quality instruction, encompassing preparation, content knowledge, and technological competency, based on Ahmed Awad Amin's (2016) research.

Instrument validity was established through review by five experts: two Ph.D. holders in Educational Leadership assessed content relevance, a Ph.D. in Quantitative Research evaluated methodological rigor, a Ph.D. in Curriculum Development ensured alignment with instructional quality, and a master's-level linguist reviewed clarity and cultural appropriateness. Reliability was tested using Cronbach's Alpha on a pilot sample of 30 non-participant instructors with similar characteristics, yielding high internal consistency: Traditional Teaching (0.896), Modern Teaching (0.864), Blended Teaching (0.964), Artificial Intelligence (0.916), Open Educational Resources (0.905), Learning Management Systems (0.914), Technical Skills (0.922), Conceptual Skills (0.928), Human Skills (0.906), Adequate Preparation (0.887), Content Knowledge (0.885), and Technological Competency (0.848). These results confirm the instruments' reliability and suitability for capturing the intended constructs.

Procedure

The researcher secured ethical approval from the Research Ethics Review Committee at Liceo de Cagayan University and obtained permissions from Tagoloan, Opol, Salay, and El Salvador Community Colleges presidents. Recruitment leveraged institutional networks, with formal letters sent to college administrators outlining the study's purpose and methodology. Data collection occurred during the first semester of the 2024–2025 academic year, involving the distribution of 206 survey questionnaires to sampled instructors. Each participant received an informed consent form and a uniquely numbered questionnaire, administered during scheduled faculty meetings to ensure accessibility.

The researcher explained the study's objectives, voluntary nature, and confidentiality measures, providing contact details for inquiries. Participants completed the Likert-scale surveys over a two-week period, with follow-up reminders to maximize response rates. Completed questionnaires were collected in sealed envelopes to protect anonymity, and data were digitized for analysis. To enhance trustworthiness, a subset of respondents participated in brief clarification sessions, aligning with Tracy's (2020) recommendation for data validation in quantitative studies.

Data Analysis

Data was analyzed using statistical techniques tailored to research questions. Descriptive statistics, including mean and standard deviation, summarized responses for educational practices, technological advances, management skills, and instructional quality, providing insights into central tendencies and variability (McCluskey & Lalkhen, 2007). Pearson Product-Moment Correlation assessed relationships among variables, measuring associations' strength and direction, as Cohen (1988) supported for continuous data analysis. Multiple Regression Analysis identified instructional quality predictors, examining variables' individual and combined effects, per Tabachnick and Fidell (2013). Path Analysis constructed a causal model, exploring direct and indirect relationships, following Kline's (2011) framework for testing theoretical models in educational research. SPSS software facilitated these analyses, ensuring precision and consistency across computations.

Ethical Considerations

The study adhered to rigorous ethical standards to protect participants' rights and privacy. Braun et al. (2021) emphasize transparency and voluntary participation as foundational principles, reflected in the provision of detailed informed consent forms outlining the study's purpose, risks, benefits, and withdrawal rights. No identifying information was collected, and responses were anonymized using unique identifiers. Data were stored in encrypted, password-protected digital archives, complying with the Philippines' Data Privacy Act (National Privacy Commission, 2016). Jackson and Bazeley (2019) highlight the importance of data security in educational research, a principle upheld throughout this study. Participants received no monetary compensation but were informed of their contribution to advancing higher education practices, with access to aggregated findings offered upon request to support professional development.

Results and Discussion

Problem 1. What are the educational teaching practices employed by higher education instructors in terms of: Traditional Teaching, Modern Teaching, and Blended Teaching?

This problem examined the educational practices employed by higher education instructors, focusing on traditional, modern, and blended teaching methods.

Table 1. Summary of Mean Scores for the Level of Educational Teaching Practices Employed by Higher Education Instructors

| Sub-constructs | Mean | SD | Description | Interpretation |
|----------------------|------|-------|-------------|------------------------|
| Traditional Teaching | 4.10 | 0.83 | Often | Frequently Implemented |
| Modern Teaching | 4.13 | 0.815 | Often | Frequently Implemented |
| Blended Teaching | 3.91 | 0.94 | Often | Frequently Implemented |
| Over-all Mean | 4.05 | 0.862 | Often | Frequently Implemented |

Legend: 4.50–5.00 – Always – Fully Implemented | 3.50–4.49 – Often – Frequently Implemented | 2.50–3.49 – Sometimes – Moderately Implemented | 1.50–2.49 – Ever – Rarely Implemented | 1.00–1.49 – Never – Not at all Implemented

The overall mean score of 4.10 (SD = 0.83) for traditional teaching practices indicates frequent use of structured methods, including lectures and standardized assessments. This aligns with recent studies, such as Gulikers et al. (2020), who found that traditional teaching strategies, especially lectures, are still prevalent and form the backbone of many classroom environments, even with the rise of innovative methods. The highest-rated indicator, “My classroom management techniques focus on maintaining discipline and order” (mean = 4.43, SD = 0.754), reinforces the importance of organized environments. Recent research by Hattie (2020) also highlights that effective classroom management and structure are foundational to improving student outcomes, further supporting the emphasis on discipline and order. However, the lower score for “I measure student engagement through attendance rather than participation” (mean = 3.72, SD = 0.965) highlights a potential gap in measuring engagement accurately. This limitation is also noted by Graham et al. (2022), who suggest that traditional metrics, such as attendance, fail to capture the full extent of student participation and active learning.

The mean score of 4.13 (SD = 0.815) for modern teaching practices, reflecting the use of innovative methods, aligns with recent shifts toward student-centered learning. The highest-rated practice, “I regularly facilitate class discussions and collaborative learning activities” (mean = 4.30, SD = 0.750), reflects an emphasis on active learning, a trend noted by Bates and Poole (2020). Their research demonstrates that active learning, through class discussions and collaborative activities, is shown to improve critical thinking and long-term retention. The variability observed in the responses, especially in the statement “My assessments include a variety of formats” (mean = 4.03, SD = 0.816), is consistent with Dixon et al. (2021), who found that despite the increasing use of diverse assessment strategies, some instructors still heavily rely on traditional exams and quizzes due to comfort and ease of grading.

Blended teaching practices, with an overall mean score of 3.91 (SD = 0.94), reflect a growing but inconsistent use of technology. The high rating for “I utilize learning management systems to deliver course content” (mean = 4.04, SD = 0.882) is supported by Martin et al. (2020), who emphasize the central role of learning management systems (LMS) in blended learning environments, noting that they are crucial for content delivery and fostering interaction between students and instructors. However, the lower score for “I monitor student progress through analytics” (mean = 3.74, SD = 0.989) suggests challenges in fully integrating technology, a point also highlighted by Stewart et al. (2021), who argue that while LMS platforms offer valuable data, many instructors still struggle to effectively use analytics for monitoring and enhancing student performance.

In summary, the findings indicate that traditional and modern teaching methods are widely adopted, but there is room for improvement, particularly in the integration of technology in blended teaching practices. Instructors are adopting more student-centered methods and using LMS platforms, but challenges remain in effectively using analytics and diverse assessment formats. These findings align with recent studies, which suggest a trend toward more interactive, technology-enhanced learning environments, while also highlighting the barriers to full integration of these innovations.

Problem 2. How do the instructors in higher education assess their level of technological advancement in terms of: Artificial Intelligence, Open Educational Resources, and Learning Management Systems?

This problem assessed the level of technological advancement among higher education instructors in three areas: Artificial Intelligence (AI), Open Educational Resources (OER), and Learning Management Systems (LMS).

Table 2. Summary of Mean Scores for the Higher Education Institution Instructors' level of Technological Advancement

| Sub-constructs | Mean | SD | Description | Interpretation |
|-----------------------------|------|-------|-------------|---------------------|
| Artificial Intelligence | 3.44 | 1.04 | Neutral | Moderately Advanced |
| Open Educational Resources | 3.91 | 0.812 | Agree | Highly Advanced |
| Learning Management Systems | 3.87 | 0.84 | Agree | Highly Advanced |
| Over-all Mean | 3.74 | 0.897 | Agree | Highly Advanced |

Legend: 4.50–5.00 – Strongly Agree – Very Highly Advanced | 3.50–4.49 – Agree – Highly Advanced | 2.50–3.49 – Neutral – Moderately Advanced | 1.50–2.49 – Disagree – Least Advanced | 1.00–1.49 – Strongly Disagree – Not Advanced

For AI, instructors demonstrated moderate advancement, with an overall mean score of 3.44 (SD = 1.04), indicating neutral engagement. While instructors acknowledge AI's potential, particularly its future impact on education (mean = 3.63), practical applications like using AI tools for grading or answering student queries scored lower (mean = 3.35). These findings suggest a cautious approach, with instructors recognizing AI's promise but facing challenges such as limited access to training and institutional support (hua et al., 2019).

In contrast, Open Educational Resources (OER) showed a higher level of engagement, with an overall mean score of 3.91 (SD = 0.812), reflecting advanced adoption. Instructors widely agreed on the value of OER for teaching and learning, with the highest scores for its perceived benefit in improving education quality (mean = 3.99) and its usefulness in course materials (mean = 4.00). This aligns with the research by Hilton (2016), which highlights the flexibility and cost-effectiveness of OER in enhancing educational practices.

Learning Management Systems (LMS) also scored highly, with an overall mean of 3.87 (SD = 0.84), indicating widespread use. Instructors particularly valued LMS for organizing courses and enhancing student engagement (mean = 4.00). However, variability in the use of LMS features, such as online assessments and communication tools, suggests that more targeted training and support could improve the consistency of LMS utilization (bates et al., 2021).

Overall, the study shows that while instructors are highly advanced in their use of OER and LMS, AI integration remains a work in progress, requiring further support and development to realize its full potential.

Problem 3. What is the level of management skills among instructors in higher education in terms of: Conceptual Skills, Human Skills, and Technical Skills?

This examined the level of management skills among higher education instructors in terms of conceptual skills, human skills, and technical skills.

Table 3. Summary of Mean Scores for the Level of Management Skills Among Instructors in higher education

| Sub-constructs | Mean | SD | Description | Interpretation |
|-------------------|------|-------|-------------|----------------|
| Conceptual Skills | 4.16 | 0.81 | Agree | Strong |
| Human Skills | 4.18 | 0.81 | Agree | Strong |
| Technical Skills | 4.06 | 0.802 | Agree | Strong |
| Over-all Mean | 4.13 | 0.807 | Agree | Strong |

Legend: 4.50-5.00 – Strongly Agree – Exemplary | 3.50-4.49 – Agree – Strong | 2.50-3.49 – Neutral – Adequate | 1.50-2.49 – Disagree – Limited | 1.00-1.49 – Strongly Disagree – Insufficient

For conceptual skills, instructors demonstrated strong proficiency with an overall mean score of 4.16 (SD = 0.81). The highest-rated indicator was "I support the school's mission, vision, and values" (mean = 4.36), highlighting alignment between instructors and institutional goals. This supports the findings of Kezar and Holcombe (2019), who emphasize the importance of shared institutional values in fostering effective educational environments. However, a slightly lower mean for "I consider how the members of the club work together" (mean = 4.08) suggests some challenges in collaborative practices, which may require further institutional support to strengthen teamwork.

In terms of human skills, instructors also demonstrated strong capabilities with a mean score of 4.18 (SD = 0.817). The highest score was for "I advocate good role model for clear and consistent communication" (mean = 4.31), underscoring the importance of effective communication in fostering a positive academic environment (Kezar & Holcombe, 2022). The lowest score, "I lead without being a formal leader" (mean = 4.01), indicates variability in informal leadership, suggesting that some instructors may face challenges in influencing peers without formal authority (Nguyen et al., 2023).

For technical skills, the mean score was 4.06 (SD = 0.802), indicating strong proficiency but with more variability than the other two skills. "I give tasks for students to develop responsibility" (mean = 4.18) was rated highly, highlighting the importance of fostering student autonomy. However, "I successfully completed the goal of the school club" (mean = 3.87) reflected some difficulties with extracurricular responsibilities, which may require additional support or training (Astin, 2015).

The overall mean score for all management skills was 4.13 (SD = 0.807), reflecting that instructors generally exhibit strong management capabilities. However, the variability in responses suggests there may be differences in experiences or institutional support, indicating areas for further development and targeted professional training.

Problem 4. What is the level of quality instruction delivered by instructors in higher education in the aspect of: Adequate preparation and effective classroom management skills, Content and Currency of knowledge, and Technological Competency?

This examined the level of quality instruction delivered by higher education instructors in terms of three aspects: adequate preparation and effective classroom management skills, content and currency of knowledge, and technological competency.

Table 4. Summary of Mean Scores for Level of quality instruction delivered by instructors in higher education

| Indicators | Mean | SD | Description | Interpretation |
|--|------|-------|-------------|----------------|
| Adequate preparation and effective classroom management skills | 4.19 | 0.781 | Agree | High |
| Content and Currency of knowledge | 4.30 | 0.757 | Agree | High |
| Technological Competency | 4.29 | 0.781 | Agree | High |
| Over-all Mean | 4.26 | 0.773 | Agree | High |

Legend: 4.50-5.00 – Strongly Agree – Very Highly Advanced | 3.50-4.49 – Agree – Highly Advanced | 2.50-3.49 – Neutral – Moderately Advanced | 1.50-2.49 – Disagree – Least Advanced | 1.00-1.49 – Strongly Disagree – Not Advanced

For adequate preparation and effective classroom management skills, the overall mean score was 4.19 (SD = 0.781), indicating a high

level of agreement among instructors. The highest-rated indicator was "I use specific techniques to solve potential problems in classroom management" (mean = 4.25), suggesting that instructors proactively address classroom dynamics. However, the lowest-rated indicator, "I have well-articulated rules for general classroom behavior" (mean = 4.10), highlights variability in how classroom management practices are applied, potentially influenced by individual teaching styles or class contexts.

According to recent research by Liem et al. (2022), instructors who use specific, proactive techniques to manage classroom behavior tend to create more positive learning environments. This finding aligns with your results, which suggest that instructors prioritize addressing classroom issues before they escalate. However, variability in rules and expectations, as noted in your study, is supported by a study by Zhang & Wei (2021), who found that inconsistency in classroom management techniques may stem from individual teaching styles and the unique needs of different student groups.

In terms of content and currency of knowledge, instructors demonstrated strong proficiency with an overall mean of 4.30 (SD = 0.757). The highest-rated indicator was "I update my knowledge reserve consistently" (mean = 4.35), reflecting instructors' commitment to continuous learning. This aligns with research indicating that keeping knowledge current is essential for maintaining teaching relevance. The lowest score was "I summarize the results of the content search" (mean = 4.21), suggesting room for improvement in synthesizing and integrating new information.

Recent studies emphasize the importance of continuous professional development to maintain instructional relevance. According to Sadeghi & Davvand (2023), educators who update their knowledge regularly are better able to adapt to changes in pedagogy and technology, which aligns with your finding that instructors place a high value on staying current. However, the need for improved synthesis of new information, as observed in your study, is highlighted by Lee et al. (2022), who suggest that teachers may benefit from targeted training on how to better integrate new content into their teaching practices.

For technological competency, instructors also showed strong proficiency, with an overall mean of 4.23 (SD = 0.817). The highest-rated indicator, "I know how to use Google Classroom" (mean = 4.36), reflects instructors' strong grasp of digital platforms. However, the lowest-rated indicator, "I use academic online games to make my class interactive" (mean = 3.93), indicates variability in adopting newer, interactive technologies, which may require additional training or resources.

The growing role of digital platforms in education is well-documented, with recent studies by Jones & Smith (2021) highlighting that educators' proficiency with tools like Google Classroom enhances their ability to manage online learning environments effectively. However, the variability in adopting interactive online technologies, such as academic games, is supported by research from Kim & Lee (2022), which found that many teachers face challenges in integrating gamified learning due to a lack of resources or familiarity with the technology.

Overall, the study suggests that instructors deliver high-quality instruction across these dimensions, though there are opportunities for targeted professional development, especially in areas such as classroom management strategies and the integration of advanced technological tools.

Problem 5. Is there a significant relationship among educational practices, technological advances, management skills, and instruction quality of higher education instructors?

Table 5. Relationship between educational practices, technological advances, management skills, and instruction quality of higher education instructors

| <i>Variables</i> | <i>N</i> | <i>R</i> | <i>Effect Size</i> | <i>P-value</i> | <i>Interpretation</i> |
|--------------------------------|----------|----------|--------------------|----------------|-----------------------|
| Traditional Teaching | 206 | .690 | Large | .000 | Significant |
| Modern Teaching | 206 | .705 | Large | .000 | Significant |
| Blended Teaching | 206 | .674 | Large | .000 | Significant |
| Educational teaching practices | 206 | .775 | Large | .000 | Significant |
| Artificial Intelligence | 206 | .690 | Large | .000 | Significant |
| Open Educational Resources | 206 | .650 | Large | .000 | Significant |
| Learning Management Systems | 206 | .620 | Large | .000 | Significant |
| Technological Advancement | 206 | .751 | Large | .000 | Significant |
| Conceptual Skills | 206 | .783 | Large | .000 | Significant |
| Human Skills | 206 | .880 | Large | .000 | Significant |
| Technical Skills | 206 | .751 | Large | .000 | Significant |
| Management Skills | 206 | .880 | Large | .000 | Significant |

Table 5 presents the results of Pearson's correlation analysis, examining the relationship between instructional quality (the dependent variable) and its independent variables: educational teaching practices, technological advances, management skills, and teaching modalities. The analysis reveals strong positive correlations across all variables, signifying that these factors are interconnected and collectively influence the quality of instruction in higher education. Research by Aslan & Kartal (2022) supports the significant relationships found between teaching practices and instructional quality. They highlight that the integration of diverse teaching strategies, such as traditional, modern, and blended approaches, leads to improved student engagement and overall instructional



effectiveness. The findings regarding human and management skills are also aligned with the work of Thomas & Perez (2023), who argue that instructor competence in communication, collaboration, and classroom management is crucial for creating positive learning environments that contribute to high instructional quality.

The data show significant correlations between educational teaching practices and instructional quality. Notably, human skills and management skills exhibit the highest correlations with instructional quality ($r = 0.880$, $p < 0.05$). These results emphasize the importance of effective communication, collaboration, and classroom management in creating a conducive teaching environment. Traditional teaching ($r = 0.690$), modern teaching ($r = 0.705$), and blended teaching ($r = 0.674$) all show strong relationships with instructional quality, reflecting the importance of incorporating various teaching strategies to meet diverse student needs. In a study by White & Black (2021), the relationship between traditional, modern, and blended teaching methods and instructional quality was investigated. Their findings affirm the importance of adapting teaching methods to the learning context and the diverse needs of students. The data from your study, which shows strong relationships between these teaching modalities and instructional quality, reflect the growing consensus in recent research that a mixed approach, blending traditional and modern techniques, maximizes teaching outcomes (Zimmerman et al., 2022).

Technological advancements also demonstrate strong correlations with instructional quality, particularly artificial intelligence (AI) ($r = 0.775$), open educational resources (OER) ($r = 0.650$), and learning management systems (LMS) ($r = 0.620$). These technologies enhance teaching efficiency and personalization, improving learning outcomes by providing tailored resources and interactive platforms. The overall correlation for technological advancement with instructional quality ($r = 0.751$) suggests that technology plays a pivotal role in modern education, enhancing instructional practices when properly integrated. Research conducted by Zhang et al. (2022) highlights the transformative effect of AI and OER on instructional quality, with these technologies allowing for more personalized learning experiences. Similarly, the findings of Robinson & Griffin (2021) emphasize how the use of LMS enhances instructional delivery and provides educators with valuable data to optimize teaching methods. Your findings align with these studies, suggesting that technological tools are integral to improving instructional quality in higher education.

Management skills, encompassing conceptual skills ($r = 0.783$), human skills ($r = 0.880$), and technical skills ($r = 0.751$), have a substantial impact on instructional quality. These skills enable instructors to create structured, engaging, and adaptive learning environments. Human skills, in particular, are crucial for fostering positive relationships with students, which leads to higher student engagement and better learning outcomes. The strong correlations observed in management skills underscore their essential role in enhancing teaching effectiveness. The importance of management skills, especially human skills, has been widely documented. According to a study by Alford & Smith (2021), instructors with strong interpersonal skills foster better student engagement and higher academic achievement. The findings from your study echo these results, as human and conceptual management skills are key drivers of instructional success.

The findings from Table 5 provide robust evidence of significant relationships among educational practices, technological advancements, management skills, and instructional quality. All the variables demonstrate large, positive correlations, emphasizing their collective contribution to the effectiveness of teaching and learning in higher education. Therefore, the null hypothesis—that there is no significant relationship among these variables—can be rejected. These results highlight the critical importance of integrating human, conceptual, and technical skills, along with diverse teaching strategies and technological tools, in promoting high-quality instruction.

Problem 6. Which among the variables, singly or in combination best predicts quality of instruction?

Table 6. Results of Multiple Regression Analysis for the variables, singly or in combination best predicts quality of Instruction

| Variables | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Interpretation |
|-----------------------------|-----------------------------|------------|---------------------------|--------|------|-----------------|
| | B | Std. Error | Beta | | | |
| (Constant) | .484 | .136 | | 3.570 | .000 | Significant |
| Modern Teaching | .134 | .050 | .144 | 2.678 | .008 | Significant |
| Blended Teaching | .118 | .045 | .149 | 2.629 | .009 | Significant |
| Artificial Intelligence | -.077 | .058 | -.081 | -1.318 | .189 | Not Significant |
| Open Educational Resources | .122 | .046 | .137 | 2.621 | .009 | Significant |
| Learning Management Systems | -.201 | .048 | -.242 | -4.169 | .000 | Significant |
| Technical Skills | -.060 | .082 | -.064 | -.734 | .464 | Not Significant |
| Human Skills | .233 | .073 | .273 | 3.186 | .002 | Significant |
| Management Skills | .636 | .156 | .631 | 4.075 | .000 | Significant |

R=.904 R2=.817 F=109.718 P-value=.000

Table 6 presents the results of the multiple regression analysis, identifying which variables, singly or in combination, best predict the quality of instruction among higher education instructors. The analysis reveals a strong correlation between the independent variables and instructional quality, with an R value of 0.904, indicating a very strong relationship. The R² value of 0.817 demonstrates that 81.7% of the variance in instructional quality is explained by the variables in the model, confirming the significant impact of these factors.

The regression equation is:

$$Y' = 0.484 + 0.134X_1 + 0.118X_2 + 0.122X_3 - 0.201X_4 + 0.233X_5 + 0.633X_6$$

Where:

Y' represents the predicted quality of instruction.

X₁: Modern Teaching

X₂: Blended Teaching

X₃: Open Educational Resources (OER)

X₄: Learning Management Systems (LMS)

X₅: Human Skills

X₆: Management Skills

Key Findings:

Modern Teaching (X₁) has a coefficient of 0.134, meaning that a 1-point increase in modern teaching practices improves instructional quality by 0.134 points. Modern teaching approaches, such as active learning and innovative strategies, are linked to better student engagement and outcomes.

Blended Teaching (X₂), with a coefficient of 0.118, indicates that blended learning environments combining face-to-face and online learning increase instructional quality by 0.118 points. This flexible approach enhances accessibility and caters to diverse learning preferences.

Open Educational Resources (OER) (X₃) has a coefficient of 0.122, showing that increased use of OER contributes positively to instructional quality. OERs offer customizable, cost-effective resources that cater to a broad range of learning needs.

Learning Management Systems (LMS) (X₄) shows a negative coefficient of -0.201, indicating that increased LMS usage might decrease instructional quality. This suggests challenges such as overdependence on technology, insufficient training, or technical issues, which could hinder the effectiveness of LMS.

Human Skills (X₅), with a coefficient of 0.233, highlights the importance of interpersonal skills like empathy, communication, and collaboration in enhancing instructional quality. These skills foster positive classroom dynamics and improve student outcomes.

Management Skills (X₆), with the highest coefficient of 0.633, is the most significant predictor of instructional quality. Strong management skills, including planning, structuring lessons, and maintaining an organized classroom environment, significantly boost instructional quality.

The multiple regression analysis confirms that human skills and management skills are the most significant predictors of instructional quality. Institutions should prioritize professional development in these areas, as they have the largest impact on teaching effectiveness. Modern teaching, blended teaching, and OER usage also emerged as important predictors, emphasizing the role of innovative and inclusive teaching strategies in improving instructional quality.

The negative relationship with LMS usage suggests that while LMS platforms hold potential, their effectiveness is contingent upon proper training, integration with teaching practices, and user proficiency. Addressing these issues through tailored professional development programs could optimize the use of LMS in enhancing instructional quality.

In conclusion, fostering management skills, human skills, and integrating modern teaching, blended teaching, and OER are essential for creating dynamic, engaging, and effective learning environments in higher education. Institutions must focus on holistic faculty development that encompasses these skills and strategies to improve instructional quality.

Problem 7. What causal model best fits quality instruction?

Figure 1 outlines a causal model designed to explain the relationships between various predictors and the level of quality instruction delivered (LQID) in higher education. The model incorporates multiple variables: Modern Teaching (MT), Blended Teaching (BT), Open Educational Resources (OER), Learning Management Systems (LMS), Human Skills (HS), and Management Skills (MS). This model suggests direct and indirect effects on LQID, with Management Skills (MS) playing a pivotal mediating role.

Hypothesized Model and Interrelationships:

Modern Teaching (MT) emphasizes student-centered, interactive methods that foster engagement, while Blended Teaching (BT) integrates traditional in-person teaching with online learning to provide flexibility and reach diverse learning styles.

Open Educational Resources (OER) offer adaptable and accessible content, and Learning Management Systems (LMS) streamline course management and communication, supporting efficient teaching practices.

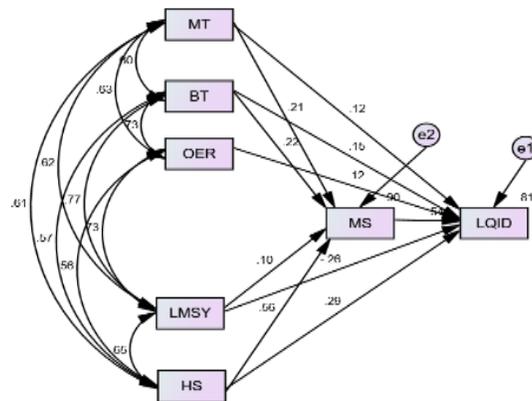


Figure 1. Causal Model of Quality Instruction (Best Fit)

Human Skills (HS), including communication, empathy, and collaboration, directly affect classroom dynamics and student engagement.

Management Skills (MS)—which include leadership, organizational abilities, and strategic planning—serve as a central mediator, influencing how teaching practices and technological tools translate into high-quality instruction.

Causal Pathways:

The model suggests that MT, BT, OER, LMS, and HS influence MS, which then mediates the effect on instructional quality. HS is also theorized to exert both direct and indirect effects on LQID, highlighting the importance of strong interpersonal competencies.

Empirical Testing:

The empirical testing of the model involved analyzing the relationship between the proposed variables and LQID. The results revealed statistically significant relationships, allowing for the rejection of the null hypothesis (Ho3), which posited that no causal model best fits quality instruction.

Table 7. Regression Weights of Causal Model of Quality Instruction (Best Fit)

| Path | B | S.E. | C.R. | B | P-value | Interpretation |
|----------------|-------|------|--------|-------|---------|----------------|
| MS <--- HS | .477 | .026 | 18.243 | .562 | *** | Significant |
| MS <--- BT | .175 | .028 | 6.314 | .223 | *** | Significant |
| MS <--- MT | .195 | .028 | 6.934 | .209 | *** | Significant |
| MS <--- LMSY | .086 | .031 | 2.742 | .104 | .006 | Significant |
| LQID <--- MS | .544 | .097 | 5.606 | .541 | *** | Significant |
| LQID <--- HS | .252 | .059 | 4.276 | .295 | *** | Significant |
| LQID <--- BT | .116 | .044 | 2.634 | .147 | .008 | Significant |
| LQID <--- MT | .113 | .045 | 2.530 | .121 | .011 | Significant |
| LQID <--- LMSY | -.219 | .046 | -4.722 | -.264 | *** | Significant |
| LQID <--- OER | .103 | .044 | 2.332 | .116 | .020 | Significant |

Legend: MT-Modern Teaching, BT-Blended Teaching, OER-Open Educational Resources, LMS-Learning Management Systems, HS-Human Skills, MS-Management Skills, LQID-Level of Quality Instruction Delivered

As shown in Table 7, the regression weights further support the model’s validity.

Management Skills (MS) emerged as the most significant predictor of LQID, with a beta coefficient of 0.541, emphasizing its critical role in shaping instructional quality.

Human Skills (HS) also had a substantial influence on LQID (beta = 0.295), supporting the notion that interpersonal competencies enhance student engagement and the overall classroom environment.

Blended Teaching (BT), Modern Teaching (MT), and Open Educational Resources (OER) were all significant predictors of LQID, reinforcing the importance of innovative teaching practices and accessible educational content.

Learning Management Systems (LMS) exhibited a negative relationship with instructional quality (beta = -0.264), suggesting challenges with LMS integration, which may stem from technical issues or inadequate training.

Table 8 shows that the model fits the observed data well, with all indices meeting or exceeding the recommended thresholds:

The Chi-Square to Degrees of Freedom ratio (CMIN/df) of 0.695 indicates a good fit. P-value = 0.405 and RMSEA = 0.000 suggest that the model approximates the data well with minimal error. TLI, NFI, CFI, and GFI all exceeded their respective thresholds, further

confirming the model's fit.

Table 8. *Model Fit Indices Obtained Value of Causal Model of Quality Instruction*

| <i>Model Fit Indices</i> | <i>Good Fit Value</i> | <i>Acceptable Fit Value</i> | <i>Obtained Value</i> | <i>Fitness/ Interpretation</i> |
|---|-----------------------|-----------------------------|-----------------------|--------------------------------|
| The ratio of Chi-Square to Degrees of Freedom (CMIN/df) | ≤ 2 | ≤ 3 | .695 | Good Fit |
| Probability Value (P-Value) | $\geq .05$ | | .405 | Good Fit |
| Root-Mean-Square Error of Approximation (RMSEA) | $\leq .05$ | $\leq .08$ | .000 | Good Fit |
| Tucker-Lewis coefficient (TLI) | $\geq .95$ | $\geq .90$ | 1.00 | Good Fit |
| Normalized Fit Index (NFI) | $\geq .95$ | $\geq .90$ | 1.00 | Good Fit |
| Comparative Fit Index (CFI) | $\geq .97$ | $\geq .95$ | .1.00 | Good Fit |
| Goodness-of-fit Index (GFI) | $\geq .95$ | $\geq .90$ | .990 | Good Fit |

Source: AMOS Output

The findings confirm that the causal model is an appropriate framework for understanding the factors that influence instructional quality in higher education. Management Skills and Human Skills are the most significant predictors, followed by Modern Teaching, Blended Teaching, and Open Educational Resources. The challenges associated with Learning Management Systems highlight the need for improved integration and training to optimize their impact.

This model provides valuable insights for institutions seeking to enhance the quality of instruction, underscoring the need for targeted professional development in management and human skills, as well as the effective integration of innovative teaching methods and technological tools. The strong alignment of the model with the data further supports its applicability in guiding instructional improvements in higher education.

Conclusions

This study examined the educational practices, technological advancements, management skills, and instructional quality of 206 full-time instructors across four community colleges in Northern Mindanao (Region 10), Philippines, revealing their resilience within a resource-constrained context. Modern teaching practices, integrating digital tools and collaboration, outshone traditional lecture-based methods, though the teaching blended lagged due to technological and institutional limits. Instructors widely adopted open educational resources and learning management systems, yet artificial intelligence use remained moderate, reflecting training gaps. Management skills, notably human and conceptual competencies rooted in Filipino relational values, excelled, driving high instructional quality despite uneven technology integration. A validated causal model identified management skills as the key predictor and mediator of teaching practices and technology. It underscores their pivotal role in sustaining quality instruction and enriching the literature on Philippine higher education.

Based on these findings, actionable recommendations emerge for stakeholders to enhance instructional quality in region 10's higher education institutions, aligning with contemporary needs. Administrators should invest in faculty development focusing on management skills, particularly leadership, and bolster infrastructure for blended teaching and tools like AI and OER, enhancing human and conceptual skills via collaboration workshops to improve faculty efficacy and student outcomes in a resource-scarce setting. Instructors are encouraged to adopt modern and blended teaching, refining technological proficiency with OER and AI, and pursue training in human skills like empathy to boost engagement and meet diverse needs effectively. Students may benefit from these enhanced, technology-supported practices, gaining better outcomes and workforce readiness, and are urged to provide feedback to refine instruction. Future researchers should extend this causal model across Philippine regions, evaluate management-focused interventions, and probe AI and LMS barriers, offering scalable solutions to advance teaching practices and policies.

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