# ICT COMPETENCE OF TEACHERS OF PUBLIC SECONDARY SCHOOLS IN THE MUNICIPALITY OF ASINGAN, PANGASINAN

**Joy L. Ibañez**

**Lyceum-Northwestern University, Dagupan City, Philippines**

https://lyceum.edu.ph

***Abstract***

This study sought to determine the extent of ICT competence of the teachers of public secondary schools in the Municipality of Asingan, Pangaasinan during the School Year 2025-2026 through a quantitative-descriptive-correlational research design. The data used in this study came from the 168 teachers and eight school heads which were subjected to frequency count, percentage, weighted mean, the chi-square test of independence, and the t-test. Results showed that: majority of the teachers have no post-graduate degrees, have been teaching for more than ten years already, and have attended not more than three trainings/seminars related with ICT; in general, the teachers perceived that their ICT competence is to a great extent as evidenced by the computed overall weighted mean of 4.02 while the school heads perceived that the ICT competence of the teachers is only to a moderate extent as evidenced by the computed overall weighted mean of 2.95; there is a significant relationship between the highest educational attainment, the length of teaching experience, and the number of relevant trainings attended of the teachers and the extent of their ICT competence; there is a significant difference between the perceptions of the teachers and their school heads on the extent of ICT competence of the teachers; and, the teachers encountered four challenges in integrating ICT in the classroom. Given the findings, the following conclusions were drawn: a typical teacher of a public secondary school in the Municipality of Asingan, Pangasinan is a bachelor's degree holder, has been teaching for more than ten years already, and has attended not more than three trainings/seminars related with ICT for the past five years; the teachers perceived that their ICT competence is to a great extent while their school heads perceived that their ICT competence is only to a moderate extent; the extent of ICT competence of the teachers is influenced by their highest educational attainment, length of teaching experience, and number of relevant trainings attended; the teachers and their school heads have different perceptions on the extent of ICT competence of the teachers; and, the challenges encountered by the teachers in integrating ICT in the classroom may be addressed.

***Keywords:*** *ICT competence, teachers, public secondary schools, National ICT Competency Standards, enhancement training program*

## Introduction

The integration of technology in education is not a new concept, as its roots can be traced to the early era of television when many believed it would transform the educational system. In the present time, the incorporation of computers has greatly influenced the field of education and



ISSN 3028-2586 (Print) · ISSN 3155-6876 (Online) · erfresearch.com

almost every aspect of everyday life. As computers become more affordable and readily available in homes and schools, policymakers and other stakeholders continue to recognize and anticipate the capacity of technology to enhance and redefine learning experiences (Wong & Daud, 2018).

According to Mijares (2022), the rapid growth of digital technologies, particularly Information and Communication Technology (ICT), in the 21st century has significantly altered traditional educational practices, resulting in major changes in the processes of teaching and learning. Drawing from the views of different scholars, Gangmei and Thomas (2025) described ICT as technologies utilized for the creation, transmission, storage, sharing, and exchange of information among people—a definition that includes tools and platforms such as radio, television, video, telephones, satellite systems, computer hardware and networks, and communication services like email and video conferencing. Similarly, Junio (2023) explained ICT as computer-based technologies comprising hardware, software, networks, and various digital devices that transform information in the form of text, sound, and motion into digital data, spanning both traditional media (radio, television, telephones) and modern innovations (computers, satellites, wireless technologies, and the Internet). Meanwhile, in line with the Commission on Information and Communication Technology in the Philippines, Quidon (2024) described ICT as a broad array of electronic technologies used for gathering, storing, processing, and disseminating information, while Rubach and Lazarides (2023) noted that ICT facilitates access to information and communication through telecommunication technologies, thereby providing opportunities for digital connectivity and interaction.

According to UNESCO, as cited by Manaban, Piñero, and Futalan (2025), societies in an increasingly information-, knowledge-, and technology-driven world must establish mechanisms that develop a workforce equipped with ICT competencies, critical thinking abilities, creativity, and problem-solving skills necessary for knowledge creation, while also promoting inclusive participation among all members of society. In response, the United Nations adopted the 2030 Agenda for Sustainable Development, acknowledging the vast potential of ICT to hasten development, narrow the digital divide, and promote inclusive knowledge societies grounded in human rights, gender equality, and empowerment. ICT plays a crucial role in advancing the Sustainable Development Goals, particularly quality education (Goal 4), gender equality (Goal 5), industry and infrastructure (Goal 9), reduced inequalities (Goal 10), peace, justice, and strong



ISSN 3028-2586 (Print) · ISSN 3155-6876 (Online) · erfresearch.com

institutions (Goal 16), and partnerships for the goals (Goal 17). Hence, ICT competence, which refers to the ability and ethical responsibility to participate effectively in the digital world, has become an essential skill in the 21st century.

In line with the foregoing discussion, Alharthi (2020) asserted that the ongoing development of ICT continues to reshape the global educational environment. Likewise, Costa (2026) emphasized that the utilization and integration of ICT in teaching have become vital elements of the pedagogical process, as they enhance teacher-student interaction and maximize learning outcomes, allowing students to learn more effectively when technology is used appropriately and efficiently. Through ICT, teachers are able to facilitate discussions that deepen students' understanding of various concepts and strengthen instructional delivery (Alharthi, 2020). As a cognitive technological tool, ICT also offers external representations of different processes, allowing learners to reflect on concepts, conventions, and strategic decisions while participating in educational activities (Asagar, 2025). Muñoz (2024) pointed out that the integration of technology across all levels of learning enables students to become more skilled, confident, and efficient in using digital tools—competencies that are crucial in today's technology-oriented academic and professional environments. As ICT continues to play a growing role in knowledge acquisition, content understanding, and learning processes, there is an increasing need to strengthen teachers' ICT competence so they can effectively address the evolving learning styles of digital-native learners (Murithi & Yoo, 2021).

It is thus important for teachers to possess the necessary competencies to effectively integrate ICT into their professional practice in order to promote equitable and quality learning and to help learners develop essential knowledge-society skills, including critical and creative thinking, complex problem-solving, collaboration, and socio-emotional abilities (Bingimlas, 2021). According to Villegas and Buquia (2023), ICT competencies refer to the ability to use technological tools and equipment for accessing, distributing, and transferring knowledge, and are categorized into four major domains: basic technology operations, personal and professional utilization of technological tools, social and ethical concerns, and the application of technology in instruction. Junio (2023), citing the works of various authorities, likewise classified ICT competencies into basic or fundamental competencies (entry-level skills such as managing electronic files, using databases and spreadsheets, and sending emails) and advanced competencies



ISSN 3028-2586 (Print) · ISSN 3155-6876 (Online) · erfresearch.com

(applying these foundational skills to teaching, administration, counseling, and other professional functions). Unfortunately, Cayabyab (2024) noted that findings from numerous studies indicate the need for stronger encouragement, greater support, and more opportunities to enhance teachers' ICT competence and increase their motivation, thereby improving both the extent and quality of ICT integration in classroom instruction.

Considering the extensive presence of ICT and its substantial potential to transform education, this study investigated the extent of ICT competence among teachers in public secondary schools in the Municipality of Asingan, Pangasinan.

### *Theoretical and Conceptual Framework*

This study was anchored on the National ICT Competency Standards for Teachers (NICS-Teachers), a framework formulated by the Commission on Information and Communications Technology (CICT) in the Philippines (Caburao, 2025). The NICS-Teachers framework is composed of four major domains. The first, Technology Operations and Concepts, covers proficiency in basic computer operations and other digital devices, including simple troubleshooting; the use of appropriate office and instructional productivity software; efficient access to internet-based and networked applications and resources; and competence in the management of information and data. The second, the Social and Ethical Domain, emphasizes understanding and compliance with legal regulations governing technology use, ethical conduct in personal and professional applications of technology, the creation of a safe and responsible technology-supported learning environment, and equitable and inclusive access to technology. The third, the Pedagogical Domain, highlights competencies associated with integrating technology into the planning, implementation, and assessment phases of the teaching-learning process. The fourth, the Professional Domain, covers competencies associated with continuous professional growth, research, innovation, and collaboration (Caburao, 2025).

Related literature further enriches this framework. Almerich, Orellana, Suarez-Rodriguez, and Diaz-Garcia (2016) explained that ICT competencies center on five key aspects—productivity, communication, research, media, and presentation—each encompassing specific classroom-relevant skills such as producing instructional documents, using digital communication and collaboration tools, evaluating online sources, adapting digital media for diverse learners, and



ISSN 3028-2586 (Print) · ISSN 3155-6876 (Online) · erfresearch.com

creating effective digital presentations. Muñoz (2024), drawing from several authorities, classified ICT competencies in education into four areas: technological (technical expertise in using and maintaining ICT tools), pedagogical (incorporating ICT into instructional practice), didactical (mastery of subject-matter content), and social (ethical, legal, and social awareness in ICT use). Meanwhile, drawing from UNESCO, Caburao (2025) explained that the development of teachers' ICT competencies progresses through three successive stages: knowledge acquisition (foundational technology knowledge and awareness of ICT's role in national policy), knowledge deepening (student-centered, technology-enhanced classroom practice and project-based learning), and knowledge creation (leadership in developing school-wide technology strategies and modeling innovative practice).

Empirical studies likewise inform this investigation. Joshi et al. (2021), using a structural model with 1,095 primary and secondary teachers in Spain, found that teachers demonstrated stronger technological competencies than pedagogical competencies, that most possessed ICT competencies only at the general user level, and that competency levels were significantly influenced by gender, educational attainment, and frequency of computer use. Murithi and Yoo (2021), studying 351 teacher-respondents anchored on the Constructivist Learning Theory and the Technology Acceptance Model, found that teachers considered school ICT facilities insufficient and that most had received only basic computer literacy training, although age was found to influence perceptions of technology's usefulness. Dela Fuente and Biñas (2020), assessing 72 secondary teachers using an instrument adapted from the NICS-Basic standards, found that teachers possessed an intermediate level of ICT competence overall; while age, gender, educational attainment, and teaching position had no significant influence on competence, the number of ICT-related seminars and trainings attended showed significant effects, leading the researchers to recommend integrating ICT-focused activities into teachers' In-Service Training.

### *Statement of the Problem*

This study aimed to propose an enhancement training program on ICT for the teachers of public secondary schools in the Municipality of Asingan, Pangasinan. Specifically, it sought answers to the following questions:



ISSN 3028-2586 (Print) · ISSN 3155-6876 (Online) · erfresearch.com

1. What is the profile of the teachers of public secondary schools in the Municipality of Asingan in terms of (a) highest educational attainment, (b) length of teaching experience, and (c) number of relevant seminars/trainings attended?

2. What is the extent of ICT competence of the teachers as perceived by themselves and by their school heads?

3. Is there a significant relationship between the profile variables of the teachers and the extent of their ICT competence?

4. Is there a significant difference between the perceptions of the teachers and their school heads on the extent of ICT competence of the teachers?

5. What are the challenges encountered by the teachers in integrating ICT in the classroom?

6. Based on the findings, what enhancement training program on ICT may be proposed for the teachers of public secondary schools in the Municipality of Asingan, Pangasinan?

Correspondingly, the study tested the following hypotheses at the .05 level of significance: (1) there is a significant relationship between the profile variables of the teachers and the extent of their ICT competence; and (2) there is a significant difference between the perceptions of the teachers and the school heads on the extent of ICT competence of the teachers.

## Methods

### *Research Design*

This study employed the quantitative-descriptive method of research to describe the teachers of public secondary schools in the Municipality of Asingan, Pangasinan in terms of their highest educational attainment, length of teaching experience, and number of relevant trainings attended, as well as to determine the extent of their ICT competence and the challenges they encountered in integrating ICT in the classroom. The correlational design was likewise used to determine whether a significant relationship existed between the profile variables of the teachers and the extent of their ICT competence, and whether a significant difference existed between the perceptions of the teachers and their school heads on the extent of ICT competence of the teachers. In addition, the developmental method of research was used, as the study culminated in a proposed enhancement training program on ICT for the teachers. The study was anchored on the positivist research



ISSN 3028-2586 (Print) · ISSN 3155-6876 (Online) · erfresearch.com

paradigm, which emphasizes empirical observation, logical reasoning, and the pursuit of objective knowledge (Raj, 2023).

### *Participants and Sampling*

The study was conducted in the public secondary schools of the Municipality of Asingan, Pangasinan during the School Year 2025-2026. Two groups of respondents were involved: the teachers and the school heads. Of the 290 teachers in the municipality's public secondary schools, a sample of 168 was determined using Slovin's formula ($s = N / [1 + Ne^2]$) at a 0.05 margin of error. The sample was proportionally distributed across the eight public secondary schools and randomly selected within each school, as shown in Table 1. All eight school heads of the public secondary schools were included as respondents through total enumeration.

**Table 1**
**Distribution of the Sample Teachers per Public Secondary School**

| Public Secondary School | Total Number of Teachers | Sample Population |
|---|---|---|
| Ariston-Bantog NHS | 35 | 20 |
| Angela Valdez Ramos NHS | 61 | 35 |
| Calepaan Integrated School | 13 | 8 |
| Carosucan Norte NHS | 16 | 9 |
| Carosucan Sur NHS | 17 | 10 |
| Luciano Millan NHS | 110 | 64 |
| San Vicente West Integrated School | 10 | 6 |
| Toboy NHS | 28 | 16 |
| **Total** | **290** | **168** |

### *Instrumentation and Data Collection*

Data were gathered using two researcher-administered survey questionnaires — one for the teachers and one for the school heads. The teachers' questionnaire had three parts: profile (highest educational attainment, length of teaching experience, and number of relevant seminars/trainings attended), extent of ICT competence, and challenges encountered in integrating ICT in the classroom. The school heads' questionnaire focused solely on their assessment of the teachers' extent of ICT competence. The profile items followed common survey conventions and required no further validation. The ICT competence items were based on the National ICT Competency Standards for Teachers of the Commission on Information and Communications Technology of



ISSN 3028-2586 (Print) · ISSN 3155-6876 (Online) · erfresearch.com

the Philippines and were therefore considered valid and reliable. The items on challenges in ICT integration were adapted from the validated instrument of Manaban, Piñero, and Futalan (2025) used in their study on mathematics teachers' competence and barriers in integrating ICT.

The researcher personally administered the questionnaires to the teachers and school heads, allowing two weeks for completion before retrieval. Permission to conduct the study was first secured from the school heads of the different public secondary schools, after which informed consent was obtained from the teachers and school heads. Data were treated with utmost confidentiality and used solely to answer the research questions, in accordance with the Data Privacy Act of the Philippines. All authors of works used in the study were properly cited and acknowledged.

### *Data Analysis*

Frequency count and percentage were used to describe the profile of the teachers. The weighted mean was used to determine the extent of ICT competence of the teachers and the challenges they encountered in integrating ICT in the classroom, with the following scales of interpretation: for extent of ICT competence — very limited extent (1.00–1.49), limited extent (1.50–2.49), moderate extent (2.50–3.49), great extent (3.50–4.49), and very great extent (4.50–5.00); for the seriousness of challenges — not serious (1.00–1.49), less serious (1.50–2.49), somewhat serious (2.50–3.49), serious (3.50–4.49), and very serious (4.50–5.00). Only items with a descriptive equivalent of at least somewhat serious were considered as challenges actually encountered by the teachers. The chi-square test of independence was used to determine the significance of the relationship between the profile variables of the teachers and the extent of their ICT competence, while the t-test was used to determine the significance of the difference between the perceptions of the teachers and the school heads. All tests were computed at the .05 level of significance.

## Results

### *Profile of the Teachers*

Of the 168 teacher-respondents, 82 (49%) were bachelor's degree holders, 41 (24%) had completed academic requirements for the master's degree, 34 (20%) were master's degree holders, five (3%) had completed academic requirements for the doctorate degree, and six (4%) were doctorate degree holders — indicating that the majority of the teachers have no post-graduate degree. In



ISSN 3028-2586 (Print) · ISSN 3155-6876 (Online) · erfresearch.com

terms of teaching experience, 29 (17%) had taught for one to five years, 43 (26%) for six to ten years, 49 (29%) for 11 to 15 years, 38 (23%) for 16 to 20 years, and nine (5%) for more than 20 years, showing that the majority have been teaching for more than ten years. With respect to ICT-related training, none of the teachers had attended no training at all; 115 (68%) had attended not more than three ICT-related trainings/seminars in the past five years, while 53 (32%) had attended more than three, indicating that most teachers would greatly benefit from further training.

**Table 2**
**Profile of the Teachers (N = 168)**

| Profile Variable | f | % |
|---|---|---|
| **Highest Educational Attainment** | | |
| Bachelor's degree holder | 82 | 49% |
| Completed academic requirements, master's degree | 41 | 24% |
| Master's degree holder | 34 | 20% |
| Completed academic requirements, doctorate degree | 5 | 3% |
| Doctorate degree holder | 6 | 4% |
| **Length of Teaching Experience** | | |
| 1 to 5 years | 29 | 17% |
| 6 to 10 years | 43 | 26% |
| 11 to 15 years | 49 | 29% |
| 16 to 20 years | 38 | 23% |
| More than 20 years | 9 | 5% |
| **Number of Relevant Trainings Attended (past 5 years)** | | |
| None | 0 | 0% |
| Not more than three trainings | 115 | 68% |
| More than three trainings | 53 | 32% |

### *Extent of ICT Competence of the Teachers*

The extent of ICT competence of the teachers was assessed by the teachers themselves and by their school heads across the four domains of the NICS-Teachers framework: Social, Technological, Pedagogical, and Professional. Table 3 summarizes the results.

Along the Social Domain, the teachers rated themselves highest on their ability to recognize and practice the ethical use of technology (WM = 4.09) and lowest on planning, modeling, and promoting a safe and sound technology-supported learning environment (WM = 4.03), yielding an



ISSN 3028-2586 (Print) · ISSN 3155-6876 (Online) · erfresearch.com

area weighted mean (AWM) of 4.06, described as great extent. In contrast, the school heads' ratings across the same items ranged from 2.88 to 3.00, yielding an AWM of 2.94, described as moderate extent — the lowest-rated items among school heads being the teachers' ethical use of technology and their ability to plan and model a safe technology-supported environment, both at WM = 2.88.

Along the Technological Domain, teachers rated themselves highest on basic computer operation and troubleshooting (WM = 4.01) and lowest on the use of office and teaching productivity tools (WM = 3.98), for an AWM of 3.99 (great extent). School heads rated the same domain lower, with an AWM of 2.97 (moderate extent), their lowest ratings (WM = 2.88) given to teachers' basic computer operation skills and information/data management skills.

Along the Pedagogical Domain — the most extensive domain with 14 items — teachers rated themselves highest on identifying and evaluating technology resources for appropriateness (WM = 4.06) and applying technology to develop students' higher-order thinking skills and creativity (WM = 4.04), and lowest on utilizing best practices and research results in designing technology-enhanced learning environments (WM = 3.97), for an AWM of 4.01 (great extent). School heads rated this domain at an AWM of 2.96 (moderate extent), with their highest ratings (WM = 3.13) given to teachers' ability to apply technology to develop higher-order thinking skills and to support learner-centered strategies, and their lowest ratings (WM = 2.88) given to several items including identifying technology resources, accessing resources for instructional planning, and using technology to manage learning environments.

Along the Professional Domain, teachers rated themselves highest on continuously evaluating and reflecting on the use of technology for professional development (WM = 4.04) and lowest on sharing experiences and collaborating with peers and stakeholders (WM = 4.02), for an AWM of 4.03 (great extent). School heads' ratings on this domain ranged from 2.88 to 3.00, yielding an AWM of 2.92 (moderate extent).

**Table 3**
**The Extent of ICT Competence of the Teachers as Perceived by Themselves and by the School Heads**

| Assessment Areas | Teachers | | School Heads | |
|---|---|---|---|---|
| | AWM | DE | AWM | DE |
| Social Domain | 4.06 | GE | 2.94 | ME |



ISSN 3028-2586 (Print) · ISSN 3155-6876 (Online) · erfresearch.com

| | | | | |
|---|---|---|---|---|
| Technological Domain | 3.99 | GE | 2.97 | ME |
| Pedagogical Domain | 4.01 | GE | 2.96 | ME |
| Professional Domain | 4.03 | GE | 2.92 | ME |
| **Overall Weighted Mean (OWM)** | **4.02** | **GE** | **2.95** | **ME** |

Note. GE = great extent (3.50–4.49); ME = moderate extent (2.50–3.49); AWM = area weighted mean.

As shown in Table 3, the teachers perceived their overall ICT competence to be at a great extent (OWM = 4.02) across all four domains, while the school heads perceived the teachers' overall ICT competence to be only at a moderate extent (OWM = 2.95), with the Professional Domain receiving the lowest rating (AWM = 2.92) among school heads and the Technological Domain the highest (AWM = 2.97).

### *Relationship between the Profile Variables of the Teachers and the Extent of Their ICT Competence*

The profile variables of the teachers were correlated with the extent of their ICT competence using the chi-square test of independence at the .05 level of significance. As shown in Table 4, all three profile variables — highest educational attainment ($\chi^2 = 7.12$, $p = 0.01$), length of teaching experience ($\chi^2 = 5.98$, $p = 0.01$), and number of relevant trainings attended ($\chi^2 = 6.55$, $p = 0.01$) — yielded computed chi-square values greater than the critical value of 3.84 and p-values below .05. The null hypothesis was therefore rejected for all three variables, indicating that the extent of ICT competence of the teachers is significantly influenced by their highest educational attainment, length of teaching experience, and number of relevant trainings attended.

**Table 4**
**Relationship between the Profile Variables of the Teachers and the Extent of Their ICT Competence**

| Profile Variable | p-value (.05 LS) | Computed $\chi^2$ | Critical $\chi^2$ | Remarks |
|---|---|---|---|---|
| Highest Educational Attainment | 0.01 | 7.12 | 3.84 | Significant |
| Length of Teaching Experience | 0.01 | 5.98 | 3.84 | Significant |
| Number of Relevant Trainings Attended | 0.01 | 6.55 | 3.84 | Significant |

### *Difference between the Perceptions of the Teachers and the School Heads*

The perceptions of the teachers and the school heads on the extent of ICT competence of the teachers were compared using the t-test at the .05 level of significance. As shown in Table 5, the computed p-value of 0.00 is lower than the .05 level of significance; hence, the null hypothesis



ISSN 3028-2586 (Print) · ISSN 3155-6876 (Online) · erfresearch.com

was rejected. There is a significant difference between the perceptions of the teachers and the school heads on the extent of ICT competence of the teachers, consistent with the pattern observed in Table 3, where teachers consistently rated their own ICT competence considerably higher than their school heads did across all four domains.

**Table 5**
**Difference between the Perceptions of the Teachers and the School Heads on the Extent of ICT Competence of the Teachers**

| Variable | Computed p-value | Level of Significance | Remarks |
|---|---|---|---|
| Extent of ICT Competence of the Teachers | 0.00 | .05 | Significant |

### *Challenges Encountered by the Teachers in Integrating ICT in the Classroom*

The teachers rated the seriousness of seven potential challenges in integrating ICT in the classroom. Only items with a descriptive equivalent of at least somewhat serious were considered actual challenges. As shown in Table 6, the teachers encountered four such challenges: limited access to resources (WM = 3.22, rank 1), internet connectivity (WM = 3.11, rank 2), lack of technical support (WM = 3.01, rank 3), and limited ICT infrastructure (WM = 2.78, rank 4). Insufficient ICT training (WM = 1.45), limited ability to manipulate ICT tools (WM = 2.40), and resistance to change (WM = 1.48) were not considered serious challenges by the teachers.

**Table 6**
**Challenges Encountered by the Teachers in Integrating ICT in the Classroom**

| Challenge | WM | DE | Rank |
|---|---|---|---|
| Limited access to resources | 3.22 | Somewhat serious | 1 |
| Internet connectivity | 3.11 | Somewhat serious | 2 |
| Lack of technical support | 3.01 | Somewhat serious | 3 |
| Limited ICT infrastructure | 2.78 | Somewhat serious | 4 |
| Limited ability to manipulate ICT tools | 2.40 | Less serious | — |
| Resistance to change | 1.48 | Not serious | — |
| Insufficient ICT training | 1.45 | Not serious | — |

## Discussion

The findings that the majority of teachers hold no post-graduate degree, have taught for more than a decade, and have attended only limited ICT-related training reflect a teaching force that is experienced but under-supported in continuing technology-focused professional development.



ISSN 3028-2586 (Print) · ISSN 3155-6876 (Online) · erfresearch.com

This is consistent with Cayabyab's (2024) observation that findings across studies point to the need for stronger encouragement, support, and opportunity for enhancing teachers' ICT competence.

The consistently higher self-ratings of teachers relative to the ratings given by their school heads across all four NICS-Teachers domains — resulting in an overall great-extent self-perception (OWM = 4.02) against a moderate-extent external perception (OWM = 2.95) — echoes a well-documented pattern in the literature in which self-reported competence tends to exceed observer-rated competence. This gap may stem from differing vantage points: teachers assess their own comfort and familiarity with ICT tools, while school heads observe the consistency and depth of ICT integration as demonstrated in actual classroom practice. This finding aligns with Joshi et al. (2021), who found that although teachers generally demonstrated adequate technological competencies, most possessed ICT competencies only at the general user level rather than the advanced level required for effective classroom integration — a distinction that may not be fully captured in self-assessment but becomes more apparent to an external observer such as a school head.

The significant relationships found between the teachers' profile variables — highest educational attainment, length of teaching experience, and number of relevant trainings attended — and the extent of their ICT competence support the view that ICT competence is not static but is shaped by continuing exposure to formal education and targeted professional development. This corroborates the findings of Joshi et al. (2021), who reported that teachers' ICT competency levels were significantly influenced by educational attainment, and of Dela Fuente and Biñas (2020), who found that the number of ICT-related seminars and trainings attended by teachers had significant effects on their competence, even though variables such as age, gender, and teaching position did not. Given that 68% of the teacher-respondents in this study had attended no more than three ICT-related trainings in five years, the significant relationship between training frequency and competence underscores training as one of the most actionable levers available to school administrators for improving teachers' ICT competence.

The significant difference between teachers' and school heads' perceptions, together with the four challenges identified — limited access to resources, internet connectivity, lack of technical support, and limited ICT infrastructure — suggests that the barriers to fuller ICT integration in the Municipality of Asingan may be less about teachers' willingness or foundational skill (since



ISSN 3028-2586 (Print) · ISSN 3155-6876 (Online) · erfresearch.com

resistance to change and insufficient training were not rated as serious challenges) and more about structural and infrastructural constraints. This is consistent with Murithi and Yoo (2021), who found that teachers considered school ICT facilities insufficient, which posed challenges to effective technology integration during curriculum implementation, despite teachers acknowledging the importance and usefulness of ICT in education.

Taken together, these findings point to the value of a structured, domain-based enhancement training program. Anchored on the four domains of the NICS-Teachers framework — Social, Technological, Pedagogical, and Professional — such a program, delivered through an interactive and participative four-session, district-based approach, would directly address the training gap identified in the teachers' profile while reinforcing the specific competency areas rated lowest by school heads, particularly within the Professional and Social domains.

## Conclusion and Recommendations

### *Conclusion*

Based on the findings, it is concluded that a typical teacher of a public secondary school in the Municipality of Asingan, Pangasinan is a bachelor's degree holder who has been teaching for more than ten years and has attended not more than three ICT-related trainings/seminars in the past five years. The teachers perceive their ICT competence to be at a great extent, while their school heads perceive it to be only at a moderate extent — a statistically significant difference. The extent of teachers' ICT competence is significantly influenced by their highest educational attainment, length of teaching experience, and number of relevant trainings attended. Teachers encounter identifiable, structurally-rooted challenges — namely, limited access to resources, internet connectivity, lack of technical support, and limited ICT infrastructure — in integrating ICT in the classroom, and these challenges may be addressed. An enhancement training program on ICT, anchored on the four domains of the National ICT Competency Standards for Teachers, is likely to improve the extent of ICT competence of the teachers of public secondary schools in the Municipality of Asingan, Pangasinan.

### *Recommendations*

1. The proposed enhancement training program on ICT — comprising four one-day, district-based sessions covering the Social, Technological, Pedagogical, and Professional domains of the NICS-



ISSN 3028-2586 (Print) · ISSN 3155-6876 (Online) · erfresearch.com

Teachers framework, delivered through an interactive and participative approach — be approved for implementation in the public secondary schools of the Municipality of Asingan, Pangasinan.

2. The implementation of the enhancement training program be monitored and evaluated to determine its effectiveness in improving teachers' ICT competence.

3. School administrators address the structural challenges identified — particularly limited access to ICT resources, unreliable internet connectivity, insufficient technical support, and limited ICT infrastructure — as a complement to training-based interventions.

4. Future researchers conduct similar studies in other municipalities or divisions to validate and extend the findings of this study, and consider incorporating classroom observation or performance-based measures alongside self- and supervisor-rating instruments to further examine the gap between perceived and demonstrated ICT competence.

## References


Almerich, G., Orellana, N., Suarez-Rodriguez, J., & Diaz-Garcia, I. (2016). Teachers' information and communication technology competences: A structural approach. Computers and Education, 100.

Asagar, M.S. (2025). Teachers' digital competence: Insights into technical skills, pedagogical integration, communication, and student engagement. International Conference on Foregrounding Teacher Education in the Light of Policy Perspectives (February 12–13, 2025).

Bingimlas, K.A. (2021). Barriers to the successful integration of ICT in teaching and learning environments: A review of the literature. Eurasia Journal of Mathematics, Science and Technology Education, 5(3).

Caburao, M. (2025). ICT competence of the teachers of public elementary schools in the Municipality of Sual, Pangasinan. Dissertation (Doctor of Education): Lyceum-Northwestern University.

Cayabyab, L.J. (2024). Level of technological pedagogical content knowledge (TPACK) of the public elementary school teachers in the Municipality of Malasiqui, Pangasinan. Dissertation (Doctor of Education): Lyceum-Northwestern University.

Costa, F.A. (2026). Primary teachers' competence and confidence level regarding the use of ICT. Academia.

Dela Fuente, J.A., & Biñas, L.C. (2020). Teachers' competence in information and communications technology (ICT) as an educational tool in teaching: An empirical analysis for program intervention. Journal of Research in Education, Science and Technology, 5(2).

Gangmei, N., & Thomas, K. (2025). Teachers' technology proficiency for quality learning and teaching — A scoping review. International Journal of Educational Reform.




ISSN 3028-2586 (Print) · ISSN 3155-6876 (Online) · erfresearch.com

Joshi, D.R., et al. (2021). Competency of mathematics teachers at secondary schools of Nepal. European Journal of Interactive Multimedia and Education, 2(1).

Junio, A. (2023). Information and communications technology competence of public secondary school English teachers in Malasiqui I District: Basis for a district-based professional development program. Dissertation (Doctor of Education): Lyceum-Northwestern University.

Manaban, G., Piñero, B., & Futalan, M.C. (2025). Mathematics teachers' competence and barriers they face in integrating ICT. Journal of Interdisciplinary Perspectives, 3(7).

Mijares, B. (2022). Teachers' information and communication technology competencies: The basis for a competency-based training plan. American Journal of Education and Technology, 1(3).

Muñoz, M. (2024). Extent of ICT competence and ICT integration in the teaching-learning process of SHS teachers in the Schools Division of San Carlos City. Dissertation (Doctor of Education): Lyceum-Northwestern University.

Murithi, J., & Yoo, J. (2021). Teachers' use of ICT in implementing the competency-based curriculum in Kenyan public primary schools. Innovation and Education, 3(1).

Quidon, M.J. (2024). ICT literacy level of kindergarten teachers of public schools in Malasiqui II District. Thesis (Master of Arts in Education): Lyceum-Northwestern University.

Raj, A.V. (2023). Positivism: A comprehensive critical review. International Journal of Research and Analytical Reviews, 10(4).

Rubach, C., & Lazarides, R. (2023). A systematic review of research examining teachers' competence-related beliefs about ICT use: Frameworks and related measures. EZFE, 15.

Villegas, A., & Buquia, W. (2023). Teachers' competence in information and communications technology. Polaris Global Journal of Scholarly Research and Trends, 2(4).

Wong, A.Y., & Daud, K. (2018). ICT competencies among teachers: A review of literature. Journal of Education and Learning, 12(3).



ISSN 3028-2586 (Print) · ISSN 3155-6876 (Online) · erfresearch.com