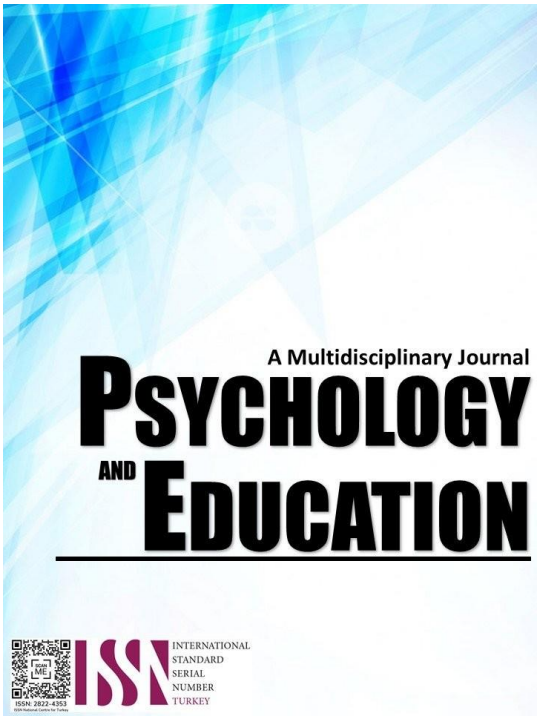
DEVELOPING AN ICT PLAN FOR MALALAG CENTRAL ELEMENTARY SCHOOL- SPED CENTER: AN ACTION RESEARCH ON ENHANCING TEACHING PEDAGOGIES AND PROFESSIONAL DEVELOPMENT



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Research Article

Developing an ICT Plan for Malalag Central Elementary School- SPED Center: An Action Research on Enhancing Teaching Pedagogies and Professional Development

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Abstract

This action research explores the challenges and support needs of teachers in utilizing Information and Communication Technology (ICT) in the classroom. Teachers face significant barriers, including slow internet connectivity, outdated ICT equipment, insufficient technical support, and inadequate training opportunities. Additionally, the digital divide is exacerbated by students' limited access to devices at home, hindering their ability to develop 21st-century skills. Teachers report difficulties accessing essential resources, such as PowerPoint presentations, educational applications, and e-activity materials, which negatively impact lesson preparation and delivery. To address these challenges, teachers identify critical support mechanisms, including practical seminars and workshops on ICT, access to premium software and applications, mentoring programs led by ICT experts, and improved internet connectivity. They also emphasize the importance of regular, up-to-date professional development focused on emerging technologies and innovative classroom strategies. This study highlights the need for targeted interventions to enhance ICT integration, improve teaching effectiveness, and bridge the digital divide in education.

Keywords: *ICT plan, technology, teaching pedagogies, professional development*

Introduction

The integration of Information and Communications Technology (ICT) in education has become essential in realizing the Department of Education's mission to provide a child- friendly, safe, and motivating environment for learning. ICT serves as a critical tool in creating an enabling and supportive atmosphere where effective teaching and learning thrive, especially in today's fast-evolving digital landscape. Globally, ICT empowers teachers and learners to access vast educational resources, promotes interactive learning, and facilitates the development of 21st-century skills essential for academic and professional success.

In the Philippine context, the Department of Education recognizes ICT as a cornerstone for achieving quality education. Initiatives such as the MATATAG Curriculum (2024) aim to equip learners with values and competencies that contribute meaningfully to nation-building. However, despite these efforts, significant challenges hinder the effective integration of ICT in public schools. Teachers often encounter slow internet connectivity, outdated ICT equipment, insufficient technical support, and inadequate training opportunities. Furthermore, many students lack access to devices at home, exacerbating the digital divide and impeding the application of 21st-century skills in the classroom. These obstacles limit teachers' ability to prepare and deliver lessons effectively, as access to essential ICT resources like PowerPoint presentations, educational applications, and e-activity materials remains inadequate. To address these issues, educators have emphasized the need for practical seminars and workshops on ICT, access to premium software and applications, mentoring programs by ICT experts, and improved internet connectivity. Regular and up-to-date professional development on emerging technologies and classroom pedagogical strategies is also vital for enabling teachers to navigate and maximize ICT tools in their instructional practices.

Malalag Central Elementary School-SPED Center shares these challenges and acknowledges the urgent need to strengthen its ICT integration. The school envisions aligning its initiatives with the MATATAG Curriculum's goals by developing a comprehensive ICT Plan. This plan aims to enhance teachers' skills in designing ICT-based instructional materials using tools like PowerPoint, Canva, and Google Forms. It also seeks to strengthen teachers' capacity to assess student performance using digital tools, providing data-driven feedback and fostering student-centered learning. Furthermore, the plan includes upgrading the school's ICT infrastructure, such as procuring six additional laptops and enhancing internet connectivity. Thus, the researchers aim to craft a proposed one-year ICT plan for the school's development.

Research Questions

Generally, this study aimed to develop on ICT plan for Malalag Central Elementary School- SPED Center, focusing on enhancing teaching pedagogies and promoting professional development among educators. Specifically, it seeks to address the following questions:

1. What is the current level of ICT integration in teaching at Malalag Central Elementary School-SPED Center?
2. What challenges do teachers face, and what support do they perceive in utilizing ICT tools and resources for teaching and professional development?
3. What proposed ICT plan can be designed and implemented to enhance the teaching pedagogies and professional development of educators at Malalag Central Elementary School-SPED Center?

Literature Review

The paper reviewed were the paper of Kubota, Yamamoto, and Morioka (2018) entitled, Promoting ICT education in developing countries: Case Study in the Philippine and the research work of Bonifacio (2013) entitled, Developing Information Communication Technology (ICT) Curriculum Standards for K-12 Schools in the Philippines. The critical analysis of the reviewed papers revealed several policy actions to fully integrate ICT in education in the case of Philippines such as added trainings for teachers, provision of computer infrastructures, integration of ICT in the curriculum in a strategized manner, and lastly a strong leadership. The paper provided a lens both on the problematic situation on the actual school set-ups and also the possible key steps to be undertaken for improvement. It is a review of the selected academic papers which delves into the ICT-Integration in the Educational System of Philippines. The formal efforts of the government were also highlighted including the prime importance of ICT in education. ICT is now developed as one of the main infrastructures that every educational institution should provide its students with. Information and Communication Technologies or ICT is an umbrella term that comprises any communication device or application, such as; radio, television, cellular phones, computer, and network hardware and software, satellite systems and many others, as well as the various services and applications associated with them, such as videoconferencing and distance learning (Kumar, 2008). Kumar (2008) stated that 'when such technologies are used for educational purposes, namely to support and improve the learning of students and to develop learning environments, ICT can be considered as a subfield of Educational Technology'.

According to Bonifacio 2015, in adoption of the fast-advancing technological developments in the international arena, the education sector, the teachers primarily, must be provided with trainings and workshops for the integration of ICT in the learning curricula. This is vital not only for the quality education that will be afforded to the students but also for the internal development of the Department of Education as an organization in itself. It also puts pressure on the quality and access of education and on how to keep pace with the development of new digital technologies, and the transition to a knowledge-based economy. Not only is ICT important as a learning course but also ICT materials such as software and multimedia, are used to supplement instruction and it provides ease to teachers in tasks such as, computing of grades, writing reports, and etc.; tasks that was to be done manually using hands before.

The first reviewed paper was written by Kubota, Yamamoto, and Morioka (2016) entitled, Promoting ICT education in developing countries: Case Study in the Philippine. The paper generally highlighted the ICT education settings through a depiction of the situation in Journal of Governance And Public Policy 264 two schools from the rural (100 kms from Manila) and suburbs (50 kms from Manila). It was first and foremost emphasized that despite the wide adoption of ICT in developed countries, in the Philippines, a developing country, there is a gap of accessibility present between rural and urban areas of the country. This said gap was grounded by Kubota, Yamamoto and Morioka (2018) in the educational setting by delving into the ICT-adoption statuses of schools in the country. The need for ICT integration to the educational set-up of the schools are given emphasis as it is part of the goal of the government of the Philippines that 'a people-centered inclusive and development-oriented information society, where everyone can create, access, utilize and share information and knowledge', is established (Kubota, Yamamoto, and Morioka, 2018: 3). Also, the new millennium ushered in an information revolution that puts pressure to the countries to catch up to the latest technological developments. One of the key policy actions of the government, under the Department of Education was the introduction of the subject, Technology and Home Economics (THE), a subject combining the Home Economic and Livelihood Education (HELE) in the secondary level (Magno, 2006; Kubota, Yamamoto, and Morioka, 2018). Furthermore, Kubota, Yamamoto, and Morioka (2018:3) also highlighted the key policies of the Philippine Department of Education that emboldens the integration of ICT in the curriculum of education.

Methodology

This study employs a mixed-methods approach, combining qualitative and quantitative methods to provide a comprehensive understanding of the current state of ICT integration, challenges faced by teachers, and the development of an ICT plan. A descriptive research design will analyze the level of ICT integration and challenges, while a developmental design will guide the formulation of the ICT plan. The study will be conducted at Malalag Central Elementary School-SPED Center, with respondents including teachers, school administrators, and ICT coordinators. Using purposive sampling, participants will be selected based on their direct involvement in teaching and ICT usage. Data will be collected through surveys to quantify the extent of ICT integration and challenges, in-depth interviews (IDI) with teachers to gather qualitative insights about their experiences, and semi-structured interviews with administrators and ICT coordinators to explore institutional perspectives. Additionally, document analysis and data inventory review, including school records, ICT usage reports, and professional development plans, will be conducted to provide a contextual basis for the school ICT plan.

The data will be analyzed using descriptive statistics for quantitative data and thematic analysis for qualitative data. Ethical considerations such as informed consent, confidentiality, and voluntary participation will be strictly observed. The study's output will be a proposed ICT plan for Malalag Central Elementary School-SPED Center, designed to enhance ICT integration, address challenges, and promote professional development among educators.

Results and Discussion

This section presents the results of the analysis of the study on Developing an ICT Plan for Malalag Central Elementary School-SPED Center: An Action Research on Enhancing Teaching Pedagogies and Professional Development.

What is the current level of ICT integration in teaching at Malalag Central Elementary School-SPED Center?

Table 1. *ICT Skills*

Indicators	*Percentage*	*Degree of Agreement*
1. I am proficient in using basic computer applications (e.g., word processors, spreadsheets, presentation software)	60.70%	Agree
2. I can troubleshoot common technical problems related to ICT in the classroom.	50.00%	Agree
3. I am familiar with the use of internet- based tools for teaching (e.g., Google Classroom, MS Teams).	53.70%	Agree
4. I can integrate multimedia tools into my lessons (e.g., videos, images, audio recordings).	53.60%	Agree

The data highlights the degree of agreement among participants regarding their ICT skills. The highest level of agreement is seen in proficiency with basic computer applications such as word processors, spreadsheets, and presentation software, where 60.7% of respondents agreed. This indicates a strong foundation in essential computer tools. In terms of troubleshooting common technical problems related to ICT in the classroom, 50.0% of participants expressed agreement.

This shows moderate confidence in resolving basic technical challenges, though there remains room for improvement. When it comes to familiarity with internet-based tools for teaching, such as Google Classroom or Microsoft Teams, only 53.7% of respondents agreed. This suggests that a significant number of participants may lack confidence or familiarity in using these platforms effectively for teaching. Lastly, 53.6% of respondents agreed that they can integrate multimedia tools such as videos, images, and audio recordings into their lessons. This reflects a fairly good ability to incorporate engaging and diverse resources into the teaching process.

Overall, while proficiency with basic computer applications and multimedia integration is relatively strong, there is a noticeable gap in familiarity with internet-based tools and troubleshooting technical problems, indicating areas where additional support or training may be needed.

Table 2. *Teaching Pedagogies*

Indicators	*Percentage*	*Degree of Agreement*
1. I can design ICT-based instructional materials that are aligned with my curriculum goals.	53.7%	Neutral
2. I use ICT tools to enhance student engagement and learning outcomes.	52.9%	Agree
3. I can manage online and blended learning effectively.	53.6%	Agree
4. I assess student performance using ICT tools (e.g., online quizzes, learning management systems).	53.7%	Neutral

The data shows a mixed degree of agreement regarding participants' ICT pedagogical skills. A notable 53.6% of respondents agreed that they can manage online and blended learning effectively, while 52.9% agreed that they use ICT tools to enhance student engagement and learning outcomes. These results reflect a moderate level of confidence in using ICT to create engaging learning environments and manage different instructional delivery modes.

On the other hand, 53.7% of respondents were neutral about their ability to design ICT- based instructional materials aligned with curriculum goals and assess student performance using ICT tools like online quizzes or learning management systems. This neutrality suggests uncertainty or inconsistency in their ability to effectively design and assess learning through technology. Overall, while participants demonstrate a reasonable degree of confidence in using ICT for student engagement and blended learning, the neutral stance on designing materials and assessing performance points to an area for further professional development and support.

Table 3. *Access and Utilization*

Indicators	*Percentage*	*Degree of Agreement*
1. I have access to adequate ICT facilities and resources in my school.	53.6%	Agree
2. I regularly use ICT tools in my teaching practices.	54.7%	Agree

The data reveals that 53.6% of respondents agreed they have access to adequate ICT facilities and resources in their schools. This suggests that while there is general agreement regarding the availability of ICT infrastructure, there may still be room for improvement to ensure consistent access for all teachers.

Furthermore, 54.7% of respondents agreed that they regularly use ICT tools in their teaching practices, indicating a moderate level of integration of technology in daily instructional activities. Overall, these findings reflect a positive outlook on the availability and utilization of ICT resources, but they also underscore the need for continued support to maximize the use of technology in teaching.

The data in table 4 highlights a generally neutral stance among respondents regarding ICT training and support. 52.10% reported a neutral response to having attended training programs or workshops on ICT in education, suggesting that while some teachers may have received training, it may not have been comprehensive or frequent enough to build strong confidence.

Similarly, 64.20% of respondents expressed a neutral stance on their confidence in integrating newly-learned ICT skills into teaching

practices, indicating hesitation or a need for more hands-on experience and guidance to effectively apply ICT skills in their classrooms.

Table 4. *Professional Development in ICT*

Indicators	*Percentage*	*Degree of Agreement*
1. I have attended training programs or workshops on ICT in education.	52.10%	Neutral
2. I feel confident integrating newly- learned ICT skills into my teaching practices.	64.20%	Neutral
3. My school provides adequate support and resources for ICT integration.	56.90%	Neutral

The data highlights a generally neutral stance among respondents regarding ICT training and support. 52.10% reported a neutral response to having attended training programs or workshops on ICT in education, suggesting that while some teachers may have received training, it may not have been comprehensive or frequent enough to build strong confidence.

Similarly, 64.20% of respondents expressed a neutral stance on their confidence in integrating newly-learned ICT skills into teaching practices, indicating hesitation or a need for more hands-on experience and guidance to effectively apply ICT skills in their classrooms.

Furthermore, 56.90% of respondents were neutral about their schools providing adequate support and resources for ICT integration. This suggests that while some support may exist, it may not be sufficient or consistent to meet the teachers' needs fully.

Overall, these findings emphasize the need for more robust and ongoing training programs, practical support, and resources to help teachers gain confidence and effectively integrate ICT into their teaching practices.

What challenges do teachers face, and what support do they perceive in utilizing ICT tools and resources for teaching and professional development?

Table 5. *Challenges encountered in utilizing ICT in Teaching and Learning*

Slow internet connection
Outdated ICT equipment
Insufficient technical support for teachers
Lack of adequate skills in ICT
Insufficient seminars or training in ICT
Learners are unable to relate to 21st-century skills due to the absence of necessary devices at home.
Lack of PowerPoint presentations, educational applications, and e-activity materials for teaching.
Restricted/unlicensed software and educational application

Table 6. *Perceived support required to strengthen ICT Skills and Preparedness*

Practical Seminar/Workshop in ICT
Premium subscriptions for optimal utilization of apps or programs.
Facilitating online activities and access to educational apps
Professional development through regular, up-to-date training on emerging technologies and pedagogical strategies for classroom implementation
Strong internet connection
Mentoring and coaching programs provided by ICT experts.

Conclusions

Based on the findings of the study on ICT integration at Malalag Central Elementary School-SPED Center, the following recommendations can be made:

Increase Professional Development Opportunities. Organize regular training sessions and workshops focused on ICT integration, specifically tailored to the needs of SPED teachers. These should cover both basic and advanced ICT skills, as well as the use of assistive technologies for students with special needs;

Provide Adequate ICT Resources and Tools. Ensure that teachers have access to the necessary ICT tools, such as computers, tablets, and assistive devices, along with reliable internet connections. The school should invest in up-to-date technologies that can enhance teaching and learning; and

Develop a Comprehensive ICT Integration Plan. Create a strategic ICT integration plan that aligns with the school's educational goals, providing a roadmap for the integration of technology into teaching practices. This plan should include clear guidelines, timelines, and responsibilities for teachers and administrators.

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