INTERNATIONAL MULTIDISCIPLINARY JOURNAL OF RESEARCH FOR INNOVATION, SUSTAINABILITY AND EXCELLENCE
Published by: RISEJOURNALS.ORG | Online ISSN: 3028-032X | Print ISSN: 3028-0370
VOLUME 5, ISSUE NO. 7

TEACHERS' DIGITAL LITERACY AND EMERGING DIGITAL TOOL UTILIZATION IN INCLUSIVE EDUCATION

DOI: 10.5281/zenodo.24334264

Johanesa Manilili Barcenas
Pamela B. Jimenez
Jonas T. Alfanta
Niño M. Ababon
Nellene C. Kos
Cebu Technological University, Main Campus, cor. M.J. Cuenco Ave. & R. Palma St., Cebu City, Philippines
Corresponding Author Email: barcenasjohanesa@gmail.com

Abstract

This study determined teachers' digital literacy and utilization of emerging digital tools in inclusive education at Dumlog Elementary School, Toledo City Division, during School Year 2026–2027. Specifically, it assessed digital literacy in information and data literacy, digital content creation, and digital safety and security; examined tool utilization in instructional planning, content delivery, and differentiated instruction; and tested the relationship between these variables. A descriptive-correlational research design was employed, involving 40 general education teachers selected through purposive sampling. Data were gathered using an adapted and contextualized survey questionnaire. Frequency, percentage, weighted mean, and standard deviation were used for descriptive analysis, while Pearson's correlation coefficient determined the relationship between the variables. Results revealed a high extent of teachers' digital literacy, with an aggregate weighted mean of 3.41. Digital safety and security received the highest rating among the assessed dimensions. Reported utilization of emerging digital tools was moderate, with differentiated instruction obtaining the highest rating. The manuscript reported a strong positive correlation between the two variables ($r = .999$, $p < .001$); the respondent-level scores were not supplied, so this association could not be independently verified. The study concluded that existing digital competencies provided a foundation for strengthening technology-related instructional practices. Accordingly, a school-based Action Plan was recommended to address identified needs in information and data literacy, digital content creation, instructional planning, and content delivery through targeted professional development and practical classroom support.

Keywords: *inclusive education, digital literacy, emerging digital tools utilization, descriptive-correlational research design, action plan, Dumlog Elementary School*

Introduction

The continuous development of digital technologies has introduced significant changes in educational practices, particularly in instructional planning, learning material preparation, classroom activities, and assessment procedures. Educational institutions increasingly incorporate digital resources to provide teachers with additional options for presenting lessons, organizing learning experiences, and responding to different instructional requirements. In inclusive education, general education teachers handle learners with varying levels of readiness, learning abilities, communication skills, academic performance, and instructional support needs. These differences require teachers to consider appropriate teaching strategies, accessible learning materials, and flexible assessment approaches. Although digital technologies offer additional instructional resources, their availability does not automatically ensure appropriate classroom application or improved learning outcomes. Teachers must possess relevant digital competencies and exercise professional judgment when selecting and utilizing technological resources. Within inclusive classrooms, teachers may provide simplified written instructions, visual representations of lesson concepts, audio-supported learning materials, guided activities, and alternative ways of completing classroom tasks. However, these instructional adjustments require more than basic familiarity with technological devices because teachers must also understand how to evaluate digital content, select appropriate applications, prepare accessible materials, and

protect learners' information. Consequently, examining teachers' digital literacy and their utilization of emerging digital tools is necessary to understand how these variables are related within inclusive educational settings.

Across international educational contexts, digital literacy has become an important area of teacher professional development because of its relevance to instructional preparation, classroom communication, learning resource development, and assessment. Educational systems in Finland, Singapore, and Australia have recognized the importance of developing teachers' technological competencies alongside their pedagogical knowledge. Emerging technologies, including artificial intelligence applications, adaptive learning platforms, digital assessment systems, and assistive devices, provide additional options for organizing learning activities and preparing instructional materials. Nevertheless, the use of these resources requires teachers to consider their instructional purpose, accessibility, reliability, and suitability for learners with different educational requirements. Teachers may demonstrate varying levels of competence in locating digital information, creating electronic instructional materials, evaluating technology-generated content, and applying digital tools during classroom instruction. Furthermore, familiarity with technology does not necessarily indicate frequent or appropriate utilization in inclusive classrooms. These considerations emphasize the need to examine the relationship between teachers' digital literacy and their actual use of emerging digital tools rather than assuming that technological competence consistently corresponds with classroom application.

Within the Philippines, the Department of Education continues to encourage the integration of digital technologies into teaching and learning through curriculum reforms, professional development activities, and educational digitalization initiatives. The Revised K to 10 Curriculum emphasizes the development of essential competencies, including critical thinking, problem-solving, responsible technology use, and digital literacy. Similarly, educational policies supporting inclusive education recognize the responsibility of teachers to provide appropriate instructional adjustments and learning opportunities for learners with diverse educational needs. In general education classrooms, these responsibilities may involve modifying instructional materials, adjusting classroom activities, providing additional learning support, and applying suitable assessment procedures. Digital technologies may assist teachers in preparing and organizing these instructional adjustments when appropriate resources are available. However, differences in technological knowledge, practical digital skills, access to equipment, internet connectivity, and professional training may correspond with variations in teachers' technology utilization. Although national initiatives encourage technology integration, they do not establish the actual digital competencies of teachers in individual schools or explain how these competencies are related to their use of emerging technologies in inclusive instruction.

At the local level, Dumlog Elementary School in Toledo City Division provides a relevant setting for examining digital literacy and emerging digital tool utilization among general education teachers handling inclusive classrooms. Within this educational context, teachers are responsible for delivering curriculum-based lessons while considering differences in learners' academic readiness, learning pace, communication abilities, participation, and instructional support requirements. Classroom instruction may require teachers to present concepts through different formats, divide complex activities into manageable tasks, provide additional explanations, prepare modified learning materials, and use varied assessment procedures. For example, digital presentations may be considered when providing visual explanations, audio materials may offer alternative ways of accessing instructions, and electronic assessment tools may assist in recording learning progress. However, the selection and application of these resources depend on their availability, instructional relevance, accessibility, and the professional judgment of teachers. Despite the growing emphasis on educational digitalization, important information concerning the general education teachers of Dumlog Elementary School remains unknown. Specifically, the extent of their digital literacy in accessing information, evaluating digital content, communicating through technological platforms, creating instructional resources, and practicing digital safety has not yet been systematically established within the context of the present investigation. Similarly, the extent to which these teachers utilize emerging digital tools in lesson preparation, differentiated instruction, learning material development, classroom engagement, and assessment remains unclear. It is also uncertain whether teachers who demonstrate higher digital literacy tend to report greater utilization of emerging technologies than those with lower levels of digital competence.

Although existing investigations on educational technology have examined teachers' general digital competencies, attitudes toward technological applications, readiness for online instruction, and experiences with digital learning platforms, their findings may not fully explain the relationship between digital literacy and emerging digital tool utilization among general education teachers responsible for inclusive classroom instruction. Inclusive educational settings involve specific instructional considerations, including accessible learning materials, differentiated classroom activities, individualized support, flexible learning tasks, and alternative assessment approaches. Consequently, teachers' technological competencies must be examined in relation to how they actually utilize digital resources when addressing these instructional requirements. The absence of school-specific evidence makes it difficult to identify whether variations in digital literacy are associated with differences in technology utilization at Dumlog Elementary School. This gap establishes the need for a localized descriptive-correlational investigation that describes the existing levels of both variables and examines whether a statistically significant relationship exists between them. Such an investigation does not assume that digital literacy directly causes increased technology utilization or that emerging technologies automatically improve learning outcomes. Instead, it seeks to establish patterns of association that may help school administrators identify areas requiring professional development, technical assistance, suitable digital resources, and guidance on responsible technology use.

In view of these considerations, the present study seeks to determine teachers' digital literacy and their utilization of emerging digital tools in inclusive education at Dumlog Elementary School, Toledo City Division, during School Year 2026–2027. Specifically, it aims to assess the extent of teachers' digital literacy, determine their utilization of emerging digital tools in inclusive classroom instruction, and examine the significant relationship between these variables. Through this investigation, the study intends to establish localized evidence concerning teachers' existing digital competencies and technology utilization practices while identifying areas that may require further instructional and professional support. The findings will serve as the basis for developing an Action Plan focused on strengthening relevant digital competencies, promoting responsible and appropriate technology utilization, and supporting general education teachers in addressing diverse instructional requirements within inclusive classrooms.

Theoretical Framework and Legal Bases

This research is grounded in recognized theories and legal provisions that establish a basis for examining teachers' digital literacy and their application of emerging digital technologies in inclusive education. The study draws particularly from the Technological Pedagogical Content Knowledge (TPACK) Theory by Mishra and Koehler (2006), which highlights the relationship among technology, pedagogy, and subject knowledge; the Diffusion of Innovations Theory by Rogers (2003), which describes the acceptance of innovative technologies within educational environments; and the Universal Design for Learning (UDL) Theory by CAST (2018), which advocates adaptable and inclusive teaching approaches using diverse instructional resources and technologies.

Furthermore, this investigation follows relevant legal provisions that highlight technological integration, inclusive practices, information security, and appropriate application of emerging educational technologies. These encompass Republic Act No. 10533 (Enhanced Basic Education Act of 2013), which encourages 21st-century competencies and technological integration; Republic Act No. 10173 (Data Privacy Act of 2012), which safeguards individuals' personal information within digital platforms; and DepEd Order No. 003, s. 2026 (Foundational Guidelines on Artificial Intelligence in Basic Education), which encourages accountable and ethical application of artificial intelligence across educational institutions.

The Technological Pedagogical Content Knowledge (TPACK) Theory developed by Mishra and Koehler (2006) offers a comprehensive foundation for explaining how educators incorporate technology into classroom instruction meaningfully and effectively. The framework highlights the relationship among three essential areas of knowledge: content knowledge (what educators teach), pedagogical knowledge (how educators teach), and technological knowledge (resources supporting instruction and learning). Within this investigation, TPACK provides a relevant perspective for examining teachers' digital literacy and their application of emerging digital technologies in inclusive education, particularly among general education teachers at Dumlog Elementary School, Toledo City Division, during School Year 2026–2027.

Concerning the respondents' demographic characteristics, including age, gender, educational attainment, teaching experience, teaching position, and exposure to AI-powered instructional technologies, TPACK recognizes that these attributes may be associated with differences in teachers' integrated professional knowledge. Educators with greater familiarity with digital applications may demonstrate higher technological competence, whereas teachers possessing extensive classroom experience may exhibit stronger instructional and subject knowledge. Academic qualifications and professional development experiences also provide opportunities for teachers to strengthen these competencies, especially when selecting and adapting AI-supported instructional resources to address diverse learning requirements.

With respect to teachers' digital literacy, particularly information and data literacy, digital content creation, and digital safety and security, TPACK emphasizes technological competence in accessing, assessing, developing, and managing electronic information responsibly. Educators demonstrating stronger integrated technological knowledge may possess greater capacity to organize digital instructional resources, develop accessible learning materials, and maintain appropriate security practices when utilizing educational technologies. These competencies are particularly important in inclusive classrooms, where students require instructional materials presented through different formats and supported by responsible digital practices that protect their information and promote equitable learning participation.

Regarding the application of emerging digital technologies in inclusive education, specifically instructional planning, content delivery, and learner engagement, TPACK emphasizes the importance of aligning technological resources with instructional methods and subject content. Teachers possessing well-developed integrated knowledge may demonstrate greater readiness to prepare inclusive lessons incorporating digital applications, present learning content through interactive platforms, and encourage participation using multimedia resources, artificial intelligence applications, and collaborative technologies. Such instructional integration provides opportunities for learners with varying abilities, including those requiring additional educational support, to participate in accessible and meaningful classroom learning activities.

Recent investigations indicate that innovative technologies provide valuable opportunities for strengthening inclusive learning environments through accessible, adaptable, and flexible instructional resources for students with special educational needs (Karagianni & Drigas, 2023). This perspective corresponds with the technological knowledge dimension of TPACK, which emphasizes teachers' ability to identify appropriate digital resources supporting learning accessibility. Likewise, Montenegro-Rueda and Fernández-Batanero (2022) emphasized the importance of teachers' digital competence in implementing inclusive educational practices while recognizing insufficient training and limited institutional assistance as continuing challenges. These findings suggest that technological competence should develop alongside pedagogical expertise and subject knowledge to support effective classroom instruction.

Furthermore, Starks and Reich (2023) identified several conditions affecting technology integration in special education, particularly teacher confidence, technological resources, and organizational assistance. These conditions are relevant to teachers' application of integrated technological knowledge during instructional preparation, content presentation, and classroom engagement. Similarly, Bastian et al. (2023) emphasized that digital literacy supports inclusive educational environments by strengthening communication, collaboration, and accessibility, particularly following changes in educational delivery during the pandemic. These findings highlight the importance of technological competence in supporting teachers' effective application of TPACK within contemporary inclusive classroom environments.

Additional research indicates that developing digital literacy among prospective and practicing educators strengthens their preparedness to implement technology-supported inclusive instructional approaches (Abiloye, 2025). Similarly, Venkatesan (2023) emphasized the importance of digital literacy among learners with disabilities, particularly in developing independence, accessing instructional materials, and participating in technology-based learning activities. Furthermore, Gabumpa-Apas (2025) highlighted the relevance of integrating digital literacy into classroom instruction to improve educational experiences among learners with special educational needs through appropriate and responsive instructional practices.

The Technological Pedagogical Content Knowledge (TPACK) Theory therefore provides a foundation for examining the relationship between teachers' digital literacy and their utilization of emerging digital technologies in inclusive

INTERNATIONAL MULTIDISCIPLINARY JOURNAL OF RESEARCH FOR INNOVATION, SUSTAINABILITY AND EXCELLENCE
Published by: RISEJOURNALS.ORG | Online ISSN: 3028-032X | Print ISSN: 3028-0370
VOLUME 5, ISSUE NO. 7

education. It emphasizes the importance of combining technological competence, instructional knowledge, and subject expertise to address diverse learning requirements. However, although TPACK explains how educators integrate technology into classroom instruction, it does not completely describe the processes through which teachers begin adopting and regularly applying innovative digital resources. Consequently, the Diffusion of Innovations Theory of Rogers (2003) provides an additional perspective for understanding teachers' technology adoption practices.

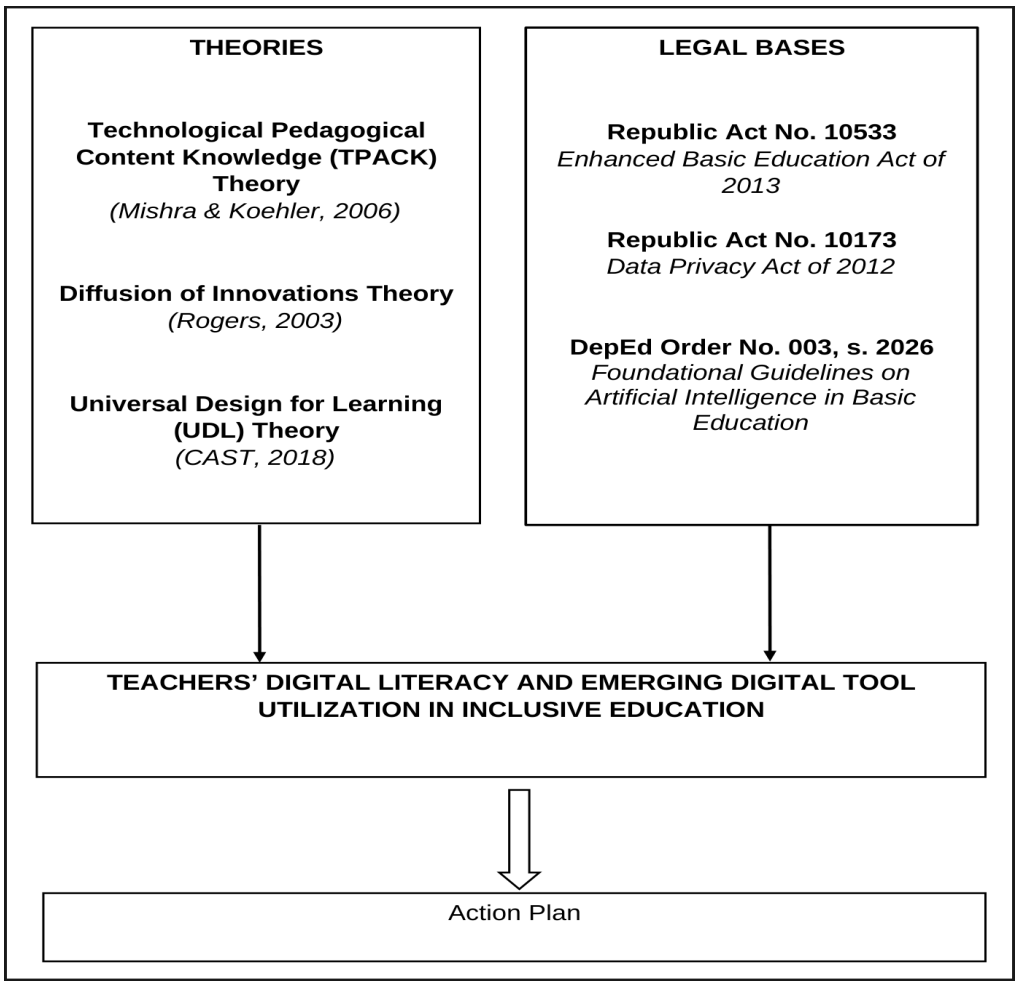


Figure 1
Theoretical Framework of the Study

Significance of the Study

This study examined the extent of teachers' digital literacy and their utilization of emerging digital tools in inclusive education among general education teachers at Dumlog Elementary Division, Toledo City Division during School Year 2026–2027 as a basis for a proposed Action Plan. The findings were expected to provide meaningful insights for various stakeholders in strengthening inclusive and technology-enhanced education.

Department of Education (DepEd). This study provided DepEd with localized and evidence-based information on teachers' digital literacy and their utilization of emerging digital tools in inclusive education. The findings helped identify current strengths and gaps in teachers' competencies, particularly in information and data literacy, digital content creation, digital safety and security, and the use of AI-powered instructional tools. This could guide policy

refinement, targeted professional development programs, and more strategic allocation of resources to strengthen digital integration in inclusive classrooms.

Teachers. This study helped teachers reflect on their current level of digital literacy and their ability to utilize emerging digital tools in instructional planning, content delivery, and learner engagement. It highlighted areas that needed improvement, especially in integrating AI-powered tools and ensuring safe and effective use of technology. The findings supported teachers in enhancing their instructional practices through targeted training, mentoring, and continuous professional development aligned with inclusive education demands.

Learners. The proposed improvements in digital instruction were intended to support more engaging, accessible, and differentiated learning, particularly in inclusive classrooms.

School Administrators. This study assisted school administrators in understanding the current digital competencies of teachers and their level of integration of emerging technologies in instruction. The results served as a basis for designing relevant interventions such as Learning Action Cell (LAC) sessions, targeted training programs, mentoring support, and improved resource planning to strengthen inclusive digital education practices at the school level.

Researchers. This study contributed to the existing body of knowledge on digital literacy and technology integration in inclusive education. It served as a reference for future studies exploring similar variables, such as AI utilization, teacher readiness, and digital competence across different school contexts, helping to expand research on effective digital transformation in education.

Future Researchers. This study served as a baseline reference for future researchers who intended to explore teachers' digital literacy and the use of emerging digital tools in inclusive education. It supported comparative studies, longitudinal research, or further investigation into the effectiveness of interventions aimed at improving digital competence and inclusive teaching practices in various educational settings.

Methods

Research Design

This study utilized a descriptive-correlational research design to examine teachers' digital literacy and their utilization of emerging digital tools in inclusive education among general education teachers at Dumlog Elementary School during School Year 2026–2027. The descriptive component profiled the respondents according to age, gender, educational attainment, years of teaching experience, teaching position, and exposure to AI-powered instructional tools. It also described the extent of teachers' digital literacy in terms of information and data literacy, digital content creation, and digital safety and security, as well as their utilization of emerging digital tools in terms of instructional planning, content delivery, and learner engagement. This provided a clear picture of teachers' digital competencies and classroom practices in inclusive education.

The correlational component determined whether a significant relationship existed between teachers' digital literacy and their utilization of emerging digital tools in inclusive education. This helped establish whether higher levels of digital literacy were associated with more effective and frequent use of digital tools in instructional practices for diverse learners. This design was appropriate because it allowed the study to both describe existing conditions and examine relationships among key variables in a real educational setting, particularly in inclusive classrooms where digital integration was increasingly essential.

As Creswell and Creswell (2022) emphasized, the descriptive-correlational research design was suitable for describing the current status of variables while also determining the relationships that existed among them. In this study, it provided a systematic approach to understanding the relationship between teachers' digital literacy and their utilization of emerging digital tools, thereby generating empirical evidence that could inform targeted interventions and the development of an action plan to strengthen inclusive, technology-enhanced teaching practices.

INTERNATIONAL MULTIDISCIPLINARY JOURNAL OF RESEARCH FOR INNOVATION, SUSTAINABILITY AND EXCELLENCE
Published by: RISEJOURNALS.ORG | Online ISSN: 3028-032X | Print ISSN: 3028-0370
VOLUME 5, ISSUE NO. 7

Flow of the Study

The study followed an input–process–output (IPO) model.

Input. The input phase of the study includes the demographic profile of teachers such as age, gender, years of teaching experience, highest educational attainment, and exposure to AI-powered instructional tools, which serve as essential background variables that may influence their level of digital competence, adaptability, and instructional practices in inclusive education. These characteristics are considered important in understanding differences in teachers' readiness and capacity to integrate emerging digital tools in classroom instruction. It also includes the extent of teachers' digital literacy in inclusive education, specifically in terms of information and data literacy, digital content creation, and digital safety and security, which collectively reflect teachers' ability to access, evaluate, create, and responsibly manage digital information in teaching and learning contexts. Furthermore, the input phase covers the extent of teachers' utilization of emerging digital tools in instructional planning, content delivery, and learner engagement, which represents the practical application of digital literacy skills in designing lessons, delivering instruction, and engaging diverse learners in inclusive classroom environments. In addition, the input includes the determination of the significant relationship between teachers' digital literacy and their utilization of emerging digital tools in inclusive education, which is essential in establishing whether higher levels of digital competence are associated with more effective integration of technology in teaching practices.

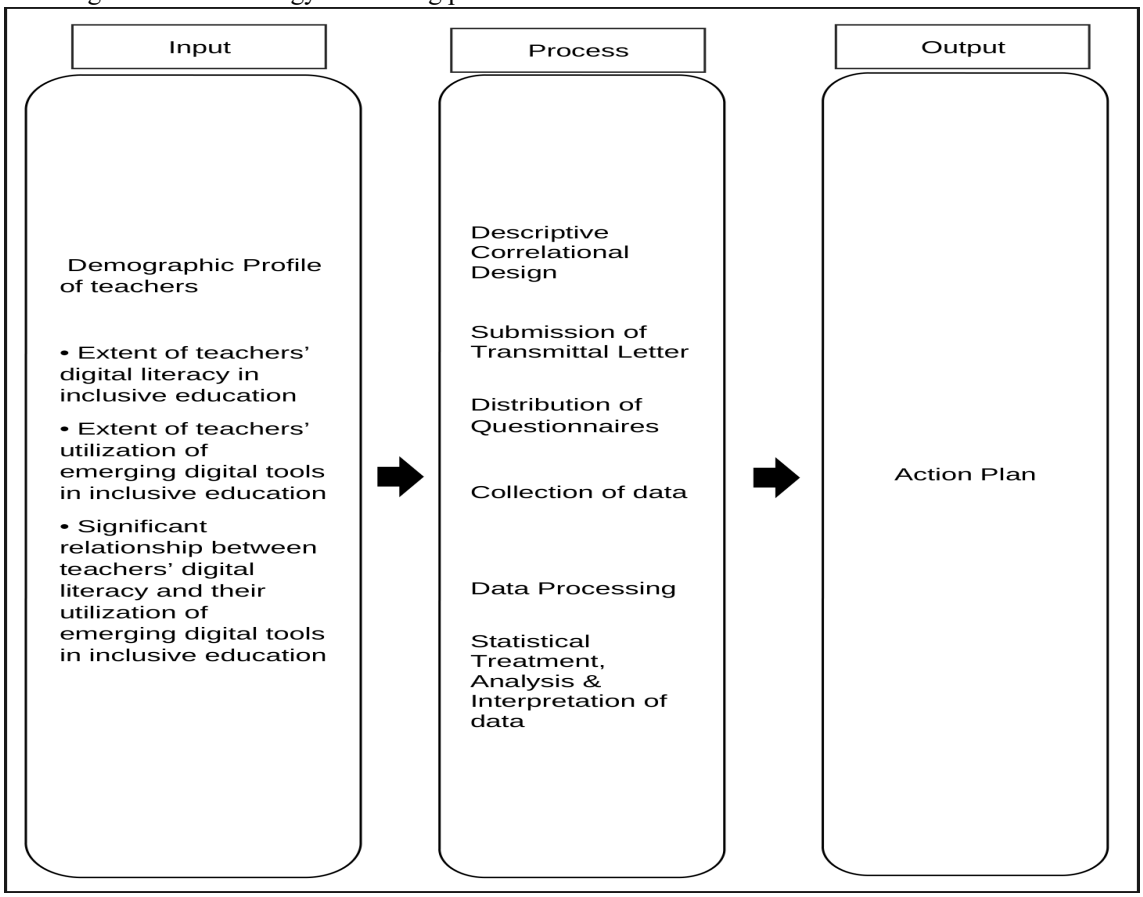


Figure 2
Flow of the Study

Process. The study employed a descriptive-correlational research design to determine teachers' digital literacy and their utilization of emerging digital tools in inclusive education, as well as to examine the relationship between these variables. This design was appropriate because it allowed the study to describe the current status of teachers'

competencies and practices while also identifying possible associations between digital literacy and technology use in real classroom settings.

The research process began with the submission of a transmittal letter to the school authorities to formally request permission to conduct the study and ensure proper coordination with the identified respondents. Once approval was granted, the distribution of questionnaires followed, where the research instruments were administered to the selected teachers in Dumlog Elementary School. After completion, the questionnaires were collected, ensuring completeness and accuracy of responses before data analysis.

After data gathering, the responses underwent data processing, which involved coding, organizing, and tabulating the collected information to prepare it for statistical analysis. This was followed by the statistical treatment, analysis, and interpretation of data, where appropriate statistical tools were used to describe the demographic profile of the respondents, determine the extent of teachers' digital literacy and utilization of emerging digital tools, and test the significance of the relationship between the identified variables. This systematic procedure ensured that the findings were accurate, reliable, and suitable for drawing meaningful conclusions for the proposed action plan.

Output. The output of the study is the proposed Action Plan designed to enhance teachers' digital literacy and improve their utilization of emerging digital tools in inclusive education.

Research Environment

The research environment of this study was Dumlog Elementary School located in Dumlog, Toledo City. It was classified as a medium-sized public elementary school that catered to a diverse group of learners within an inclusive education setting. The school operated under the Department of Education–Toledo City Division and implemented the revised K to 10 Curriculum, where teachers were expected to integrate technology-supported instruction to address varied learner needs and promote quality basic education. As a medium-sized school, Dumlog Elementary School had a sufficient number of teachers and learners that allowed the study to gather meaningful data on teachers' digital literacy and their utilization of emerging digital tools in inclusive education. The school environment reflected typical public school conditions where teachers managed multiple responsibilities, including lesson planning, classroom instruction, and learner support, often within resource-limited settings. This made it a relevant setting for examining how digital competencies were applied in actual classroom practice.

The school also provided an appropriate context for exploring the integration of digital tools in instruction, as teachers were increasingly expected to adapt to technology-enhanced teaching strategies.

Respondents and Sampling

The study reports 40 regular general education teachers from Dumlog Elementary School in Toledo City Division, selected through purposive sampling for School Year 2026–2027.

The inclusion criteria for participation are: (1) being a regular teaching staff member of Dumlog Elementary School, (2) having at least one year of teaching experience, (3) being directly involved in classroom instruction and inclusive education practices, (4) having experience or exposure to digital tools or AI-powered instructional resources, and (5) voluntarily agreeing to participate in the study. The exclusion criteria are: (1) substitute, volunteer, or part-time teachers without permanent teaching assignments, (2) teachers not actively involved in classroom instruction, (3) those without experience in inclusive education settings, and (4) those who do not provide informed consent to participate.

The reported teaching experience distribution (Table 6) includes one respondent with less than one year of teaching experience, although the stated inclusion criterion requires at least one year.

Table 1
Distribution of the Respondents

Respondent	F	%
Teachers	40	100.00
Total	40	100.00

Research Instrument

The study employed an adapted and contextualized survey questionnaire to determine teachers' digital literacy and their utilization of emerging digital tools in inclusive education among general education teachers at Dumlog Elementary School, Toledo City Division. The research instrument was designed to gather information directly aligned with the research objectives and the instructional experiences of elementary teachers handling learners with diverse abilities, learning characteristics, and educational support requirements. It consisted of three parts that examined the respondents' demographic and professional characteristics, the extent of their digital literacy, and their utilization of emerging digital technologies in inclusive elementary classroom instruction.

The first part gathered information regarding the respondents' demographic and professional profiles, particularly age, gender, educational attainment, years of teaching experience, teaching position, AI-powered instructional tools used, and frequency of AI-powered instructional tool usage. Age was classified into five categories, while educational attainment included bachelor's degree, bachelor's degree with master's units, master's degree, and doctoral degree. Teaching experience was organized into six categories, while teaching positions ranged from Teacher I to Master Teacher III. The questionnaire also identified the AI-powered instructional applications used by teachers, including ChatGPT, Microsoft Copilot, Gemini, Canva Magic Write, Grammarly AI, Kahoot! AI, QuillBot, Quizizz AI, Gamma, Notion AI, and other related applications. The frequency of utilizing these tools ranged from daily to never. These demographic and professional characteristics provided relevant background information concerning teachers' educational qualifications, instructional experiences, and exposure to emerging digital technologies within the elementary educational environment.

The second part assessed the extent of teachers' digital literacy in inclusive education using 15 indicators distributed across three dimensions: information and data literacy, digital content creation, and digital safety and security. Each dimension comprised five indicators. Information and data literacy examined teachers' competencies in locating, evaluating, comparing, and organizing digital information relevant to elementary lesson preparation and classroom learning activities. Digital content creation assessed their practices in developing, modifying, and integrating electronic instructional materials, including interactive presentations, illustrated learning resources, educational videos, and other technology-supported materials appropriate for learners with varying academic readiness and instructional needs. Digital safety and security focused on teachers' practices in protecting technological devices and accounts, maintaining the confidentiality of learners' information, verifying the security of educational platforms, and observing ethical standards when accessing and sharing digital resources. Responses were measured using a five-point Likert scale ranging from 1 (Very Low) to 5 (Very High), with higher ratings indicating a greater reported extent of digital literacy.

The third part determined the extent of teachers' utilization of emerging digital tools in inclusive education through 15 indicators grouped into three dimensions: instructional planning, content delivery, and differentiated instruction. Each dimension contained five indicators. Instructional planning examined teachers' use of digital applications in preparing daily lesson plans, selecting age-appropriate learning resources, organizing instructional materials, developing classroom activities, and utilizing learner information to guide instructional decisions. Content delivery assessed the application of technological resources in presenting elementary learning competencies, integrating multimedia materials, explaining foundational concepts, and providing accessible instructional content. Differentiated instruction examined teachers' utilization of emerging digital tools in addressing differences in learners' abilities, reading and numeracy readiness, learning pace, classroom participation, and instructional support requirements. It also considered the use of digital applications in encouraging collaborative learning, providing timely feedback, strengthening learner motivation, and supporting meaningful engagement in classroom activities. Responses were assessed using the same five-point Likert scale, ranging from 1 (Very Low) to 5 (Very High), to describe the reported extent of emerging digital tool utilization among general education teachers.

INTERNATIONAL MULTIDISCIPLINARY JOURNAL OF RESEARCH FOR INNOVATION, SUSTAINABILITY AND EXCELLENCE
Published by: RISEJOURNALS.ORG | Online ISSN: 3028-032X | Print ISSN: 3028-0370
VOLUME 5, ISSUE NO. 7

The survey questionnaire was adapted and contextualized from the European Framework for the Digital Competence of Educators (DigCompEdu) developed by Redecker (2017) and the DigCompEdu Check-In instrument examined by Martín-Párraga et al. (2022). These frameworks provided the conceptual foundation for examining teachers' digital competencies and their utilization of technological resources in classroom instruction. The indicators were contextualized to reflect the instructional responsibilities of general education teachers at Dumlog Elementary School, particularly in preparing developmentally appropriate digital learning materials, presenting foundational literacy and numeracy concepts, selecting accessible educational applications, and providing differentiated learning activities for pupils with diverse educational needs. The contextualization also considered the importance of safeguarding young learners' personal information and exercising professional judgment when utilizing AI-powered instructional applications. These adjustments strengthened the relevance of the questionnaire to the inclusive elementary educational environment and ensured alignment with the specific variables and objectives of the investigation.

Data Gathering and Ethics

The planned procedure called for coordination with the school head through a transmittal letter, identification of eligible teachers, informed consent, and personal administration of a printed questionnaire during non-teaching hours. The procedure also called for checking the returned questionnaires for completeness before coding and tabulating responses.

Informed Consent. All teacher-respondents were fully informed about the purpose, objectives, and scope of the study before their participation. They were also briefed on the procedures in answering the survey questionnaire, including the estimated time required for completion. Each participant was required to sign an informed consent form, confirming that their participation was voluntary and that they could withdraw from the study at any time without any penalty or negative consequence.

Confidentiality and Anonymity. All personal information and responses were treated with strict confidentiality. Names and any identifying details were not disclosed in any report, presentation, or publication. Responses were coded to ensure anonymity, and only the researcher and authorized individuals involved in data analysis had access to the raw data. All collected information was securely stored to prevent unauthorized access.

Voluntary Participation. Participation in the study was entirely voluntary. Teachers were not coerced, pressured, or influenced in any way to take part in the research. They had the full right to decline or discontinue participation at any stage of the study.

The source reports permission from the school head before data collection.

Scoring and Analysis

Frequency counts and percentages described the respondents. Weighted means and standard deviations summarized questionnaire responses, and the study reported a two-tailed Pearson product-moment correlation at the .05 significance level. The instrument description and scoring guides specify five response levels; the procedure also refers to four points. The five levels shown below are the scoring guides supplied in the manuscript; the scale administered to respondents should be confirmed.

Table 2
Scoring Guide for Teachers' Digital Literacy in Inclusive Education

Scale	Mean Range	Verbal Description	Interpretation
5	4.21–5.00	Very High	Digital literacy skills were demonstrated to a very great extent.
4	3.41–4.20	High	Digital literacy skills were demonstrated to a great extent.
3	2.61–3.40	Moderate	Digital literacy skills were demonstrated to a moderate extent.

INTERNATIONAL MULTIDISCIPLINARY JOURNAL OF RESEARCH FOR INNOVATION, SUSTAINABILITY AND EXCELLENCE
Published by: RISEJOURNALS.ORG | Online ISSN: 3028-032X | Print ISSN: 3028-0370
VOLUME 5, ISSUE NO. 7

Scale	Mean Range	Verbal Description	Interpretation
2	1.81–2.60	Low	Digital literacy skills were demonstrated to a limited extent.
1	1.00–1.80	Very Low	Digital literacy skills were demonstrated to a very limited extent.

Table 3
Scoring Guide for Teachers' Utilization of Emerging Digital Tools in Inclusive Education

Scale	Mean Range	Verbal Description	Interpretation
5	4.21–5.00	Very High	Emerging digital tools were utilized to a very great extent in inclusive instruction.
4	3.41–4.20	High	Emerging digital tools were utilized to a great extent in inclusive instruction.
3	2.61–3.40	Moderate	Emerging digital tools were utilized to a moderate extent in inclusive instruction.
2	1.81–2.60	Low	Emerging digital tools were utilized to a limited extent in inclusive instruction.
1	1.00–1.80	Very Low	Emerging digital tools were utilized to a very limited extent in inclusive instruction.

Results

Respondent Profile

Tables 4–9 summarize the respondent profile. The sample included 27 women and 13 men. The largest age group was 30–39 years (12 teachers, 30.00%). Eighteen respondents (45.00%) had completed a master's degree, 12 (30.00%) reported 6–10 years of teaching experience, and Teacher III was the most common position (10 respondents, 25.00%). ChatGPT was the most frequently named tool (39 responses). Thirteen teachers reported using AI tools several times a week (32.50%), and 12 reported daily use (30.00%).

Table 4
Age and Gender of the Respondents

Age (years)	Female f	Female %	Male f	Male %	Total f	Total %
50-59	6	15.00	3	7.50	9	22.50
40-49	5	12.50	5	12.50	10	25.00
30-39	10	25.00	2	5.00	12	30.00
20-29	6	15.00	3	7.50	9	22.50
Total	27	67.50	13	32.50	40	100.00

Table 5
Respondents' Highest Educational Attainment

Highest Educational Attainment	f	%
Doctorate Degree	1	2.50
Master's Graduate	18	45.00
With Master's Units	10	25.00

Highest Educational Attainment	f	%
Bachelor's Degree	11	27.50
Total	40	100.00

Table 6
Respondents' Teaching Experience

Teaching experience (in years)	f	%
More than 20	9	22.50
16-20	5	12.50
11-15	5	12.50
6-10	12	30.00
1-5	8	20.00
Less than one year	1	2.50
Total	40	100.00

Table 7
Respondents' Teaching Position

Teaching position	f	%
Master Teacher III	3	7.50
Master Teacher II	6	15.00
Master Teacher I	6	15.00
Teacher III	10	25.00
Teacher II	6	15.00
Teacher I	9	22.50
Total	40	100.00

Table 8
AI Tools Used by the Respondents

AI tool used	f	Rank
ChatGPT	39	1
Gemini	15	2
Canva Magic Write	9	3
Microsoft Copilot	8	4
Grammarly AI	5	5.5
Quizizz AI	4	7
Gamma	5	5.5
Kahoot! AI	3	8
QuillBot	1	10
Notion AI	2	9

INTERNATIONAL MULTIDISCIPLINARY JOURNAL OF RESEARCH FOR INNOVATION, SUSTAINABILITY AND EXCELLENCE
Published by: RISEJOURNALS.ORG | Online ISSN: 3028-032X | Print ISSN: 3028-0370
VOLUME 5, ISSUE NO. 7

Note. Multiple responses were allowed.

Table 9
Respondents' Frequency of AI Use

Frequency of AI use	f	%
Daily	12	30.00
Several Times a Week	13	32.50
Several times a month	4	10.00
Once a week	9	22.50
Rarely	2	5.00
Total	40	100.00

Digital Literacy

Tables 10–13 present the digital literacy results. The reported overall weighted mean was 3.41, rated High. Digital safety and security received the highest rating (3.55), while information and data literacy (3.33) and digital content creation (3.35) were rated Moderate.

Table 10
Information and Data Literacy

S/N	Indicators	WM	SD	Verbal Description
1	I search for digital information and resources needed for my teaching.	3.40	0.63	Moderate
2	I use appropriate search strategies to locate educational materials online.	3.38	0.63	Moderate
3	I evaluate the credibility and reliability of information from digital sources.	3.33	0.62	Moderate
4	I compare information from different digital sources before using it.	3.28	0.64	Moderate
5	I organize digital information for future instructional use.	3.25	0.67	Moderate
	Aggregate Mean	3.33		Moderate
	Mean of displayed item SDs		0.64	

Legend: 4.21–5.00 = Very High; 3.41–4.20 = High; 2.61–3.40 = Moderate; 1.81–2.60 = Low; 1.00–1.80 = Very Low. The mean of the item SDs is descriptive; it does not estimate the SD of teachers' composite scores.

Table 11
Digital Content Creation

S/N	Indicators	WM	SD	Verbal Description
1	I create digital instructional materials for my learners.	3.50	0.51	High
2	I modify existing digital resources to suit learner needs.	3.18	0.64	Moderate
3	I develop digital learning materials using various technologies.	3.30	0.61	Moderate
4	I integrate multimedia elements into instructional resources.	3.55	0.50	High
5	I create inclusive digital materials that support diverse learners.	3.20	0.61	Moderate

INTERNATIONAL MULTIDISCIPLINARY JOURNAL OF RESEARCH FOR INNOVATION, SUSTAINABILITY AND EXCELLENCE
Published by: RISEJOURNALS.ORG | Online ISSN: 3028-032X | Print ISSN: 3028-0370
VOLUME 5, ISSUE NO. 7

S/N	Indicators	WM	SD	Verbal Description
	Aggregate Mean	3.35		Moderate
	Mean of displayed item SDs		0.57	

Legend: 4.21–5.00 = Very High; 3.41–4.20 = High; 2.61–3.40 = Moderate; 1.81–2.60 = Low; 1.00–1.80 = Very Low. The mean of the item SDs is descriptive; it does not estimate the SD of teachers' composite scores.

Table 12
Digital Safety and Security

S/N	Indicators	WM	SD	Verbal Description
1	I apply security measures to protect my digital devices and accounts.	3.65	0.48	High
2	I ensure the privacy of learner information when using digital tools.	3.58	0.50	High
3	I practice safe and responsible use of digital technologies.	3.65	0.48	High
4	I verify the security of digital platforms before using them in class.	3.28	0.60	Moderate
5	I follow ethical guidelines in using and sharing digital resources.	3.60	0.50	High
	Aggregate Mean	3.55		High
	Mean of displayed item SDs		0.51	

Legend: 4.21–5.00 = Very High; 3.41–4.20 = High; 2.61–3.40 = Moderate; 1.81–2.60 = Low; 1.00–1.80 = Very Low. The mean of the item SDs is descriptive; it does not estimate the SD of teachers' composite scores.

Table 13
Summary of Teachers' Digital Literacy

Components	WM	Summary SD	Verbal Description
Information and Data Literacy	3.33	0.59	Moderate
Digital Content Creation	3.35	0.57	Moderate
Digital Safety and Security	3.55	0.51	High
Grand Mean	3.41		High
Mean of displayed dimension SDs		0.56	

Legend: 4.21–5.00 = Very High; 3.41–4.20 = High; 2.61–3.40 = Moderate; 1.81–2.60 = Low; 1.00–1.80 = Very Low. The information and data literacy SD is reported as 0.59 here and as 0.64 in Table 10. The basis for the difference is not documented. The final SD row is the mean of the displayed dimension SDs, not a composite standard deviation.

Emerging Digital Tool Utilization

Tables 14–17 present the tool utilization results. The reported overall weighted mean was 3.40, rated Moderate. Differentiated instruction had the highest mean (3.53, High), while instructional planning (3.33) and content delivery (3.35) were rated Moderate. The source reports identical item means and SDs for digital content creation and content delivery; these values are retained pending verification.

Table 14
Instructional Planning

INTERNATIONAL MULTIDISCIPLINARY JOURNAL OF RESEARCH FOR INNOVATION, SUSTAINABILITY AND EXCELLENCE
Published by: RISEJOURNALS.ORG | Online ISSN: 3028-032X | Print ISSN: 3028-0370
VOLUME 5, ISSUE NO. 7

S/N	Indicators	WM	SD	Verbal Description
1	I use digital tools when preparing lesson plans.	3.43	0.59	High
2	I select digital resources that address diverse learner needs.	3.40	0.55	Moderate
3	I use digital platforms to organize instructional materials.	3.23	0.66	Moderate
4	I incorporate emerging digital tools in planning classroom activities.	3.38	0.54	Moderate
5	I use learner data from digital tools to improve lesson planning.	3.23	0.62	Moderate
	Aggregate Mean	3.33		Moderate
	Mean of displayed item SDs		0.59	

Legend: 4.21–5.00 = Very High; 3.41–4.20 = High; 2.61–3.40 = Moderate; 1.81–2.60 = Low; 1.00–1.80 = Very Low. The mean of the item SDs is descriptive; it does not estimate the SD of teachers' composite scores.

Table 15
Content Delivery

S/N	Indicators	WM	SD	Verbal Description
1	I use digital tools to present lessons effectively.	3.50	0.51	High
2	I integrate multimedia resources during instruction.	3.18	0.64	Moderate
3	I use digital tools to provide differentiated instruction.	3.30	0.61	Moderate
4	I employ emerging digital tools to explain concepts clearly.	3.55	0.50	High
5	I use digital technologies to make lessons accessible to all learners.	3.20	0.61	Moderate
	Aggregate Mean	3.35		Moderate
	Mean of displayed item SDs		0.57	

Legend: 4.21–5.00 = Very High; 3.41–4.20 = High; 2.61–3.40 = Moderate; 1.81–2.60 = Low; 1.00–1.80 = Very Low. The mean of the item SDs is descriptive; it does not estimate the SD of teachers' composite scores.

Table 16
Differentiated Instruction

S/N	Indicators	WM	SD	Verbal Description
1	I use digital tools to foster differentiated instruction	3.63	0.49	High
2	I utilize digital technologies to promote learner collaboration and their differences	3.55	0.50	High
3	I provide immediate feedback through digital platforms.	3.58	0.59	High
4	I use digital tools to increase learner motivation and interest.	3.30	0.56	Moderate
5	I employ digital technologies to support meaningful engagement among diverse learners.	3.60	0.50	High
	Aggregate Mean	3.53		High
	Mean of displayed item SDs		0.53	

Legend: 4.21–5.00 = Very High; 3.41–4.20 = High; 2.61–3.40 = Moderate; 1.81–2.60 = Low; 1.00–1.80 = Very Low. The mean of the item SDs is descriptive; it does not estimate the SD of teachers' composite scores.

Table 17
Summary of Emerging Digital Tool Utilization in Inclusive Education

Components	WM	Summary SD	Verbal Description
Instructional Planning	3.33	0.59	Moderate
Content Delivery	3.35	0.57	Moderate
Differentiated Instruction	3.53	0.53	High
Grand Mean	3.40		Moderate
Mean of displayed dimension SDs		0.56	

Legend: 4.21–5.00 = Very High; 3.41–4.20 = High; 2.61–3.40 = Moderate; 1.81–2.60 = Low; 1.00–1.80 = Very Low. The final SD row is the mean of the displayed dimension SDs, not a composite standard deviation.

Relationship Between Digital Literacy and Tool Utilization

Table 18
Relationship Between Teachers' Digital Literacy and Emerging Digital Tool Utilization

Variables	r-value	Strength of Correlation	p - value	Decision	Remarks
Digital Literacy and Utilization	0.999*	Strong Positive	<.001	Reject Ho	Significant

*Note. *Significant at p < .05 (two-tailed), as reported. The source does not supply paired scores or the analysis output needed to verify the coefficient or the unit of analysis.*

Discussion

In terms of digital literacy, the respondents demonstrated a generally favorable level of competence across the three dimensions. Information and data literacy and digital content creation were assessed at a moderate level, suggesting that while teachers were capable of locating, using, and creating digital resources, some practices involving deeper evaluation, modification, organization, and contextualization of digital materials still had room for strengthening. Digital safety and security emerged as the strongest area, indicating that respondents were comparatively more confident in protecting digital accounts and devices, maintaining learner privacy, practicing responsible technology use, and observing ethical considerations when handling digital resources. This pattern suggested that teachers had developed greater awareness of responsible and secure technology use than of the more advanced processes involved in managing and producing digital instructional content.

The findings concerning the utilization of emerging digital tools showed a similar but distinct pattern. Teachers demonstrated moderate utilization in instructional planning and content delivery, while differentiated instruction represented their strongest area of technology utilization. This suggested that digital tools were being used particularly well when teachers sought to accommodate differences among learners, provide immediate feedback, encourage collaboration, and support meaningful engagement. However, the comparatively moderate results in planning and content delivery indicated that the integration of emerging technologies into the more systematic aspects of instructional preparation and presentation could still be strengthened. Thus, technology use appeared to be more pronounced when directly connected to learner responsiveness and differentiation than when applied to broader instructional planning processes.

The profile and substantive findings could be understood through the Technological Pedagogical Content Knowledge (TPACK) framework of Mishra and Koehler, which emphasized that effective technology integration required the interaction of technological knowledge with pedagogical and content knowledge. The respondents' relatively strong digital safety practices and high utilization of digital tools for differentiated instruction suggested that they possessed practical technological knowledge that was being connected to specific instructional needs. At the same time, the moderate results in information and data literacy, digital content creation, instructional planning, and content delivery

indicated that technological competence was not necessarily uniform across all aspects of teaching. This may imply that teachers' capacity to use technology effectively depended on the particular instructional task involved.

The findings could also be viewed through Rogers' Diffusion of Innovations Theory, which explained how individuals adopted and integrated innovations based on factors such as perceived usefulness, compatibility, and experience with the innovation. The respondents' exposure to several AI-powered tools and their relatively frequent use of such technologies suggested that emerging digital tools had gained acceptance within their professional environment. The stronger use of technology for differentiated instruction may further indicate that teachers recognized the practical value of digital tools when these technologies addressed concrete classroom needs. However, the continued moderate level of utilization in some areas suggested that adoption did not necessarily mean equally extensive or sophisticated integration across all teaching functions.

The results were likewise consistent with the principles of Universal Design for Learning (UDL), particularly its emphasis on providing multiple means of engagement, representation, and action and expression to respond to learner variability. The comparatively strong utilization of digital tools for differentiated instruction indicated that respondents were already applying technology in ways that could accommodate differences among learners and promote participation. Nevertheless, the moderate utilization observed in instructional planning and content delivery suggested that UDL-oriented technology integration could still be strengthened by deliberately incorporating accessibility and learner variability from the planning stage through the delivery of instruction.

The findings were supported by recent literature emphasizing the importance of digital literacy in teachers' effective use of educational technologies. The work of Yan et al. (2025), for instance, highlighted the relationship between teachers' digital literacy and teaching competence, reinforcing the view that digital competence formed an important foundation for technology-supported instructional practice. Similarly, the findings complemented research by Ramazani and Talebi (2023), which emphasized the relevance of information literacy, digital literacy, and ICT self-efficacy in teaching. These studies provided support for interpreting the respondents' digital literacy as an important contextual factor in understanding their technology-related instructional practices. The findings also corresponded with recent literature such as Putri et al. (2026), which emphasized digital literacy competence as an important consideration in teachers' readiness to adapt to educational digital transformation.

Table 18 reports a near-perfect positive association between teachers' digital literacy and use of emerging digital tools. If the analysis used 40 paired teacher scores, the reported p-value is consistent with the reported coefficient. The manuscript does not provide the paired scores or the statistical output needed to verify the coefficient or confirm the unit of analysis. Two separate scales also report identical item means and standard deviations. These figures require verification against the original analysis. The study design does not establish causation.

The finding was consistent with the study of Ogoke et al. (2025), which emphasized the effectiveness of digital literacy skills in supporting personalized learning among preservice mathematics teachers. Their work supported the present finding by indicating that digital literacy provided an important foundation for the effective use of digital tools in instructional contexts. The strong positive relationship found in the present study further suggested that teachers' ability to work with digital technologies was closely connected with their actual use of such technologies for educational purposes.

Similarly, the findings supported Pursitasari et al. (2025), who examined digital literacy and scientific literacy among science teachers in relation to student learning styles. Their study highlighted the relevance of digital literacy in contemporary teaching and learning environments. This complemented the present result because teachers who possessed stronger digital competencies were better positioned to employ technology in ways responsive to varied instructional requirements. In an inclusive education context, such technological competence could be particularly relevant because digital tools could provide teachers with additional means of presenting information, adapting learning activities, and responding to learner diversity.

The result also agreed with Anaekwe and Okoye (2025), who discussed the utilization of digital literacy tools as a means of promoting effective teaching and learning in secondary schools. Their work reinforced the connection

between digital literacy and the practical application of educational technologies. The present findings extended this perspective to inclusive education, where the utilization of emerging digital tools involved not only general technology integration but also instructional practices intended to accommodate diverse learners.

The findings could likewise be understood in relation to Krivokuća (2026), who proposed a theoretical framework connecting digital literacy with professional practice among EFL teachers. The present result provided empirical support for the broader proposition that digital literacy was relevant to teachers' professional application of technology. The strong positive association suggested that digital literacy was not merely a technical capability but was closely related to how teachers incorporated emerging technologies into their instructional responsibilities.

From a practical perspective, the findings pointed to the need for professional development that moved beyond basic exposure to digital tools. Since teachers already demonstrated relatively strong practices in digital safety and differentiated instruction, subsequent interventions could focus more deliberately on strengthening information evaluation, digital content development, technology-supported instructional planning, and effective content delivery. The proposed Action Plan could therefore build upon existing competencies while addressing areas where digital literacy and technology utilization remained less developed. Such an approach would help ensure that emerging digital tools were not merely available to teachers but were integrated purposefully to support diverse learners and inclusive classroom practices.

Output of the Study

The stronger ratings for digital safety and differentiated instruction provide a starting point for the Action Plan. The lower ratings for evaluating and organizing information, adapting digital materials, and integrating technology into planning and delivery identify the practices that the plan prioritizes.

The proposed plan uses Learning Action Cell sessions, workshops, peer mentoring, and classroom application to address those needs. It lists the activities and expected outcomes by month; the source does not document implementation and leaves the accomplishment and remarks fields blank.

Action Plan

Rationale

The findings of the study indicated that teachers had demonstrated a generally favorable level of digital literacy and utilization of emerging digital tools in inclusive education; however, several areas remained less developed and therefore required focused improvement. Although teachers showed stronger practices in digital safety and security and differentiated instruction, the results pointed to specific competencies that were comparatively weaker, particularly in evaluating and organizing digital information, modifying digital resources to meet learner needs, and using digital technologies systematically for instructional planning and content delivery. These areas provided the context for developing an Action Plan that would build on teachers' existing strengths while addressing specific gaps in their digital competencies and technology integration practices.

The first area for intervention concerned information and data literacy. The relatively lower-rated practices involved evaluating the credibility and reliability of information from digital sources and organizing digital information for future instructional use. These findings suggested that teachers may have been able to access digital resources but needed further support in critically assessing the quality of information and systematically managing resources for instructional purposes. The Action Plan therefore included activities that would strengthen teachers' skills in source evaluation, information verification, digital organization, and responsible selection of online educational materials.

Another area requiring attention was digital content creation, particularly the modification of existing digital resources to suit learners' needs and the development of inclusive digital materials. While teachers demonstrated the ability to create digital instructional materials, the comparatively lower ratings in adapting resources suggested a need to further

develop their capacity to customize content according to learners' varied abilities, interests, and learning needs. The proposed interventions therefore focused on practical training in adapting, enhancing, and designing digital materials that were accessible, flexible, and responsive to diverse learners in inclusive classrooms.

The Action Plan also addressed the less developed aspects of emerging digital tool utilization in instructional planning and content delivery. Teachers reported comparatively lower utilization in organizing instructional materials through digital platforms, using learner data to improve lesson planning, integrating multimedia resources during instruction, and using technology to make lessons accessible to all learners. These results suggested that technology integration could be strengthened by moving beyond basic use toward more purposeful application in planning, presenting, and adapting instruction. Accordingly, the proposed activities emphasized hands-on development of technology-supported lesson plans, digital resource organization, multimedia integration, learner-data use, and accessible digital instruction.

Finally, the proposed Action Plan was designed to provide sustained and practical professional development rather than one-time training. The identified areas of need were closely connected to the effective use of emerging digital tools and therefore required opportunities for teachers to practice, receive feedback, collaborate with colleagues, and apply newly developed skills in actual classroom situations. Through Learning Action Cell sessions, peer sharing, demonstrations, and guided application, the intervention sought to strengthen the specific competencies reflected in the lower-rated indicators while sustaining teachers' existing strengths in digital safety, responsible technology use, and differentiated instruction. In this way, the Action Plan was intended to support more purposeful, accessible, and inclusive integration of digital technologies in teaching and learning.

Objectives

Improve teachers' skills in evaluating the credibility of digital information.
Enhance teachers' ability to modify and create inclusive digital materials.
Strengthen the organization and management of digital instructional resources.
Improve the use of learner data in digital tools for lesson planning.
Enhance the use of digital tools for accessible, differentiated, and engaging instruction.

Scheme of Implementation

The action plan will be implemented through a series of Learning Action Cell (LAC) sessions, hands-on workshops, peer mentoring, and classroom-based application designed to address the identified areas for improvement. The implementation will begin with capacity-building sessions on evaluating the credibility of digital information, modifying and creating inclusive digital materials, organizing digital resources, and using learner data to improve lesson planning. Teachers will then engage in practical activities where they will develop, modify, and apply digital instructional materials and strategies appropriate for learners with diverse needs. Peer mentoring and collaborative sharing will be conducted to allow teachers to exchange effective practices, provide feedback, and address common challenges in using digital tools. The school administration and designated ICT or instructional personnel will provide technical and instructional support throughout the implementation. Progress will be monitored through teachers' outputs, reflections, and classroom applications, with the results used to identify areas requiring follow-up training and continuous professional development.

Table 19
Action Plan on Strengthening Teachers' Digital Literacy and Utilization of Emerging Digital Tools in Inclusive Education (Part 1 of 5)

Field	Details
Areas of Concern	Evaluating the credibility of digital information
Objectives	Improve teachers' skills in evaluating the credibility of digital information.
Strategies	Conduct a workshop on source evaluation, fact-checking, and identifying credible digital information.

INTERNATIONAL MULTIDISCIPLINARY JOURNAL OF RESEARCH FOR INNOVATION, SUSTAINABILITY AND EXCELLENCE
Published by: RISEJOURNALS.ORG | Online ISSN: 3028-032X | Print ISSN: 3028-0370
VOLUME 5, ISSUE NO. 7

Field	Details
Persons Involved	School Head, ICT Coordinator, Master Teachers, Teachers
Budget	₱5,000
Source of Budget	School MOOE / LAC Funds
Time Frame	Month 1
Expected Outcome	Teachers demonstrate improved skills in evaluating digital information before classroom use.
Actual Accomplishment	
Remarks	

Table 19
Action Plan on Strengthening Teachers' Digital Literacy and Utilization of Emerging Digital Tools in Inclusive Education (Part 2 of 5)

Field	Details
Areas of Concern	Modifying and creating inclusive digital materials
Objectives	Enhance teachers' ability to modify and create inclusive digital materials.
Strategies	Conduct a hands-on workshop on modifying existing resources and creating digital materials suited to diverse learners.
Persons Involved	School Head, ICT Coordinator, Master Teachers, Teachers
Budget	₱20,000
Source of Budget	School MOOE / LAC Funds
Time Frame	Month 2
Expected Outcome	Teachers produce appropriate and inclusive digital instructional materials.
Actual Accomplishment	
Remarks	

Table 19
Action Plan on Strengthening Teachers' Digital Literacy and Utilization of Emerging Digital Tools in Inclusive Education (Part 3 of 5)

Field	Details
Areas of Concern	Organization and management of digital instructional resources
Objectives	Strengthen the organization and management of digital instructional resources.
Strategies	Conduct an orientation on digital file organization, labeling, storage, and retrieval of instructional resources.
Persons Involved	ICT Coordinator, Master Teachers, Teachers
Budget	₱5,000
Source of Budget	School MOOE
Time Frame	Month 3
Expected Outcome	Teachers maintain organized and accessible digital instructional resources.
Actual Accomplishment	

Field	Details
Remarks	

Table 19
Action Plan on Strengthening Teachers' Digital Literacy and Utilization of Emerging Digital Tools in Inclusive Education (Part 4 of 5)

Field	Details
Areas of Concern	Use of learner data in digital tools for lesson planning
Objectives	Improve the use of learner data in digital tools for lesson planning.
Strategies	Conduct a workshop on interpreting digital learner data and incorporating results into lesson planning.
Persons Involved	School Head, Master Teachers, ICT Coordinator, Teachers
Budget	₱5,000
Source of Budget	School MOOE / LAC Funds
Time Frame	Month 4
Expected Outcome	Teachers appropriately use learner data to improve lesson planning.
Actual Accomplishment	
Remarks	

Table 19
Action Plan on Strengthening Teachers' Digital Literacy and Utilization of Emerging Digital Tools in Inclusive Education (Part 5 of 5)

Field	Details
Areas of Concern	Accessible, differentiated, and engaging digital instruction
Objectives	Enhance the use of digital tools for accessible, differentiated, and engaging instruction.
Strategies	Conduct demonstration lessons and hands-on activities using digital tools for accessibility, differentiation, and learner engagement.
Persons Involved	School Head, Master Teachers, ICT Coordinator, Teachers
Budget	₱5,000
Source of Budget	School MOOE / LAC Funds
Time Frame	Month 5
Expected Outcome	Teachers apply digital tools to provide accessible, differentiated, and engaging instruction.
Actual Accomplishment	
Remarks	

Conclusion

Therefore, the null hypothesis was rejected, indicating a significant relationship between teachers' digital literacy and their utilization of emerging digital tools in inclusive education. The strong positive correlation suggested that higher digital literacy was associated with greater utilization of emerging digital tools. However, the finding indicated association rather than causation.

Recommendations

The researcher recommended the implementation of a targeted Action Plan to strengthen teachers' digital literacy, particularly in information and data literacy and digital content creation. The school administration was encouraged to provide continuous training and professional development on the purposeful integration of emerging digital tools in instructional planning and content delivery. Teachers were also encouraged to sustain their strong digital safety practices while expanding their effective use of technology to support differentiated and inclusive instruction.

References

Abiloye, A. (2025). Empowering pre-service teachers through digital literacy for inclusive education. In Empowering pre-service teachers to enhance inclusive education through technology (pp. 1–18). IGI Global Scientific Publishing.

Acquah, E. D. W. A. R. D. (2023). The impact of tutors' digital literacy on ICT integration of pre-service teachers: A case study of OLA College of Education [Doctoral dissertation, University of Cape Coast].

Adolphus, T. (2025, September). Science educators and digital literacy in the 21st century. In Conference proceedings of Association of Science Educators Anambra (pp. 11–25).

Anaekwe, G. U., & Okoye, N. E. (2025, September). Utilizing digital literacy tools as panacea to effective teaching and learning in secondary schools in Orumba South Local Government Area. In Conference proceedings of Association of Science Educators Anambra (pp. 50–56).

Arfani, S., Rosalinah, Y., Subroto, I., Rahayuningsih, R., & Lestari, R. (2023). Exploring the proficiency of English teachers in digital literacy. *AL-ISHLAH: Jurnal Pendidikan, 15*(4), 5825–5835.

Bastian, A., Liza, L. O., & Efastri, S. M. (2023). Revolutionizing education: How digital literacy is transforming inclusive classrooms in post-COVID-19. *Journal of Public Health, 45*(3), e609–e610.

Baxter, A., & Reeves, L. M. (2023). Inclusion of digital literacy skills in transition planning for students with intellectual disabilities. *Journal of Special Education Technology, 38*(3), 384–391.

Bong, W. K., & Chen, W. (2024). Increasing faculty's competence in digital accessibility for inclusive education: A systematic literature review. *International Journal of Inclusive Education, 28*(2), 197–213.

Camanse, E. V. G. D., Cabaluna, E. M., Ydimne, L. J., & Quezada, R. J. C. (2026). Digital literacy and readiness among primary grade teachers in the implementation of MATATAG curriculum. *Asian Journal of Education and Social Studies, 52*(6), 355–367.

CAST. (2024). Universal Design for Learning guidelines version 3.0.

Charles-Zalakoro, J. L. (2025). Inclusive education and digital literacy: Developing essential skills in the digital age in selected public secondary schools in Bayelsa State. *International Journal of Educational Management, Rivers State University, 1*(2), 266–283.

Doğan, S., & Geçikli, M. (2026). The role of digital literacy in shaping EFL teachers' attitudes toward ICT integration. *Journal of Learning and Teaching in Digital Age, 11*(2), 75–87.

Drushlyak, M., Semenikhina, O., Kharchenko, I., Mulesa, P., & Shamonia, V. (2023). Effectiveness of digital technologies in inclusive learning for teacher preparation. *Journal of Learning for Development, 10*(2), 177–195.

Fälth, L., & Selenius, H. (2024). Primary school teachers' use and perception of digital technology in early reading and writing education in inclusive settings. *Disability and Rehabilitation: Assistive Technology, 19*(3), 790–799.

Gabumpa-Apas, C. (2025). Digital literacy integration for learners with special educational needs. *British Journal of Teacher Education and Pedagogy, 4*(5), 18–27.

Kaimara, P. (2026). Digital transformation stands alongside inclusive education: Lessons learned from a project called "Waking Up in the Morning". *Technology, Knowledge and Learning, 31*(1), 51–77.

Karagianni, E., & Drigas, A. (2023). New technologies for inclusive learning for students with special educational needs. *International Journal of Online & Biomedical Engineering, 19*(5).

Keskin, D. Ö., & İlker, Ö. (2026). Relationship between special education teachers' twenty-first-century skills self-efficacy perceptions and digital literacy levels. *Psycho-Educational Research Reviews, 15*(1), 57–73.

Kocdar, S., & Bozkurt, A. (2023). Supporting learners with special needs in open, distance, and digital education. In Handbook of open, distance and digital education (pp. 881–895). Springer Nature Singapore.

Krivokuća, M. (2026). From digital literacy to professional practice: A theoretical framework for EFL teachers. In Sinteza 2026: International Scientific Conference on Information Technology, Computer Science, and Data Science (pp. 452–457). Singidunum University.

Lazou, C., & Tsinakos, A. (2023). Critical immersive-triggered literacy as a key component for inclusive digital education. *Education Sciences, 13*(7), Article 696.

Martín-Párraga, L., Llorente-Cejudo, C., & Barroso-Osuna, J. (2022). Validation of the DigCompEdu Check-In questionnaire through structural equations: A study at a university in Peru. *Education Sciences, 12*(8), Article 574. https://doi.org/10.3390/educsci12080574

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record, 108*(6), 1017–1054.

Montenegro-Rueda, M., & Fernández-Batanero, J. M. (2022). Digital competence of special education teachers: Impact, challenges and opportunities. *Australasian Journal of Special and Inclusive Education, 46*(2), 178–192.

Nguyen, L. A. T., & Habók, A. (2024). Tools for assessing teacher digital literacy: A review. *Journal of Computers in Education, 11*(1), 305–346.

Ogoke, C. J., Otumegwu, T. U., Achugamonu, P. C., & Okon, U. N. (2025, September). Effectiveness of digital literacy skills in personalized learning of preservice mathematics teachers: Implications for achievement. In Conference proceedings of Association of Science Educators Anambra (pp. 35–34).

Okoli, J. N., & Christian-Ike, N. O. (2025, September). Digital literacy and utilization of educational technologies among basic science teachers in Anambra State: Implications for effective science teaching. In Conference proceedings of Association of Science Educators Anambra (pp. 117–126).

Pizarro, M., Caballes, D., & Vianzon, J. (2024). Digital literacy of elementary teachers and its relation to performing their various school roles amidst COVID-19 pandemic. *Journal of Interdisciplinary Perspectives, 2*(2), 78–91. https://doi.org/10.5281/zenodo.10594619

Pursitasari, I. D., Permana, I., Jaenudin, D., Suriansyah, M. I., Sumiati, E. S., & Aqilah, S. (2025). Digital literacy and scientific literacy of science teachers and student learning styles in science learning. *Jurnal Penelitian dan Pembelajaran IPA, 11*(1), 26–38.

Putri, R. M., Fadliah, H., & Yuliarti, R. (2026). The influence of digital literacy competence on teacher readiness to adapt to the digital transformation of education. *Journal of Social Studies and Education, 4*(1), 63–74.

Rakhimzhanova, L., Issabayeva, D., Kultan, J., Baimuldina, N., Issabayeva, Z., & Aituganova, Z. (2025). Using augmented reality to teach digital literacy course to primary school children with special educational needs. *European Journal of Educational Research, 14*(1), 55–71.

Ramazani, A., & Talebi, Z. (2023). A consideration of the roles of preservice teachers' information literacy, digital literacy, and ICT self-efficacy in teaching. *Technology of Education Journal (TEJ), 18*(1), 271–286.

Redecker, C. (2017). European framework for the digital competence of educators: DigCompEdu (JRC Science for Policy Report). Publications Office of the European Union. https://doi.org/10.2760/159770

Rofiah, K., Ngenge, R. T., Kholidya, C. F., & Ainin, I. K. (2023). Digital literacy and perception of inclusive education of preservice teachers at Indonesian universities. In International Conference on New Media Pedagogy (pp. 24–43). Springer Nature Switzerland.

Rogers, E. M. (2003). Diffusion of innovations (5th ed.). Free Press.

Starks, A. C., & Reich, S. M. (2023). "What about special ed?": Barriers and enablers for teaching with technology in special education. *Computers & Education, 193*, Article 104665.

Tabaru Örnek, G. (2026). How is digital literacy related to self-efficacy beliefs? The mediating role of motivation toward web-based professional development. *BMC Psychology, 14*(1), Article 304.

Venkatesan, S. (2023). Digital literacy in people with disabilities: An overview and narrative review.

Xiao, W., Wang, M., & Li, X. (2026). From "digital novices" to "digital pioneers": Profiles and influencing factors of digital literacy among pre-service special education teachers. *Teaching and Teacher Education, 170*, Article 105301.

Yan, Z., Shen, Z., Yuan, H., Wu, Z., & Tang, X. (2025). The relationship between teachers' digital literacy and teaching competence: The chain mediating role of psychological capital and learning engagement. *Education and Information Technologies, 30*(17), 25059–25079.

Yao, N., & Wang, Q. (2024). Factors influencing pre-service special education teachers' intention toward AI in education: Digital literacy, teacher self-efficacy, perceived ease of use, and perceived usefulness. *Heliyon, 10*(14).

Zhang, J., & Zhang, Z. (2024). AI in teacher education: Unlocking new dimensions in teaching support, inclusive learning, and digital literacy. *Journal of Computer Assisted Learning, 40*(4), 1871–1885.