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Digital Knowledge Obsolescence, Teachers Adaptive Expertise and Readiness to Technology Integration in the Teaching Learning Process

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ABSTRACT

This study examined digital knowledge obsolescence, teachers' adaptive expertise, and readiness for technology-driven curriculum change in selected public elementary and secondary schools in the Schools Division of Bohol during School Year 2026–2027. Specifically, it assessed teachers' perceptions of digital knowledge obsolescence, their capacity to adapt instructional practices, and their preparedness to respond to technology-driven curriculum innovations. It also determined the relationships among the three variables and examined differences when respondents were grouped according to their demographic and professional profiles.

The study employed a quantitative descriptive-correlational approach involving 150 teacher-respondents from Erico B. Aumentado High School, Tapon Elementary School, and Achila Elementary School. Data were gathered using a researcher-made questionnaire employing a four-point Likert scale. Frequency, percentage, weighted mean, standard deviation, correlation analysis, and appropriate tests of difference were used to analyze the data.

The findings indicated that teachers generally agreed that digital knowledge obsolescence, adaptive expertise, and readiness for technology-driven curriculum change were evident, obtaining overall weighted means of 3.17, 3.19, and 3.18, respectively. Significant positive relationships were found between digital knowledge obsolescence and adaptive expertise ($r = 0.42$), digital knowledge obsolescence and readiness ($r = 0.36$), and adaptive expertise and readiness ($r = 0.61$), all with p-values below 0.001. Differences were also observed in selected variables according to age, educational attainment, teaching experience, and grade or school level handled, while no significant differences were found according to sex.

Based on these findings, a proposed professional development program was developed, focusing on digital competency enhancement, adaptive instructional practices, responsible technology use, collaborative learning, and preparation for curriculum innovations. The program aims to strengthen teachers' professional competencies and support their readiness for an increasingly technology-driven educational environment.

Keywords: digital knowledge obsolescence, adaptive expertise, curriculum change, teacher readiness, educational technology, professional development

CHAPTER 1

THE PROBLEM AND ITS SCOPE

INTRODUCTION

Rationale of the Study

The rapid advancement of digital technologies, artificial intelligence (AI), digital learning platforms, and data-driven instructional systems has transformed the nature of teaching and curriculum implementation in contemporary education. Teachers are increasingly expected not only to deliver subject content but also to integrate emerging technologies into lesson planning, classroom instruction, assessment, learner engagement, and curriculum evaluation. However, the continuous evolution of these technologies creates a significant challenge because the digital knowledge and technical competencies teachers acquire at one point in their careers may gradually become outdated or insufficient for emerging instructional demands. The United Nations Educational, Scientific and Cultural Organization (UNESCO, 2023) reported that only 40% of primary schools, 50% of lower secondary schools, and 65% of upper secondary schools worldwide were connected to the internet, illustrating the continuing disparities in the technological conditions that support educational innovation. UNESCO also emphasized that education technology evolves rapidly, with products changing approximately every 36 months on average, making the evaluation and sustained adoption of appropriate technologies particularly challenging. These developments highlight the importance of examining digital knowledge obsolescence, which refers to the gradual loss of the relevance or adequacy of previously acquired digital knowledge as technologies, platforms, and instructional requirements change. In this context, teachers must continuously update their competencies to remain responsive to changing educational environments. Technology integration, therefore, should not be understood merely as the availability or use of digital devices but as an ongoing process that requires professional learning, pedagogical judgment, and the ability to translate technological knowledge into meaningful instructional practices (Wong & Li, 2025; Mutelo & Yakobi, 2026).

The significance of teachers' technological preparedness is further demonstrated by international evidence concerning digital training and instructional competence. According to the Organisation for Economic Co-operation and Development (OECD, 2020), data from the Teaching and Learning International Survey (TALIS) 2018 indicated that only 56% of lower secondary teachers across participating OECD countries had received training in the use of information and communication technology (ICT) for teaching as part of their formal education or training. Furthermore, approximately 18% of teachers reported a high need for additional professional development in ICT skills for teaching. These findings suggest that participation in technology-related training does not necessarily eliminate the need for continuous professional learning, particularly when digital tools and pedagogical expectations continue to evolve. For teachers, digital knowledge obsolescence may become evident when previously learned applications, assessment systems, learning management platforms, or digital instructional strategies no longer adequately address current curriculum requirements. Consequently, teachers' readiness for technology-driven curriculum change may depend not only on their existing digital competencies but also on their ability to recognize knowledge gaps, acquire new skills, evaluate unfamiliar technologies, and apply updated knowledge in appropriate instructional contexts. Mane (2025), in examining teachers' readiness and technology integration, highlighted the importance of technological knowledge alongside pedagogical and content knowledge. Similarly, Oladele (2024) examined technology readiness in higher education, while Samara et al. (2025) investigated individual readiness for technology-driven change. These studies provide relevant foundations for understanding readiness as a multidimensional concern involving knowledge, confidence, and responses to technological transformation. Nevertheless, possessing

technological knowledge at a particular point in time may not guarantee that teachers can maintain their competence as educational technologies continue to develop.

Beyond technological competence, teachers' adaptive expertise is an important consideration in understanding how they respond to changing instructional demands. Adaptive expertise refers to the capacity to apply established knowledge effectively while also developing new approaches when familiar strategies are no longer sufficient for addressing unfamiliar or changing situations. In technology-driven education, adaptive expertise may be reflected in teachers' ability to select suitable digital tools, modify instructional strategies, troubleshoot technological difficulties, redesign learning activities, and maintain curriculum objectives despite changes in technological resources. This capability is particularly important because the effective integration of technology requires more than operational familiarity with digital applications; it also requires teachers to determine when, why, and how a particular tool can support learning. Asanre et al. (2026) discussed technology-driven assessment methods in teacher education, emphasizing the relevance of technological approaches to evaluating prospective teachers' competencies. Likewise, Shogbesan et al. (2026) examined technology-driven interventions intended to prepare pre-service teachers for twenty-first-century classrooms, while Hoffman (2026) explored the role of teachers in technology-driven education through a capabilities perspective. These contributions reinforce the importance of preparing educators to respond to changing instructional expectations. Moreover, Koseda et al. (2024) examined Education 4.0 in relation to digital disruption and innovative pedagogical approaches in higher education, highlighting the need to align technological developments with teaching and learning requirements. Taken together, these perspectives suggest that adaptive expertise may help teachers manage the limitations of previously acquired knowledge by enabling them to learn from experience, reconsider established practices, and develop alternative solutions when technological or curricular changes occur. However, the extent to which teachers' adaptive expertise is associated with their readiness for technology-driven curriculum change requires further empirical examination, particularly when digital knowledge may lose relevance before teachers have sufficient opportunities to update and apply it.

Despite growing attention to educational technology, teacher preparation, and institutional readiness, an important research gap remains in understanding how digital knowledge obsolescence, teachers' adaptive expertise, and readiness for technology-driven curriculum change relate to one another within a single explanatory framework. Existing studies address related but often distinct aspects of this issue. Mane (2025) focused on teachers' readiness and technology integration; Wong and Li (2025) examined institutional readiness for agile-blended learning; Fourie (2024) investigated academic staff's resistance to change in relation to technology readiness, including the mediating role of technology self-efficacy; and Dismawati et al. (2026) examined digital literacy competence and teachers' readiness to adapt to educational digital transformation. Other studies have considered curriculum reform and its associated challenges (Saparuddin et al., 2025), technology-driven curriculum development (McRae et al., 2026), and the relationship between technological curriculum approaches and student satisfaction in hospitality education (Selem et al., 2026). Although these studies offer useful insights into technological preparedness, professional adaptation, and curriculum transformation, the literature identified for the present study does not yet establish how the perceived obsolescence of teachers' digital knowledge is associated with their adaptive expertise and readiness for technology-driven curriculum change within one integrated investigation. In particular, it remains necessary to determine whether teachers who perceive their digital knowledge as becoming outdated also report differences in their ability to adapt instructional

practices and their preparedness to implement curriculum changes requiring new technologies. It is likewise important to examine whether adaptive expertise is associated with readiness for change when teachers encounter unfamiliar digital tools, revised assessment requirements, or changing expectations for technology integration. This gap provides a rationale for examining these variables together rather than treating technological knowledge, teacher adaptation, and curriculum readiness as entirely separate concerns. The proposed investigation can contribute context-specific evidence to discussions of teacher professional development, digital competency renewal, and educational change.

In view of these concerns, the present study, titled "Digital Knowledge Obsolescence, Teachers' Adaptive Expertise and Readiness for Technology-Driven Curriculum Change," aims to examine the relationships among teachers' perceived digital knowledge obsolescence, adaptive expertise, and readiness to respond to curriculum changes involving technology. Specifically, the study seeks to determine the extent to which teachers perceive their existing digital knowledge and skills as becoming outdated, assess their capacity to adapt knowledge and instructional practices to changing educational demands, and establish their level of readiness to implement technology-driven curriculum changes. It also intends to examine the relationships among the three variables and determine whether teachers' adaptive expertise is significantly associated with their readiness for curriculum change in the context of evolving technological expectations. Depending on the study's final research design and statistical framework, the findings may help clarify whether adaptive expertise functions as a relevant explanatory factor in the relationship between digital knowledge obsolescence and readiness for change. The study is expected to provide an evidence-based foundation for developing professional development initiatives that go beyond basic technology training and instead emphasize continuous digital knowledge renewal, flexible problem-solving, reflective practice, and the purposeful integration of technology into curriculum implementation. Its findings may also inform school administrators, curriculum planners, and teacher education institutions in identifying professional learning priorities and designing support mechanisms that enable teachers to respond more effectively to technological developments. Ultimately, the study recognizes that sustainable curriculum innovation depends not simply on introducing new technologies but on preparing teachers to continually renew their knowledge, adapt their expertise, and translate technological change into meaningful educational practice.

Theoretical Background

The study on digital knowledge obsolescence, teachers' adaptive expertise, and readiness for technology-driven curriculum change is anchored in relevant theories and supported by recent literature on educational technology, teacher competencies, and curriculum innovation. The Technology Acceptance Model (Davis, 1989) provides a foundation for understanding how teachers' perceptions of the usefulness and ease of use of technology influence their willingness to adopt digital tools in teaching. In an educational setting characterized by continuous technological advancement, teachers must recognize the value of digital technologies and develop the competencies necessary to integrate them into instructional practices. Abiodun and Oke-Eko (2026) emphasized the importance of preparing educators to respond to technological advancement and evolving learner needs, while Asanre et al. (2026) highlighted the role of technology-driven assessment methods in transforming teacher education. These perspectives suggest that teachers' acceptance of technology is an important consideration in understanding their readiness to implement technology-driven curriculum changes.

Social Cognitive Theory, developed by Bandura (1986), further explains the relationship between teachers' personal competencies, professional experiences, and teaching environments. The theory emphasizes the

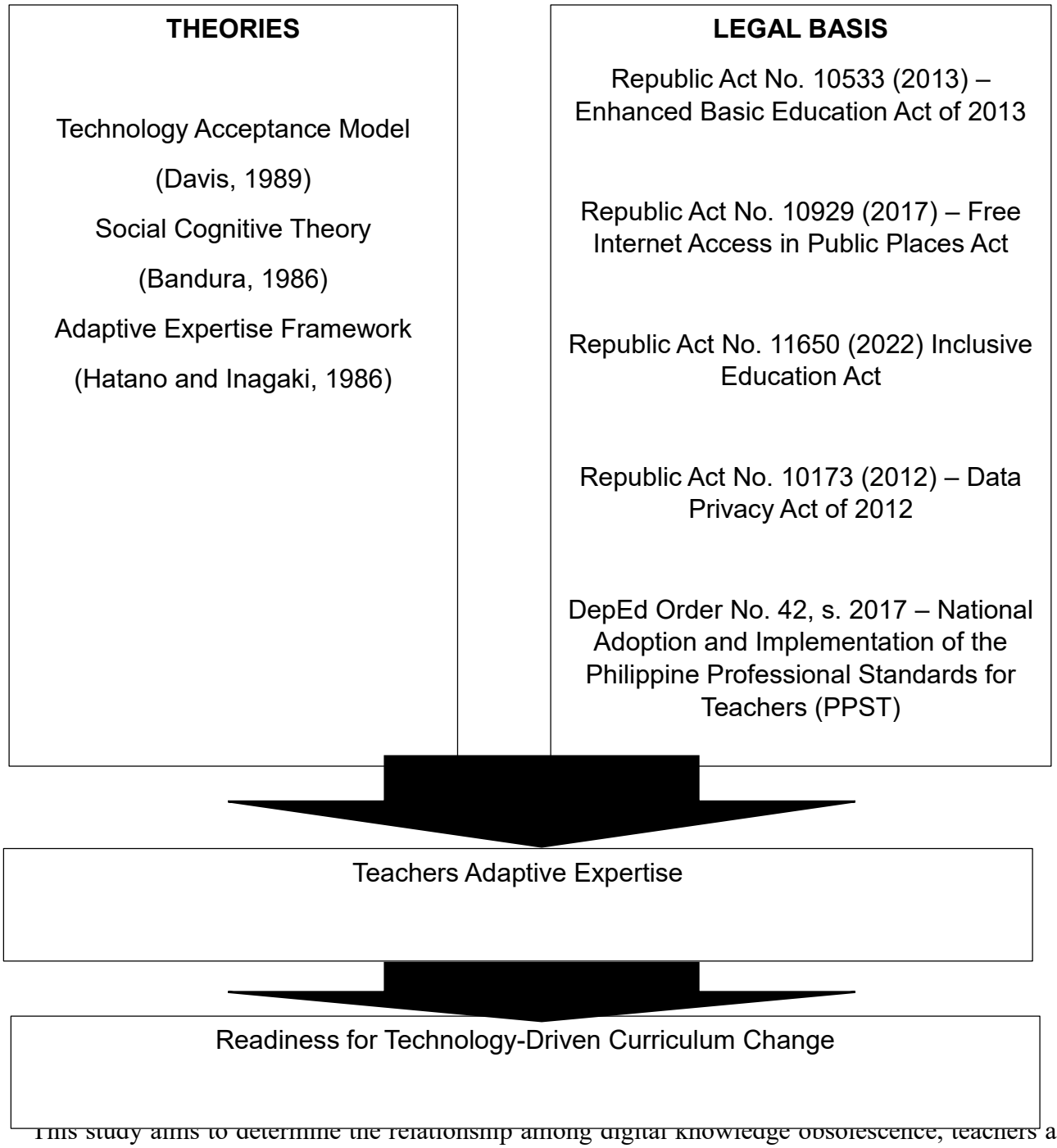
reciprocal interaction among personal factors, behavior, and environmental conditions. In the context of technology-driven education, teachers' confidence in their digital abilities, opportunities for professional development, and access to technological resources may influence how effectively they respond to changes in curriculum and instructional practices. Dismawati et al. (2026) examined the influence of digital literacy competence on teachers' readiness to adapt to digital transformation in education, highlighting the relevance of digital competencies in educational change. Similarly, Fourie (2024) investigated the relationship between resistance to change and technology readiness, with technology self-efficacy serving as a mediating factor. These studies support the view that teachers' readiness is influenced not only by access to technology but also by their beliefs about their capabilities and their willingness to learn new technological skills.

The Adaptive Expertise Framework, associated with Hatano and Inagaki (1986), provides another important foundation for the study, particularly in explaining teachers' capacity to respond flexibly to unfamiliar instructional situations and emerging technological demands. Adaptive expertise goes beyond the routine application of established knowledge and involves the ability to reconsider existing practices, solve new problems, and develop innovative approaches to teaching. In an educational environment where digital tools and instructional technologies continuously evolve, teachers need to evaluate whether their existing knowledge remains relevant and determine when new competencies are necessary. Mane (2025) discussed teachers' readiness and the integration of technology into teaching, while Hoffman (2026) explored teachers' roles in a technology-driven world through a capabilities perspective. Furthermore, Shogbesan et al. (2026) examined technology-driven interventions intended to prepare pre-service teachers for twenty-first-century classrooms. These perspectives reinforce the importance of adaptive expertise in helping teachers address digital knowledge obsolescence and develop flexible responses to technology-driven curriculum changes.

The relationship between teachers' adaptive expertise and curriculum change readiness can also be understood through contemporary discussions of educational innovation and institutional transformation. Curriculum reform requires teachers to adjust instructional strategies, assessment practices, and learning activities to align with changing educational expectations. However, these changes may create additional professional demands when teachers lack sufficient training, technological support, or opportunities to participate in curriculum development. Koseda et al. (2024) discussed digital disruption and innovative solutions as drivers of pedagogical development in higher education, while Saparuddin et al. (2025) examined the need to balance innovation with the demands associated with curriculum reform. Samara et al. (2025) likewise investigated the impact of technology-driven change on readiness in higher education. In addition, Wong and Li (2025) presented a framework concerning institutional readiness for technology-enabled agile-blended learning. Taken together, these studies suggest that readiness for curriculum change involves more than the availability of technological tools; it also requires teachers' willingness to adapt, institutional support, and the capacity to translate new knowledge into effective instructional practices.

The theoretical foundations and related literature establish the basis for examining digital knowledge obsolescence, teachers' adaptive expertise, and readiness for technology-driven curriculum change. Digital knowledge obsolescence concerns the possibility that previously acquired technological knowledge and skills may become less relevant as educational technologies and instructional requirements evolve. Teachers' adaptive expertise represents their capacity to update their knowledge, modify teaching strategies, and respond constructively to emerging challenges. Readiness for technology-driven curriculum change, meanwhile, reflects their preparedness and willingness to implement curriculum

adjustments supported by technological innovation. The contributions of Oladele (2024) on technology readiness, Mutelo and Yakobi (2026) on artificial intelligence integration and institutional readiness, and Tadinada et al. (2023) on developing a technology-driven agile curriculum provide additional perspectives on the importance of technological preparedness and curriculum innovation. Accordingly, the present study examines how digital knowledge obsolescence and adaptive expertise relate to teachers' readiness for technology-driven curriculum change. By investigating these variables together, the study seeks to provide a clearer understanding of the competencies and challenges that may influence teachers' capacity to respond effectively to evolving technological and curricular demands



This study aims to determine the relationship among digital knowledge obsolescence, teachers adaptive expertise and readiness to technology integration in the teaching learning process in the select public

Elementary and Public secondary in the DepED Schools in the Division of Bohol during S.Y 2026-2027 as basis for instructional guide.

CHAPTER 2
SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents the summary of findings, conclusions, and recommendations derived from the study. It focuses on teachers' perceptions of digital knowledge obsolescence, their adaptive expertise, and their readiness for technology-driven curriculum change in selected public elementary and secondary schools in the Schools Division of Bohol during School Year 2026–2027. It also discusses the relationships among the major research variables and the differences in teachers' perceptions when grouped according to their demographic and professional profiles.

Summary of Findings

Based on the presentation, analysis, and interpretation of the data, the following findings are summarized:

1. **Profile of the Respondents.** The study involved 150 teacher-respondents from Erico B. Aumentado High School, Tapon Elementary School, and Achila Elementary School. The respondents represented different demographic and professional backgrounds in terms of age, sex, highest educational attainment, years of teaching experience, and grade or school level currently handled. These characteristics provide an overview of the respondents' professional backgrounds and serve as context for understanding their perceptions of digital knowledge obsolescence, adaptive expertise, and readiness for technology-driven curriculum change.
2. **Teachers' Perceptions Regarding Digital Knowledge Obsolescence.** Digital knowledge obsolescence was assessed in terms of perceived outdatedness of digital knowledge and skills, changes in educational technologies and platforms, gaps in current digital competencies, and the need for continuous digital learning. The respondents obtained an overall weighted mean of **3.17**, interpreted as **Agree**. Among the dimensions, continuous digital learning obtained the highest weighted mean of **3.28**, indicating that teachers recognize the importance of regularly updating their digital knowledge and competencies to respond to technological developments in education.
3. **Teachers' Adaptive Expertise.** Teachers' adaptive expertise was examined in terms of flexible application of existing knowledge, problem-solving in technology-enhanced teaching, adaptation of instructional strategies, and continuous professional learning. The respondents obtained an overall weighted mean of **3.19**, interpreted as **Agree**. This indicates that teachers generally demonstrate the ability to adjust their knowledge, address instructional challenges, modify teaching approaches, and engage in professional learning in response to changing educational demands.
4. **Teachers' Readiness for Technology-Driven Curriculum Change.** Readiness was assessed in terms of technological preparedness, willingness to adopt technology-driven curriculum innovations, confidence in technology-enhanced instruction, and preparedness to adjust teaching practices. The respondents obtained an overall weighted mean of **3.18**, interpreted as **Agree**. This suggests that teachers generally express willingness and preparedness to respond to curriculum changes involving educational technologies and digital instructional approaches.
5. **Relationship Among the Major Research Variables.** The study examined the relationships among digital knowledge obsolescence, teachers' adaptive expertise, and readiness for technology-driven curriculum change. The results revealed a significant positive relationship between digital knowledge obsolescence and teachers' adaptive expertise ($r = 0.42$, $p < 0.001$). A significant positive relationship

was also found between digital knowledge obsolescence and readiness for technology-driven curriculum change ($r = 0.36$, $p < 0.001$). Furthermore, teachers' adaptive expertise demonstrated a significant positive relationship with readiness for technology-driven curriculum change ($r = 0.61$, $p < 0.001$). These findings indicate that the three variables are significantly associated with one another, with adaptive expertise demonstrating the strongest observed relationship with readiness for technology-driven curriculum change.

6. **Differences in Teachers' Perceptions According to Profile.** The study investigated whether significant differences existed in digital knowledge obsolescence, adaptive expertise, and readiness for technology-driven curriculum change when respondents were grouped according to age, sex, highest educational attainment, years of teaching experience, and grade or school level currently handled. The findings revealed significant differences in selected variables according to age, educational attainment, teaching experience, and grade or school level. However, no significant differences were observed across the three research variables when respondents were grouped according to sex. These results indicate that certain demographic and professional characteristics are associated with variations in teachers' perceptions and reported readiness.
7. **Proposed Professional Development Program.** Based on the findings, a proposed professional development program was identified to strengthen teachers' digital knowledge, adaptive expertise, and readiness for technology-driven curriculum change. The proposed program focuses on continuous digital skills development, familiarization with emerging educational technologies, technology-enhanced instructional strategies, adaptive problem-solving, collaborative professional learning, and preparation for technology-driven curriculum innovations.

Conclusions

Based on the findings of the study, the following conclusions were drawn:

1. The teacher-respondents represented diverse demographic and professional backgrounds in terms of age, sex, educational attainment, teaching experience, and grade or school level currently handled. These characteristics provide relevant considerations in understanding teachers' experiences and perceptions regarding digital knowledge obsolescence, adaptive expertise, and readiness for technology-driven curriculum change.
2. Digital knowledge obsolescence is a relevant concern in the teaching profession because educational technologies, digital platforms, and instructional tools continue to develop. Teachers recognize the importance of updating their digital knowledge and competencies to remain responsive to changing instructional and curriculum requirements. Continuous digital learning is particularly important in maintaining the relevance of teachers' professional knowledge and skills.
3. Teachers' adaptive expertise is an important professional capability in responding to technological developments in education. The ability to apply existing knowledge flexibly, solve instructional problems, modify teaching strategies, and participate in continuous professional learning enables teachers to adjust to changing educational conditions.
4. Teachers generally demonstrate readiness for technology-driven curriculum change. Their willingness to adopt technological innovations, technological preparedness, confidence in technology-enhanced instruction, and ability to adjust teaching practices are important considerations in supporting the implementation of curriculum innovations.
5. Digital knowledge obsolescence, teachers' adaptive expertise, and readiness for technology-driven curriculum change are significantly and positively related. In particular, adaptive expertise has the

strongest observed relationship with readiness for technology-driven curriculum change. This highlights the importance of developing teachers' capacity to adapt their knowledge and instructional practices when responding to technological and curricular developments.

6. Teachers' demographic and professional characteristics are associated with differences in selected research variables. Significant differences were observed according to age, educational attainment, years of teaching experience, and grade or school level currently handled in particular dimensions of the study. However, sex did not demonstrate significant differences across the three major research variables. These findings suggest that professional development initiatives should consider the varied backgrounds and instructional responsibilities of teachers.
7. A structured professional development program is recommended to strengthen teachers' digital knowledge, adaptive expertise, and readiness for technology-driven curriculum change. The program should provide continuous learning opportunities, practical technology integration activities, adaptive teaching development, and collaborative professional support.

Recommendations

In light of the conclusions drawn, the following recommendations are proposed:

1. **For Teachers.** Teachers are encouraged to engage in continuous digital learning and professional development to maintain relevant knowledge and competencies in using educational technologies. They should actively explore emerging digital tools, participate in technology-related training, and apply appropriate technological resources in their instructional practices. Furthermore, teachers are encouraged to strengthen their adaptive expertise by developing flexible teaching approaches, engaging in reflective practices, and using problem-solving strategies to address technology-related instructional challenges.
2. **For School Heads.** School heads are encouraged to provide administrative support and opportunities for teachers to participate in digital skills training, technology integration workshops, and professional learning activities. They should also promote a school environment that encourages innovation, collaboration, experimentation, and responsible use of educational technologies. Adequate access to technological resources, internet connectivity, and technical assistance should be considered to support teachers' readiness for technology-driven curriculum change.
3. **For Master Teachers and Instructional Leaders.** Master Teachers and instructional leaders are encouraged to assist teachers in developing adaptive expertise through coaching, mentoring, collaborative lesson planning, and demonstration of effective technology-enhanced teaching strategies. They should facilitate professional discussions on emerging educational technologies, share appropriate digital instructional resources, and provide constructive feedback to strengthen teachers' ability to adapt their instructional practices.
4. **For the Schools Division Office.** The Schools Division Office is encouraged to organize relevant capability-building programs and professional development activities focusing on digital knowledge updating, educational technology integration, adaptive instructional practices, and curriculum innovation. It may also establish collaborative learning opportunities among participating schools to facilitate the sharing of effective practices, experiences, and strategies for addressing technology-related instructional challenges.
5. **For the Department of Education.** The Department of Education is encouraged to continuously strengthen policies and institutional support mechanisms that promote teachers' digital competence, professional adaptability, and readiness for curriculum transformation. Appropriate training programs,

updated instructional resources, technical assistance, and access to educational technologies should be provided to help teachers respond effectively to the changing demands of technology-driven education.

6. **For Future Researchers.** Future researchers may conduct similar studies in other school districts or divisions to obtain additional perspectives regarding digital knowledge obsolescence, teachers' adaptive expertise, and readiness for technology-driven curriculum change. They may also examine other relevant variables, employ qualitative or mixed-method research approaches, or conduct longitudinal studies to gain a deeper understanding of how teachers update their digital competencies and adapt to technological developments in education.
7. **For the Implementation of the Proposed Program.** The proposed professional development program is recommended for consideration, validation, and possible implementation in the participating public elementary and secondary schools. Its implementation should prioritize continuous digital skills development, practical technology integration, adaptive instructional strategies, collaborative professional learning, and preparation for curriculum innovations. Regular monitoring and evaluation should be conducted to determine the program's relevance, effectiveness, and sustainability in strengthening teachers' readiness for technology-driven curriculum change.

CHAPTER 3
OUTPUT OF THE STUDY
PROPOSED DIGITAL KNOWLEDGE UPDATING, ADAPTIVE EXPERTISE, AND CURRICULUM CHANGE READINESS PROGRAM FOR TEACHERS
RATIONALE

The findings of the study conducted in selected public elementary and secondary schools in the Schools Division of Bohol provide a basis for developing a Proposed Digital Knowledge Updating, Adaptive Expertise, and Curriculum Change Readiness Program for Teachers. The proposed output aims to translate the findings into practical and sustainable professional development activities that may strengthen teachers' digital competencies, enhance their adaptive expertise, and improve their readiness to respond to technology-driven curriculum changes.

Teachers play an important role in ensuring the effective implementation of curriculum innovations and technology-enhanced teaching and learning practices. As educational technologies, digital platforms, artificial intelligence applications, and instructional resources continue to develop, teachers are expected to maintain relevant digital knowledge and competencies. Their ability to understand, evaluate, and appropriately use emerging technologies is essential in responding to the changing demands of education. However, the continuous development of digital technologies may result in the obsolescence of previously acquired digital knowledge and skills. Teachers may encounter difficulties keeping pace with new educational platforms, digital instructional tools, and technology-based curriculum requirements. These circumstances highlight the importance of continuous digital learning, skills updating, and access to relevant professional development opportunities.

Aside from digital competence, teachers also need adaptive expertise to respond effectively to changing instructional situations. Adaptive expertise involves the ability to apply existing knowledge flexibly, solve problems, modify instructional strategies, and develop new approaches when confronted with unfamiliar teaching demands. Teachers who demonstrate adaptive expertise may be better prepared to address technology-related instructional challenges and adjust their practices according to learners' needs and curriculum expectations.

The proposed program also emphasizes teachers' readiness for technology-driven curriculum change. Such readiness involves technological preparedness, willingness to adopt curriculum innovations, confidence in technology-enhanced instruction, and preparedness to adjust teaching practices. Strengthening these areas may help teachers become more responsive to educational innovations and more confident in integrating appropriate technologies into their instructional activities.

The findings indicate the importance of strengthening digital knowledge updating, adaptive expertise, and readiness for technology-driven curriculum change. In particular, the significant relationship between teachers' adaptive expertise and readiness for technology-driven curriculum change highlights the value of developing teachers' capacity to adjust their instructional practices and respond to emerging technological requirements. This emphasizes the need for professional development activities that go beyond basic technology orientation and provide practical opportunities for application, collaboration, and instructional problem-solving.

The proposed program focuses on digital competency development, familiarization with emerging educational technologies, adaptive instructional practices, technology-enhanced problem-solving, collaborative professional learning, and preparation for curriculum innovations. Through workshops, hands-on training, demonstration activities, peer mentoring, collaborative lesson planning, and professional learning sessions, teachers may strengthen their ability to use digital technologies appropriately and adapt their teaching approaches to changing educational conditions.

Particular attention is given to continuous digital knowledge updating. Teachers may participate in training sessions that introduce emerging educational technologies, digital learning platforms, instructional applications, and responsible technology use. These activities are intended to help teachers recognize changes in digital tools, address gaps in their competencies, and develop strategies for maintaining relevant professional knowledge and skills.

The program also emphasizes the development of adaptive expertise through instructional problem-solving activities, collaborative lesson planning, technology-enhanced teaching demonstrations, reflective teaching sessions, and peer-learning opportunities. These activities may encourage teachers to explore different instructional approaches, evaluate the effectiveness of digital resources, and adjust their practices based on classroom experiences and learners' needs.

Furthermore, the proposed program aims to strengthen teachers' readiness for technology-driven curriculum change through capability-building activities, technology integration workshops, curriculum orientation sessions, and practical application of digital instructional tools. Coordination among school heads, Master Teachers, teachers, and designated information and communications technology personnel is necessary to ensure that the activities are responsive to school needs and supported by available resources.

The Proposed Digital Knowledge Updating, Adaptive Expertise, and Curriculum Change Readiness Program for Teachers is intended for implementation within one school year, subject to the approval of school administrators, availability of resources, and applicable Department of Education policies and guidelines. It identifies the areas of concern, objectives, strategies, proposed budget, funding sources, time frames, implementors, evaluative measures, and expected accomplishments. The proposed budget is indicative and may be adjusted depending on the actual requirements and available resources of the participating schools.

Ultimately, the proposed program aims to establish a systematic and sustainable approach to teachers' professional development in a technology-driven educational environment. By strengthening digital

competencies, promoting adaptive instructional practices, and providing opportunities for meaningful technology integration, the program seeks to improve teachers' professional preparedness and support the effective implementation of curriculum changes in the participating schools.

OBJECTIVES

The Proposed Digital Knowledge Updating, Adaptive Expertise, and Curriculum Change Readiness Program for Teachers aims to achieve the following objectives:

1. **Strengthen Digital Knowledge and Competencies** by providing structured professional development activities that enable teachers to update their knowledge and skills in using educational technologies, digital platforms, and instructional applications.
2. **Enhance Awareness of Emerging Educational Technologies** by familiarizing teachers with current technological developments, digital instructional resources, artificial intelligence applications, and other relevant tools that may support teaching and learning.
3. **Address Digital Knowledge and Competency Gaps** by identifying teachers' areas of difficulty in using digital technologies and providing appropriate training, technical assistance, and learning opportunities.
4. **Develop Teachers' Adaptive Expertise** by strengthening their ability to apply existing knowledge flexibly, solve technology-related instructional problems, and respond effectively to changing teaching and learning situations.
5. **Improve Technology-Enhanced Instructional Strategies** by promoting the development and application of appropriate digital teaching approaches, interactive learning activities, and technology-supported instructional materials.
6. **Strengthen Teachers' Readiness for Technology-Driven Curriculum Change** by enhancing their technological preparedness, willingness to adopt innovations, confidence in technology-enhanced instruction, and ability to adjust teaching practices.
7. **Promote Continuous Professional Learning** by establishing collaborative learning sessions, peer mentoring activities, professional discussions, and reflective teaching practices focused on digital competency and instructional adaptability.
8. **Encourage Responsible and Appropriate Use of Educational Technologies** by providing guidance on digital citizenship, information evaluation, data privacy, academic integrity, and the ethical use of artificial intelligence and other digital applications.
9. **Strengthen Professional Collaboration and Technical Support** by promoting coordination among school heads, Master Teachers, teachers, and designated technology personnel in addressing technology-related instructional concerns.
10. **Establish Sustainable Monitoring and Evaluation Mechanisms** by developing procedures for assessing program implementation, documenting accomplishments, gathering stakeholder feedback, and identifying areas for continuous program improvement.

SCHEME OF IMPLEMENTATION

Proposed Digital Knowledge Updating, Adaptive Expertise, and Curriculum Change Readiness Program for Teachers Implementation Plan

Area of Concern	Objectives	Strategies	Proposed Budget	Budget Source	Time Frame	Implementors	Evaluative Measures	Actual Accomplishment	Remarks

			(PHP)						
1. Digital Knowledge Updating and Competency Development Program	Strengthen teachers' digital knowledge and competencies in using educational technologies and digital instructional resources.	Conduct digital competency workshops; facilitate hands-on training on educational applications and learning platforms; provide guided activities on digital instructional tools; and organize knowledge-sharing sessions on updated technologies.	₱7,000	Subject to approved school funds and available resources	First quarter; continuing throughout the school year	School Heads, Master Teachers, ICT Coordinators, Teachers	Attendance records, training outputs, digital competency assessment, workshop evaluation forms, and teacher feedback	To be determined during implementation	Ensure that training activities address teachers' identified digital learning needs.
2. Emerging Educational Technologies and Digital	Enhance teachers' awareness and understanding of emerging educatio	Organize technology orientation sessions; demonstrate the use of	₱8,000	Approved school funds and available professional	First and second quarters	School Heads, ICT Coordinators, Master Teachers, Qualifie	Attendance sheets, demonstration records, technology applicati	To be determined during implementation	Prioritize technologies that are relevant, accessible, and

Platform Familiarization Program	nal technologies and digital platforms.	educational applications, digital learning platforms, and artificial intelligence tools; conduct practical technology exploration activities; and facilitate discussions on the appropriate selection of digital resources.		development resources		d Resource Persons	on outputs, and post-activity evaluation forms		appropriate to curriculum requirements.
3. Digital Competency Gap Assessment and Technical Assistance Program	Identify and address gaps in teachers' digital knowledge and competencies.	Conduct digital competency self-assessments; identify areas requiring additional support; organize focused training sessions;	₱8,000	Approved school training funds and available institutional resources	First to third quarters	School Heads, ICT Coordinators, Master Teachers, Teachers	Digital competency assessment results, technical assistance records, individual improvement plans,	To be determined during implementation	Provide differentiated support based on teachers' identified competency needs.

		provide individual or group technical assistance; and develop appropriate digital learning improvement plans.					and training evaluation reports		
4. Adaptive Expertise and Instructional Problem-Solving Development Program	Develop teachers' ability to apply knowledge flexibly and address technology-related instructional challenges.	Conduct instructional problem-solving workshops; organize case-based learning activities; facilitate collaborative lesson planning; provide opportunities for technology-enhanced teaching demonstrations; and conduct reflective discussio	₱7,000	Approved school funds and available instructional resources	Second and third quarters	School Heads, Master Teachers, Teachers, Learning Area Coordinators	Workshop outputs, collaborative lesson plans, instructional demonstrations, reflection forms, and evaluation results	To be determined during implementation	Encourage practical problem-solving activities based on actual classroom teaching situations.

		ns on instructional challenges and possible solutions.							
5. Technology-Enhanced Teaching Strategies and Instructional Innovation Program	Improve teachers' ability to apply appropriate technology-enhanced teaching strategies and instructional approaches.	Organize demonstration teaching; conduct workshops on digital instructional materials; facilitate the development of technology-supported lesson plans; encourage the use of interactive learning applications; and conduct peer-sharing sessions on effective instructio	₱8,000	Approved school funds and available instructional resources	Second quarter; continuing as needed	Master Teachers, ICT Coordinators, Teachers, Learning Area Coordinators	Demonstration teaching records, lesson plans, developed instructional materials, classroom application reports, and teacher feedback	To be determined during implementation	Ensure that technology-enhanced strategies support learning objectives and learners' needs.

		nal practices.							
6. Technology-Driven Curriculum Change Readiness Program	Strengthen teachers' technological preparedness and willingness to adopt curriculum innovations.	Conduct curriculum orientation sessions; organize workshops on technology-driven curriculum implementation; facilitate discussions on changes in instructional requirements; provide practical curriculum adjustment activities; and develop teacher readiness action plans.	₱6,000	Existing school resources and approved funds	Second to fourth quarters	School Heads, Master Teachers, Teachers, Curriculum Coordinators	Attendance records, readiness assessment forms, curriculum adjustment plans, workshop outputs, and evaluation reports	To be determined during implementation	Align activities with applicable curriculum standards and official implementation guidelines.
7. Confidence Buildin	Strengthen teachers' confiden	Facilitate learning action cell	₱7,000	Approved school training	Quarterly throughout	School Heads, Master Teacher	Learning action cell records,	To be determined during	Encourage active particip

g and Continuous Professional Learning Program	ce in using educational technologies and encourage continuous professional development.	sessions; organize peer mentoring and collaborative learning activities; conduct technology-sharing sessions; encourage reflective teaching; and provide opportunities for teachers to present successful technology-enhanced instructional practices.		funds and available professional development resources	the school year	s, Teachers, Learning Area Coordinators	mentoring logs, teacher reflection forms, attendance sheets, and professional development outputs	implementation	ation and provide a supportive environment for teachers with different levels of digital competence.
8. Responsible and Ethical Use of Educational Technologies	Promote responsible, ethical, and appropriate use of digital technologies and artificial	Conduct orientation sessions on digital citizenship, information evaluation, data	₱6,000	Subject to approved school funds and available administrative	Second to fourth quarters	School Heads, ICT Coordinators, Master Teachers, Teachers, Qualifie	Attendance records, workshop outputs, evaluation forms, responsible	To be determined during implementation	Ensure that technology use follows applicable institutional policies and data

Program	intelligence in teaching and learning.	privacy, cybersecurity awareness, academic integrity, and responsible artificial intelligence use; facilitate practical discussions on appropriate technology use in instructional activities.		resources		d Resource Persons	technology use guidelines, and teacher feedback		privacy requirements.
9. Professional Collaboration and Digital Resource-Sharing Program	Strengthen professional collaboration and improve teachers' access to relevant digital instructional resources.	Establish collaborative digital resource-sharing activities; organize professional discussions; facilitate the development of shared instructional	₱6,000	Approved school funds and available instructional resources	Quarterly throughout the school year	School Heads, Master Teachers, ICT Coordinators, Teachers, Learning Area Coordinators	Inventory of shared digital resources, collaborative activity records, attendance sheets, developed materials, and teacher feedback	To be determined during implementation	Promote accessible, relevant, curriculum-aligned, and properly evaluated digital resources.

		materials; create appropriate school-based resource repositories; and encourage peer assistance in using educational technologies.							
10. Continuous Program Monitoring and Evaluation	Ensure the effective implementation, sustainability, and continuous improvement of the proposed program.	Conduct quarterly program reviews; assess the implementation of planned activities; gather feedback from teachers and school personnel; monitor changes in digital competency and readiness; identify implementation gaps; and prepare	₱5,000	Approved school funds and available monitoring resources	Quarterly and at the end of the school year	School Heads, Master Teachers, Program Coordinators, ICT Coordinators, Monitoring and Evaluation Team	Quarterly monitoring reports, accomplishment reports, evaluation summaries, stakeholder feedback, and revised action plans	To be determined during implementation	Base program adjustments on documented implementation results and feedback from stakeholders.

		recommendations for program improvement.							
TOTAL PROPOSED BUDGET			**₱68,000**	Subject to availability and approval of funds	One school year	Participating Schools and Authorized Personnel	Consolidated Program Implementation and Evaluation Report	To be determined during implementation	Indicative budget; may be adjusted based on actual requirements.

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