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Enhancing Educational Programme Quality in Higher Education through Adaptive Curriculum Leadership in the Digital Era

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quality educational programmes, adaptive curriculum leadership, digital transformation, academic leadership, curriculum innovation

Abstract

This qualitative study explored how adaptive curriculum leadership enhanced educational programme quality amid digital transformation in higher education. Data were collected through in-depth interviews with academic leaders, including deans, programme chairpersons, senior faculty, and faculty experts from diverse disciplines in a Philippine state university. The findings show that adaptive curriculum leadership was critical for integrating digital technologies, fostering collaboration, and addressing challenges such as technological advancement, curriculum misalignment, and equitable access. Key social and technological forces driving adaptation include digital literacy, personalised learning, and global collaboration. Leadership strategies to address these challenges include infrastructure upgrades, faculty development, and curriculum redesign aligned with technological and industry needs. The study highlights flexibility, inclusivity, and responsiveness as essential for sustaining high-quality programmes in the digital era.

Introduction

In the rapidly evolving, technology-driven landscape of higher education, institutions must adapt curricula and instructional practices to meet changing societal, technological, and workforce demands. Central to this shift is digital transformation, which integrates digital technologies into curriculum delivery, instructional design, assessment, and student engagement. The Organisation for Economic Co-operation and Development (OECD, 2021) notes that digital transformation requires rethinking educational models to leverage data, connectivity, automation, and emerging media for enhanced learning outcomes and institutional effectiveness.

The adoption of advanced digital tools disrupts traditional curriculum structures and leadership practices, highlighting the need for flexibility, responsiveness, and innovation. Adaptive curriculum leadership has emerged as a key approach for managing curriculum change in this context. Anchored in Adaptive Leadership Theory (Heifetz et al., 2009), it emphasises mobilising individuals and organisations to address complex challenges. Its relevance to digital and innovation-oriented leadership is supported by recent studies (Kane et al., 2021; Sheninger, 2019; Uhl-Bien & Arena, 2018).

Academic leaders play a central role in recognising social and technological drivers of change, shaping a shared vision, fostering collaboration, supporting faculty development, and monitoring curriculum implementation to maintain quality (DeMatthews, 2014). Despite

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growing recognition, empirical studies on adaptive curriculum leadership's impact on educational quality in digital transformation remain limited, especially in developing higher education contexts (Gkrimpizi et al., 2022; Prasetyaningtyas et al., 2023). Addressing this gap, the present study examined how adaptive curriculum leadership enhances programme quality, identifies key drivers, evaluates leadership practices, explores challenges, and draws implications for curriculum design in the digital era.

Literature Review

Adaptive Curriculum Leadership in the Digital Era

Adaptive leadership is critical in navigating challenges in contemporary higher education, particularly amid digital transformation. Defined as the capacity to mobilise people to address complex challenges and thrive in changing environments, adaptive leadership supports innovation, resilience, and experimentation in educational settings (Boyce & Bowers, 2018; Heifetz et al., 2009; Manrique, 2024; Maulana et al., 2024). Through shifts in values, mindsets, and professional practices, adaptive leaders enable educators to respond effectively to technological change and emerging demands (Maulana et al., 2024).

Key elements of adaptive leadership include engaging stakeholders through shared meaning, maintaining integrity, demonstrating adaptive capacity, and navigating change through empathy, self-correction, and collaborative problem-solving (Mag-atas, 2023; Maulana et al., 2024). These elements are especially relevant in digitally mediated educational environments characterised by rapid innovation, uncertainty, and equity concerns.

Within this context, curriculum leadership plays a central role in shaping student achievement through curriculum development, professional learning, and assessment practices (Allen et al., 2015; Carter et al., 2020). Shared among administrators and teachers, curriculum leadership ensures responsiveness to contemporary educational demands and supports the integration of technology in blended, hybrid, and adaptive learning environments (Bitar & Davidovich, 2024; Dugan, 2017; Kumin et al., 2024; Laid & Adlaon, 2025). Recent studies highlight the role of curriculum leaders in guiding the use of artificial intelligence, learning management systems, and digital collaboration tools while fostering digital literacy and innovation-oriented mindsets among educators (AlAjmi, 2022; Sari & Variani, 2024; Shabira, 2025; Zeng & Cheah, 2025).

Adaptive curriculum leadership further emphasises flexibility and responsiveness in curriculum development to address evolving educational and workforce needs (Bendikson et al., 2023). It involves active participation of faculty, students, and administrators, continuous reflection, and the use of feedback mechanisms to refine curriculum strategies and maintain alignment with digital standards and labour market demands (Johnson & Wang, 2023; Kaufman, 2024; Smith & Lee, 2024). Through collaboration and iterative improvement, adaptive curriculum leadership sustains curriculum relevance and educational quality in the digital era.

Quality Educational Programmes in the Digital Era

Quality educational programmes are vital for higher education institutions to remain relevant in a digitalised world. They provide effective learning experiences aligned with labour market demands and equip students with competencies required for the digital economy (Martin & Xie, 2022). Such programmes feature clear learning outcomes, coherent curricula, and the integration of appropriate digital resources (OECD, 2022). Technology supports continuous programme improvement through data analytics, feedback mechanisms, and evidence-based instructional refinement (Wolfe, 2015). Experiential learning, including internships and collaborative projects,

enables students to apply theoretical knowledge in real-world contexts (Bholane, 2024). Additionally, integrating technology in teaching and assessment enhances programme quality by simulating authentic professional environments and preparing students for digitally mediated workplaces (UNESCO, 2023).

Academic Leadership, Quality, and Change in Higher Education

Paul's scholarship provided a valuable conceptual lens for understanding curriculum leadership during periods of change in higher education. He emphasised that academic leadership is centred on sustaining educational quality while responding to institutional, societal, and technological pressures, requiring leaders to balance managerial demands with academic values and student learning outcomes (Paul, 2015). Within the context of digital transformation, Paul highlighted that quality assurance depends not on rigid compliance but on reflective, values-driven, and adaptive decision-making grounded in professional judgment and continuous dialogue (Paul, 2015). This perspective aligns with adaptive curriculum leadership, which prioritises flexibility, stakeholder engagement, and iterative improvement in response to emerging challenges. Paul (2024) further underscored the role of curriculum leadership in sustaining academic integrity and institutional credibility during innovation and reform, reinforcing the importance of leadership that guides change while safeguarding programme quality in digitally evolving educational environments.

Theoretical Framework

This study adopted Adaptive Leadership Theory (Heifetz et al., 2009), which emphasises the need for leaders to be flexible, innovative, and collaborative when addressing complex problems that demand novel solutions. In the context of higher education, adaptive curriculum leadership involves guiding institutions to respond effectively to evolving social, technological, and educational demands. The theory underscores the importance of continuous improvement and stakeholder engagement—faculty, students, and other actors—in curriculum design and implementation. By fostering collaboration and leveraging digital tools, academic leaders can enhance the relevance, quality, and effectiveness of educational programmes in a rapidly changing digital environment. This framework informs the study by providing insight into how leaders can navigate technological and societal pressures to sustain and advance curriculum quality.

Research Objectives and Questions

Objective 1: To explore the social and technological factors influencing adaptive curriculum leadership in higher education in the digital era:

- What social and technological factors have shaped adaptive curriculum leadership at your institution?
- How have technological advancements influenced curriculum leadership?
- What external societal or technological pressures have driven curriculum changes?

Objective 2: To examine how adaptive curriculum leadership supports the integration of digital technologies and enhances the quality of educational programmes:

- How effectively has adaptive curriculum leadership integrated digital technologies into educational programmes?
- Can you provide examples of how adaptive leadership has improved programme quality?

Objective 3: To investigate the challenges faced in implementing digital technologies in the curriculum and the strategies used to address them:

- What challenges have you faced in integrating digital technologies into your curriculum?
- What strategies or solutions have you employed to overcome these challenges?

Methods

Research Design

This study employed a qualitative research design, which is well-suited for exploring complex social and educational issues in depth (Creswell, 2014). The qualitative approach was chosen to gain a rich, nuanced understanding of how adaptive curriculum leadership, within the context of digital transformation, impacted the quality of educational programmes. This design was selected to capture the perspectives and experiences of academic leaders, as it allows for a more holistic view of the challenges and opportunities they face in integrating digital technologies and leading curriculum innovation (Polikoff, 2020).

Participants

The study was conducted at a state university in Batangas, Philippines. A purposive sampling strategy was used to select participants based on administrative roles, teaching experience, and involvement in curriculum design, delivery, and evaluation. Qualified academic leaders were identified through the Office of the Dean, and formal invitations were sent to those who met the inclusion criteria. The final sample included 14 academic leaders: one Dean, three Programme Chairpersons, three Senior Faculty Members, and seven Faculty Experts. The Dean provided insights on institutional curriculum policies and strategic decisions; Programme Chairpersons on programme-level management; Senior Faculty Members on teaching and curriculum innovation; and Faculty Experts on programme-specific integration of digital tools. The sample size was appropriate for qualitative inquiry, allowing in-depth exploration of the research questions and achieving data saturation, where no new themes emerged (Guest et al., 2020). This approach ensured a comprehensive understanding of adaptive curriculum leadership practices in the digital era.

Research Instruments

Semi-structured interviews were used to collect data, providing both flexibility and focus. This format enabled the researcher to ask open-ended questions and facilitate rich, in-depth discussions on participants' experiences and perspectives regarding adaptive curriculum leadership and digital transformation. The interview guide was systematically developed based on the study's research questions/objectives (noted in an earlier section), was informed by a review of relevant literature, and was further refined through expert validation to enhance clarity, relevance, and alignment with the research focus. All interviews were audio-recorded with participants' consent to ensure accurate data capture. Transcripts were returned to participants for member checking, allowing them to verify the accuracy of their responses and provide additional input where necessary, thereby enhancing the credibility and trustworthiness of the data (Chali et al., 2022).

Data Collection and Procedure

Before conducting the interviews, formal approval was obtained from the appropriate authorities, and written consent was secured from all participants. The interviews were conducted face-to-face to foster a more personal and interactive data collection process. The interview schedule

was flexible, with follow-up questions designed to probe specific insights based on the responses provided.

Data Analysis and Treatment

Data were analysed using content and thematic analysis to identify patterns and key themes in the interview transcripts (Braun & Clarke, 2023). The process began with a thorough review of the transcripts to familiarise the researcher with the data, followed by the generation of initial codes from significant statements and experiences related to adaptive curriculum leadership and digital transformation. These codes were then organised into broader themes aligned with the study's objectives, providing a structured framework for interpreting the data. To ensure validity and reliability, member checking was conducted, allowing participants to review and confirm the accuracy of their transcripts (Ravitch & Carl, 2016). Peer debriefing with colleagues experienced in qualitative methods further strengthened the credibility of the analysis and ensured that interpretations accurately reflected participants' perspectives.

Results

This study examined how adaptive curriculum leadership enhances educational programme quality amid digital transformation. The findings are organised and presented according to the study's research objectives.

I. Identified Social and Technological Forces Driving the Need for Adaptive Curriculum Leadership

Table 1 summarises the social and technological forces driving the need for adaptive curriculum leadership. Digital integration and technological advancement emerged as the primary force influencing curriculum change. Participants emphasised digital literacy, e-learning tools, and AI as essential for preparing students for workforce demands. The increasing adoption of online and blended learning has become a standard feature of modern curricula, requiring leaders to rethink traditional teaching and learning approaches.

A second major force is the demand for digital competencies for career readiness. Participants stressed the need to align curricula with industry requirements, particularly in technology-driven fields, by strengthening students' practical digital skills and employability.

Table 1: Identified Social and Technological Forces Driving Adaptive Changes in Curriculum Leadership

Themes	Sub-themes	Exemplars
Digital Integration and Technological Advancements	Digital Literacy	We need to integrate new technologies for career readiness. [P3]
	E-Learning Tools	…updating for online learning is key to accessibility. [P5]
	AI and Automation	…because AI tools help personalize the learning experience. [P7]
Digital Competencies for Career Readiness	Industry Skills	Curricula must match industry skills, especially in tech fields. [P6]
	Digital Skills	Digital tools are essential for job readiness. [P9]
	Career Preparation	… I think, practical experience with digital tools is vital for job readiness. [P12]
Personalised and Flexible Learning	Adaptive Learning Technologies	… our materials now support blended and personalized learning. [P10]
	Learning Pathways	Flexible learning options cater to different learning styles. [P8]

Themes	Sub-themes	Exemplars
Digital Equity and Accessibility	Access to Digital Tools	…ensuring all students have access to the latest technology. [P4]
	Inclusive Digital Learning	We ensure that all digital resources are accessible to all students. [P11]
Global Perspectives and Digital Collaboration	Global Perspectives	We include global issues in the curriculum through online platforms. [P3]
	Virtual Collaboration	Students engage in collaborative projects with peers worldwide. [P7]
Educational Policy and Digital Standards	Regulatory Compliance	Curriculum changes must adhere to new digital education standards. [P4]
	Digital Policies and Guidelines	…revise the curriculum to comply with e-learning regulations. [P9]

Personalised and flexible learning also drove curriculum adaptation. Advances in adaptive learning technologies enabled flexible learning pathways that address diverse learning needs and support inclusivity. Moreover, concerns regarding digital equity and accessibility further shaped curriculum leadership decisions. Participants highlighted institutional efforts to ensure equitable access to digital tools and inclusive learning resources for all students.

In addition, global perspectives and digital collaboration influenced curriculum development, with leaders integrating global issues and virtual collaboration through digital platforms to prepare students for a globalised workforce. Lastly, educational policy and digital standards required curriculum leaders to align programmes with emerging digital education regulations, balancing innovation with legal and ethical responsibilities. In summary, the findings indicate that curriculum adaptation is driven by interconnected social and technological forces (Hatlevik & Christophersen, 2013), including digital integration and literacy (Selwyn, 2016), industry alignment (Garmendia & Karrera, 2019), personalised learning (Cerna et al., 2021), digital equity (González-Betancor et al., 2021), global collaboration (van der Vlies, 2020), and compliance with digital education standards (Wang et al., 2024).

II. Effectiveness of Adaptive Curriculum Leadership in Integrating Digital Technologies to Enhance Educational Programme Quality

Table 2 outlines how adaptive curriculum leadership effectively integrated digital technologies to enhance educational programme quality.

Table 2: Effectiveness of Adaptive Curriculum Leadership in Integrating Digital Technologies to Improve Programme Quality

Themes	Sub-themes	Exemplars
Technology Integration	Digital Literacy and Tools	Integrating digital tools has made learning more interactive and accessible for students. [P13]
	E-Learning and Online Platforms	The shift to e-learning has expanded access and provided greater flexibility for students, enhancing learning outcomes. [P12]
	AI and Automation in Learning	AI tools have personalized the learning experience, increasing engagement and retention. [P7]
Enhanced Programme Quality	Career and Industry Alignment	…more aligned with industry needs, especially in tech-related fields, through the use of digital tools. [P6]
	Real-World Applications	The use of digital simulations and virtual labs has given students practical experience that prepares them for the workforce. [P12]
	Collaborative Learning	Global collaboration through digital platforms has enhanced students' ability to solve real-world problems with peers worldwide. [P7]
Access and Inclusivity	Accessibility and Digital Equity	… access to the necessary digital tools to succeed, bridging the digital divide. [P4]
	Inclusive Digital Resources	…all digital content is accessible to students with diverse learning needs, making learning more equitable. [P14]

The findings indicate that technology integration improved student engagement, accessibility, and learning flexibility. Participants reported that digital tools and e-learning platforms enabled interactive learning and supported self-paced and personalised learning experiences. The strategic use of AI and automation further enhanced engagement and retention by tailoring content to individual learning progress.

Adaptive curriculum leadership also strengthened programme quality through industry alignment. Participants emphasised that digital tools, including simulations and virtual laboratories, supported the development of practical skills relevant to technology-driven fields. These tools enhanced students' readiness for real-world challenges while fostering problem-solving, collaboration, and critical thinking through digital and global collaborative learning.

In terms of access and inclusivity, participants highlighted leadership efforts to ensure equitable access to digital tools and inclusive learning resources. The availability of accessible digital content supported learners with diverse needs and contributed to more equitable learning environments.

In general, the findings show that digital integration enhanced educational quality by making learning more interactive and flexible (Afzal et al., 2023), supporting personalised learning through AI and automation (Haseski et al., 2018), and aligning curricula with industry demands (Rathore & Sonawat, 2015). The use of digital simulations and global collaboration further supported skill development and cross-cultural learning (Staddon, 2020), while adaptive leadership promoted digital equity and inclusive access to learning resources (Higgins et al., 2020; Umugiraneza et al., 2018).

III. Challenges in Integrating Digital Technologies and Strategies through Adaptive Curriculum Leadership

Table 3 presents the key challenges encountered in integrating digital technologies into educational programmes and the corresponding leadership-driven strategies.

Table 3: Challenges in Integrating Digital Technologies and Strategies through Adaptive Curriculum Leadership

Themes	Sub-themes	Exemplars
Infrastructure Limitations	Limited access to technology and inadequate internet	The outdated computers and unreliable internet hindered effective digital learning. [P6] To address this, the university invested in modern equipment and upgraded campus-wide internet connectivity. [P8]
Student Accessibility	Unequal access to devices and the digital divide	Many students lacked the necessary devices for online learning. [P12] In response, the university purchased laptops for students to borrow, ensuring equal access to digital tools. [P2]
Faculty Resistance	Lack of confidence and resistance to using digital tools	Some faculty members were hesitant to adopt digital teaching tools due to unfamiliarity. [P5] Leadership provided hands-on training and mentorship programs to build their confidence and skills. [P6]
Curriculum Misalignment	Existing curriculum not aligned with digital approaches	The curriculum was not designed for digital integration, making lessons less engaging. [P11] Leadership supported course redesigns to incorporate online simulations and interactive e-learning modules. [P9]

Participants identified infrastructure limitations as a major challenge, particularly outdated equipment and unreliable internet connectivity, which hindered effective digital learning. In response, the institution invested in modern equipment and upgraded campus-wide internet infrastructure to support digital teaching and learning. Also, unequal access to digital devices among students was another significant barrier. This could have contributed to the digital divide. To address this issue, the university might implement a laptop-lending programme, to ensure that students have access to essential digital tools for online learning.

Faculty resistance and their limited confidence in using digital technologies also emerged as challenges. Participants reported initial hesitation due to unfamiliarity with digital tools. Leadership addressed this through hands-on training and mentorship programmes, which helped build faculty competence and confidence in integrating technology into instruction. Furthermore, curriculum misalignment posed challenges, as existing curricula were not originally designed for digital integration. Leadership supported curriculum redesign initiatives that incorporated online simulations and interactive e-learning modules, resulting in more engaging and relevant learning experiences (Yusoff et al., 2023).

To sum up, the findings indicated that while digital integration presents persistent challenges—including infrastructure limitations (Farjon et al., 2019), unequal access to devices (Moore, 2018), faculty resistance (Firmin & Genesi, 2013; Yilmaz, 2021), and curriculum

misalignment (Umugiraneza et al., 2018)—adaptive curriculum leadership mitigated these barriers through infrastructure investment (Ilomäki et al., 2018), capacity-building initiatives, and curriculum redesign aligned with digitally mediated learning environments (Alenezi, 2023; Dugan, 2017).

Discussion and Implications

This study reveals the critical role of adaptive curriculum leadership in enhancing educational programme quality amid digital transformation. The findings show that academic leaders responded to social and technological pressures—such as digital integration, workforce demands, personalised learning, and equity concerns—through flexible, responsive, and collaborative leadership practices. The strategic use of AI, e-learning platforms, and digital literacy initiatives illustrated how curricula have been reshaped to address evolving student needs and labour market expectations. These findings confirmed that curriculum leadership in the digital era extends beyond administrative functions and requires continuous adaptation and strategic direction.

Paul's framework of academic leadership serves as an interpretive lens for understanding how leaders balance innovation with the safeguarding of educational quality during digital transformation.

The results align with Paul's view of academic leadership as a quality-centred, values-driven practice. Paul (2015) emphasised that leadership safeguards educational quality while responding to change through reflective judgment rather than rigid compliance. In this study, leaders demonstrated this balance through curriculum redesign, faculty development, and infrastructure investment, supporting Paul's (2024) assertion that leadership should guide innovation while preserving institutional credibility.

Adaptive curriculum leadership also proved essential in addressing challenges such as infrastructure limitations, unequal access to technology, faculty resistance, and curriculum misalignment. Leadership-driven responses—including technology investments, device provision, and targeted faculty training—enabled institutions to mitigate barriers to digital integration. Consistent with Paul's framework, these strategies reflect leadership grounded in dialogue, capacity-building, and shared responsibility, reinforcing adaptive curriculum leadership as a form of quality-driven academic stewardship.

Implications for Practice

The findings suggest that curriculum leaders might prioritise the strategic integration of emerging digital tools, including AI, e-learning platforms, and adaptive learning systems, to enhance engagement and interactivity. Faculty development through targeted training remains essential to support effective technology use. Flexible and modular curriculum models can enhance responsiveness to industry demands, while partnerships with external stakeholders strengthen real-world relevance. Personalised learning pathways and universal design principles might guide curriculum development to promote equity and accessibility. Lastly, institutions may implement regular review processes and use data analytics to support continuous improvement and blended or hybrid learning models that integrate digital and in-person instruction.

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