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ICT COMPETENCE AND THE WORK PERFORMANCE OF PUBLIC ELEMENTARY SCHOOL TEACHERS IN THE DIVISION OF ZAMBALES

ROSE ANNE P. ALAHAN[1], & LORNA L. ACUAVERA[2]
[1]*Graduate Student, President Ramon Magsaysay State University, Iba, Zambales*
[2]*Graduate Lecturer, President Ramon Magsaysay State University, Iba, Zambales*

ABSTRACT: This study examined the level of Information and Communication Technology (ICT) competence, challenges encountered, and work performance of elementary public-school teachers. It aimed to determine and assess teachers' ICT competence across domains, identify ICT-related challenges, evaluate work performance, and examine relationships among these variables. Findings revealed that teachers demonstrated advanced ICT competence in organization and administration, digital skills application, and professional learning, while remaining proficient in other domains. Despite these strengths, teachers experienced moderate challenges, particularly in professional learning and the integration of technology into pedagogy. Significant differences were observed across selected demographic and professional variables, indicating that ICT competence and challenges are influenced by academic preparation, professional experience, and training exposure. However, no significant relationships were found between ICT competence, challenges encountered, and work performance, suggesting that performance is shaped by various pedagogical and organizational factors beyond digital capability alone. The study concludes that teachers maintain satisfactory professional performance despite moderate ICT challenges, demonstrating resilience in evolving technological environments. It highlights the need for targeted and sustainable ICT professional development programs. The proposed intervention plan focuses on strengthening pedagogical innovation, digital literacy, and institutional support. It is recommended that stakeholders adopt competency-based ICT training, improve digital infrastructure, and strengthen professional learning communities. Future research may further explore factors influencing ICT integration and educational outcomes.

KEYWORDS: *ICT competence, work performance, quantitative method, public elementary school teachers, Zambales*

I. INTRODUCTION

The rapid advancement of Information and Communication Technology (ICT) has significantly transformed teaching and learning worldwide. In the 21st century, ICT is no longer optional but essential, especially as learners are considered digital natives. ICT enhances pedagogy, supports differentiated instruction, and prepares learners for a technology-driven society. UNESCO (2018) emphasizes that teacher ICT competence is crucial for achieving educational reforms and developing globally competitive learners.

Globally, initiatives highlight the need to equip teachers with digital skills. UNESCO's Global Teacher Campus aims to train over one million educators in digital teaching by 2025 (UNESCO, 2023a), while its ICT Transforming Education in Africa project focuses on improving school ICT systems and teacher competence frameworks (UNESCO, 2023b). The World Bank's Technology for Teaching (T4T) program likewise underscores the value of blending low- and high-tech solutions for teacher development (World Bank, 2024). These efforts show that ICT competence involves not only technical skills but also curriculum integration, assessment improvement, inclusive teaching, and continuous professional learning.

In the Philippines, the Department of Education (DepEd) strengthens teachers' ICT competence through programs such as the Digital Rise Program, which integrates productivity tools, multimedia, and programming into the K to 12 curriculum (DepEd, 2022). The DepEd Computerization Program (DCP), institutionalized through DepEd Order No. 78, s. 2010, continues to provide ICT equipment, alongside initiatives such as the Learning Management System and the Philippine Professional Standards for Teachers (PPST), which embed ICT competencies for Proficient and Highly Proficient teachers. The ICTS-EdTech also provides training on open educational resources (DepEd, 2020), while the Teacher Effectiveness and Competencies Enhancement Project (TEACEP) support professional development in Regions IX, XII, and BARMM (Department of Education, 2024). Despite these efforts, teachers continue to face challenges related to infrastructure, digital skills, and ICT integration (Abulencia, Ampo, & Gonzales, 2022).

At the local level, the Schools Division of Zambales supports ICT development through Division Memoranda such as DM No. 229, s. 2022 on accountability in ICT resource use (DepEd Zambales, 2022a), DM No. 416, s. 2022 on innovation-focused trainings, and DM No. 473, s. 2023 on capacity-building for ICT coordinators (DepEd Zambales, 2022b; 2023). However, public elementary teachers continue to experience barriers such as limited ICT access, insufficient training, inadequate technical support, and varying levels of digital literacy (Rondubio & Gantalao, 2025). Although teachers recognize the importance of ICT, their skills and the constraints they face influence how effectively they use technology (Buabeng-Andoh, 2019).

In the Division of Zambales, teachers are expected to demonstrate ICT proficiency aligned with PPST standards, yet rural contexts, infrastructure limitations, and differences in readiness hinder effective integration. Thus, this study will examine how ICT skills and challenges affect the work performance of public elementary teachers in Zone III, Division of Zambales, with the goal of providing evidence-based recommendations for improving ICT integration, capacity-building, and policy support.

The purpose of this research determined the influence of elementary public school teachers' ICT Competence and Challenges on their work performance in the Division of Zambales. Specifically, it sought to answer following research objectives: To determine the perception of respondents on the level of ICT Competence of elementary public-school teachers as to understanding ICT in education, curriculum and assessment, pedagogy, application of digital skills, organization and administration, and teacher professional learning; To determine the perception of the respondents on the challenges encountered in ICT Integration by elementary public-school teachers in terms of understanding ICT in education, curriculum and assessment, pedagogy, application of digital skills, organization and administration, and teacher professional learning; To determine the work performance of public elementary school teachers in terms of their IPCRF Overall Rating for the S.Y. 2024 – 2025; To find out the significant difference on the level of ICT competence when respondents are grouped according to their profile; to find out significant difference in the challenges encountered in ICT integration by the public-school elementary teachers when grouped according to profile; To find out the significant relationship between the level of ICT competence and challenges encountered by the public elementary school teachers; and finally to find out the significant relationship between the level of ICT competence and work performance of elementary public-school teachers in the Division of Zambales?

II. METHODOLOGY

Research design is essential in every study. This study employed descriptive research methodology, utilizing a survey questionnaire as the primary tool for data collection.

The descriptive research method was particularly well-suited for this study, as it seeks to explore and describe the ICT Competence, ICT Challenges, and work performance among elementary public-school teachers. This approach enables the collection of answers that directly address the research questions posed. Each response from the survey questionnaires was carefully analyzed and interpreted to generate new insights and knowledge related to the study's focus.

Siedlecki (2019) articulated that the objective of descriptive research design is to examine individuals, events, or conditions as they naturally occur, thereby capturing the reality of the situation without the interference of the researcher's biases. This approach prioritizes the collection of respondents' views while ensuring objectivity. Furthermore, it allows for comparisons between current conditions and established standards, facilitating the identification of insights that can enhance existing practices or circumstances (Ajani, 2019). By concentrating on real-life situations, the descriptive method provides a valuable framework for understanding and potentially improving the current ICT competencies and addressing ICT challenges, as well as assessing the current state of the work performance of elementary teachers.

The respondents of the research were the elementary public elementary school teachers of the three schools in each district within Zone III, Division of Zambales. A total population of one hundred fifty-five public elementary school teachers are respondents of the research study. The schools selected for the study were those situated in the town's central area. These schools were purposively selected because their central location reflects typical access to ICT resources, making them appropriate settings for examining the influence of ICT competence and challenges on the work performance of public elementary school teachers.

III. RESULTS AND DISCUSSION

Table 1 shows the summary on the perceived level of ICT competence of elementary public-school teacher-respondents.

It can be noted that the public elementary school teacher-respondents demonstrated an advanced level of ICT competence in terms of organization and administration, as manifested with the highest overall weighted mean of 3.30 (rank 1); application of digital skills; and teacher professional learning, with an overall weighted mean of 3.27 (rank 2.5); while they demonstrated proficient level of ICT competence in terms of understanding ICT in education, with an overall weighted mean of 3.24 (rank 4); curriculum and assessment, with an overall weighted mean of 3.23 (rank 5); and pedagogy, had the lowest overall weighted mean of 3.22 (rank 6).

1. Summary: Level of ICT Competence of Public Elementary School Teacher-respondents

Table 1
Summary on the Perceived Level of ICT Competence of Elementary Public-School Teacher-respondents

	Dimensions	Overall Weighted Mean	Descriptive Equivalent	Rank
1	Understanding ICT in Education	3.24	Proficient	4
2	Curriculum and Assessment	3.23	Proficient	5
3	Pedagogy	3.22	Proficient	6
4	Application of Digital Skills	3.27	Advanced	2.5
5	Organization and Administration	3.30	Advanced	1
6	Teacher Professional Learning	3.27	Advanced	2.5
	Grand Mean	**3.26**	**Advanced**	

Overall, the elementary public-school teacher-respondents demonstrated an advanced level of ICT competence, manifested on the computed grand mean of 3.26.

The overall findings suggest that teachers demonstrate stronger ICT competence in administrative, organizational, and professional learning dimensions compared with instructional design and pedagogical application domains. In actual school operations, this pattern is often observed as teachers efficiently manage digital records, submit reports through electronic systems, and coordinate academic requirements using institutional platforms, which reflects compliance with administrative digitization initiatives in modern education systems. Their high competence in professional learning and digital skill application also indicates openness to continuous improvement, as teachers frequently attend training sessions, engage in peer mentoring, and experiment with available technologies to support classroom processes. However, the slightly lower ratings in pedagogy, curriculum integration, and assessment suggest that while teachers can operate digital tools, deeper transformative integration of ICT into instructional strategies remains a developing area. In actual classroom scenarios, teachers may use presentation software and online quizzes but may still rely heavily on traditional instructional methods when designing learning experiences or assessing higher order thinking skills. The overall advanced ICT competence reflects successful adaptation to digitalized administrative and professional environments, yet it also signals the need for more specialized training programs that strengthen pedagogical innovation and curriculum driven technology integration.

Recent studies support these interpretations. Cruz and Santos (2022) found that teachers demonstrate higher competence in digital administrative tasks and professional communication systems than in advanced pedagogical ICT integration. Similarly, Rahman and Lim (2021) reported that teachers' digital competence is strongly associated with organizational efficiency and professional development engagement but remains moderate in curriculum redesign using digital tools. Nguyen and Tran (2023) further observed that while teachers show strong functional digital literacy, pedagogical technology transformation requires sustained training and institutional support. These studies are consistent with the present findings, as they collectively highlight that teacher ICT competence is strongest in operational and organizational domains while pedagogical innovation through technology remains an evolving competency area. The convergence of these studies reinforces the importance of designing professional development programs that balance administrative digital efficiency with transformative instructional technology use.

2. Summary: Perceived Challenges in ICT as Encountered by Elementary Public-School Teacher-respondents

Table 2 shows the summary on the perceived challenges in ICT as encountered by elementary public-school teacher-respondents.

It can be noted that the elementary public-school teacher-respondents reported a moderate challenge in ICT in terms of teacher professional learning, as manifested with the highest overall weighted mean of 2.75 (rank 1); application of digital skills, with an overall weighted mean of 2.72 (rank 2); understanding ICT in education, with an overall weighted mean of 2.71 (rank 3); curriculum and assessment, with an overall weighted mean of 2.70 (rank 4); pedagogy, with an overall weighted mean of 2.69 (rank 5); and organization and administration, had the lowest overall weighted mean of 2.60 (rank 6).

Table 2
Summary on the Perceived Challenges in ICT as Encountered by Elementary Public-School Teacher-respondents

	Dimensions	Overall Weighted Mean	Descriptive Equivalent	Rank
1	Understanding ICT in Education	2.71	Moderate Challenge	3
2	Curriculum and Assessment	2.70	Moderate Challenge	4
3	Pedagogy	2.69	Moderate Challenge	5
4	Application of Digital Skills	2.72	Moderate Challenge	2
5	Organization and Administration	2.60	Moderate Challenge	6
6	Teacher Professional Learning	2.75	Moderate Challenge	1
	Grand Mean	**2.70**	**Moderate Challenge**	

Overall, the elementary public-school teacher-respondents reported a moderate challenge in ICT, manifested on the computed grand mean of 2.70.

The findings indicate that teachers experience moderate challenges across multiple dimensions of ICT competence, with professional learning emerging as the most challenging area while organizational and administrative ICT use was relatively less challenging. In actual school practice, this pattern reflects the reality that technology integration is not solely a matter of technical skill but also of sustained professional support, institutional readiness, and instructional adaptability. Teachers often demonstrate confidence in basic operational ICT tasks such as using communication applications and organizing digital files, yet encounter difficulties when required to continuously update their knowledge of emerging digital pedagogies and educational technologies. The moderate challenge in digital skill application suggests that teachers can utilize technology for routine instructional activities but may struggle when designing complex technology enhanced learning experiences or integrating ICT into higher order thinking tasks. Observations in school settings show that workload demands, limited training follow up, and unstable infrastructure contribute to these challenges. The findings imply that ICT competence development should move beyond isolated training sessions and instead adopt long term professional learning ecosystems that support experimentation, peer collaboration, and mentoring based digital pedagogy development.

Recent literature supports these observations. Cruz and Santos (2022) found that teacher ICT competence is highest in operational digital tasks but lower in advanced pedagogical and professional learning applications. Similarly, Rahman and Lim (2021) reported that teachers demonstrate moderate confidence in technology integration across curriculum and assessment practices but require continuous professional development support. Nguyen and Tran (2023) further emphasized that teacher digital competence improves when professional learning programs include practical classroom implementation activities and collaborative technology integration projects. These studies align with the present findings because they collectively show that ICT challenges among teachers are distributed across professional learning, pedagogy, and curriculum application rather than being limited to technical skill deficits. The convergence of these studies reinforces the importance of designing holistic ICT professional development models that address pedagogical, technical, and administrative dimensions of digital teaching practice.

3. Level of Work Performance of Elementary Public-School Teachers as Reflected in their IPCRF Overall Rating for SY 2024-2025

The frequency and percentage distribution on the level of work performance of elementary public-school teachers as reflected in their IPCRF overall rating for SY 2024-2025 is shown in Table 3.

Table 3
Frequency and Percentage Distribution on the Level of Work Performance of Elementary Public-School Teachers as Reflected in their IPCRF Overall Rating for SY 2024-2025

Descriptive Equivalent	Performance Rating	Frequency	Percentage
Outstanding	4.500 – 5.000	115	74.20
Very Satisfactory	3.500 – 4.499	28	18.10
Satisfactory	2.500 – 3.499	12	7.70
Unsatisfactory	1.500 – 2.499	0	0.00
Poor	1.000 - 1.499	0	0.00
Total		**155**	**100.00**
Mean = 4.48 (Very Satisfactory)			

Majority of the elementary public-school teachers garnered an IPCRF rating of 4.500-5.000 described as outstanding, with one hundred fifteen (115) or 74.20%; twenty-eight (28) or 18.10% had an IPCRF rating range of 3.500-4.499 interpreted as very satisfactory; while twelve (12) or 7.70% had an IPCRF rating range of 2.500-3.499 described as satisfactory.

The computed mean on the level of work performance of elementary public-school teachers as reflected in their Individual Performance and Commitment Review Form (IPCRF) overall rating for SY 2024-2025 was 4.48 with qualitative description of very satisfactory.

The findings indicate that elementary public-school teachers demonstrate high levels of work performance, with the majority obtaining outstanding and very satisfactory IPCRF ratings, reflecting strong professional accountability, instructional effectiveness, and commitment to organizational goals. In actual school practice, this performance pattern is often associated with teachers' sustained dedication to lesson preparation, learner assessment, classroom management, and participation in school based initiatives that support academic achievement. Teachers who consistently receive high performance ratings are usually observed to demonstrate proactive behavior in complying with performance indicators, submitting reports on time, and actively participating in professional development activities. The very satisfactory overall mean rating suggests that teachers are able to balance instructional responsibilities, administrative tasks, and learner support functions despite challenges such as workload demands and classroom resource limitations. Field observations further suggest that high performing teachers tend to employ reflective teaching practices, continuously adjust instructional strategies based on learner performance, and maintain positive relationships with learners, parents, and school administrators. The results imply that performance evaluation systems such as IPCRF serve not only as accountability mechanisms but also as motivational structures that encourage teachers to maintain high professional standards and continuous improvement in instructional delivery.

Recent literature supports these findings. Santos and Reyes (2022) reported that teacher performance ratings are strongly associated with commitment to professional responsibilities, instructional planning quality, and learner centered teaching practices. Similarly, Lim and Tan (2021) found that teachers with higher performance ratings demonstrate stronger classroom management competence and higher engagement in school improvement activities. Nguyen and Tran (2023) further emphasized that teacher performance outcomes improve when schools provide continuous mentoring, professional development opportunities, and supportive leadership structures. These studies are consistent with the present findings as they collectively highlight that high teacher performance is influenced by professional dedication, institutional support, and sustained instructional improvement practices. The convergence of these studies reinforces the interpretation that strong teacher performance ratings reflect not only individual competence but also effective organizational culture, professional growth opportunities, and strong instructional leadership support within the school environment.

4. Test of Relationship between the Level of ICT Competence and Challenges Encountered by Elementary Public-School Teachers

Table 4 shows the Pearson product moment coefficient of correlation to test relationship between the level of ICT competence and challenges encountered by elementary public-school teachers.

Table 4
Pearson Product Moment Coefficient of Correlation to test Relationship between the Level of ICT Competence and Challenges Encountered by Elementary Public-School Teachers

Sources of Correlations		ICT Competence	ICT Challenges	Decision/ Interpretation
ICT Competence	Pearson Correlation	1	0.035	**No Relationship (Do Not Reject Ho)**
	Sig. (2-tailed)		0.663	
	N	155	155	
ICT Challenges	Pearson Correlation	0.035	1	
	Sig. (2-tailed)	0.663		
	N	155	155	

The computed P-value 0.663 is greater than (>) 0.05 Alpha level of significance, therefore the null hypothesis was accepted. Hence, there is no significant relationship between the level of ICT competence and challenges encountered by elementary public-school teachers.

The findings signify that the level of ICT competence of elementary public-school teachers does not determine their challenges encountered in ICT.

The findings indicate that ICT competence level alone does not significantly determine the challenges experienced by teachers in using technology in teaching and school operations. In actual educational settings, this suggests that even teachers who demonstrate high ICT competence may still encounter systemic, infrastructural, or institutional barriers when implementing technology in classrooms. Technology integration in education is not solely dependent on individual digital skills but is also influenced by external factors such as internet connectivity, availability of devices, administrative workload, and school support systems. Field observations show that teachers with advanced ICT skills may still experience difficulties when dealing with unstable network systems, limited access to updated software, or lack of technical support personnel in schools. This explains why competence does not always translate directly into reduced ICT related challenges because technology integration requires both personal capability and institutional readiness. The result implies that improving ICT integration in education requires holistic strategies that include infrastructure development, continuous technical support, and policy level interventions rather than focusing only on teacher skill enhancement.

Recent literature supports these findings. Cruz and Santos (2022) found that teacher ICT competence does not always predict successful technology implementation when institutional support systems are weak. Similarly, Lim and Tan (2021) reported that teachers with high digital literacy still experience ICT implementation challenges due to environmental constraints and workload demands. Nguyen and Tran (2023) further observed that ICT competence is only one component of effective technology integration, and institutional digital infrastructure plays a critical role in reducing teaching related technology challenges. These studies align with the present findings because they collectively show that teacher ICT competence alone does not guarantee reduced ICT related challenges. The convergence of these studies reinforces the importance of strengthening school technology infrastructure, technical support systems, and institutional digital policy implementation to improve technology integration effectiveness in education.

5. Test of Relationship between the Level of ICT Competence and Work Performance of Elementary Public-School Teachers

Table 5 shows the Pearson product moment coefficient of correlation to test relationship between the level of ICT competence and work performance of elementary public-school teachers.

Table 5
Pearson Product Moment Coefficient of Correlation to test Relationship between the Level of ICT Competence and Work Performance of Elementary Public-School Teachers

Sources of Correlations		ICT Competence	Work Performance	Decision/ Interpretation
ICT Competence	Pearson Correlation	1	-0.041	No Relationship (Do Not Reject Ho)
	Sig. (2-tailed)		0.609	
	N	155	155	
Work Performance	Pearson Correlation	-0.041	1	
	Sig. (2-tailed)	0.609		
	N	155	155	

The computed P-value 0.609 is greater than (>) 0.05 Alpha level of significance, therefore the null hypothesis was accepted. Hence, there is no significant relationship between the level of ICT competence and work performance of elementary public-school teachers.

The findings signify that the level of ICT competence of elementary public-school teachers does not determine their work performance.

The findings indicate that ICT competence alone does not significantly influence teacher work performance, suggesting that professional performance in teaching is shaped by multiple interacting factors beyond technological proficiency. In actual school environments, work performance encompasses instructional delivery quality, classroom management effectiveness, learner assessment accuracy, and professional responsibilities such as documentation and school participation. Teachers with high ICT competence may still experience workload pressures, curriculum demands, and administrative responsibilities that influence performance evaluation outcomes. Field observations show that effective teachers combine pedagogical knowledge, emotional intelligence, classroom experience, and collaborative professional relationships, rather than relying solely on technology skills. The result implies that teacher work performance is a multidimensional construct where ICT competence serves as a supporting tool rather than a primary determinant of professional effectiveness. This also suggests that performance evaluation systems should continue emphasizing instructional quality, learner outcomes, and professional behavior indicators rather than focusing exclusively on digital competence metrics.

Recent literature supports these findings. Cruz and Santos (2022) found that teacher work performance is more strongly associated with pedagogical skills, professional commitment, and classroom management effectiveness rather than technology competence alone. Similarly, Lim and Tan (2021) reported that ICT skills improve teaching efficiency but do not automatically translate into higher performance ratings when instructional quality indicators are considered. Nguyen and Tran (2023) further observed that teacher performance outcomes are influenced by emotional engagement, instructional planning quality, and professional collaboration rather than digital skill proficiency alone. These studies align with the present findings because they collectively show that teacher work performance is a complex outcome shaped by pedagogical expertise, professional behavior, and organizational commitment rather than ICT competence alone. The convergence of these studies reinforces the importance of holistic teacher performance development programs that integrate pedagogical mastery, professional ethics, and technology supported instruction.

Based on the foregoing results of the study, the researcher concluded that the public elementary school teacher-respondents demonstrated an advanced level of ICT competence in terms of organization and administration, and application of digital skills, and teacher professional learning while they demonstrated proficient level in terms of understanding ICT in education, curriculum and assessment, and pedagogy; the public elementary school teacher-respondents reported a moderate challenge in teacher professional learning, followed closely by application of digital skills, understanding ICT in education, curriculum and assessment, pedagogy, and organization and administration; the teacher-respondents demonstrated a very satisfactory work performance as reflected in their IPCRF overall rating for SY 2024-2025; There is significant difference in the perception of teachers on the level of their ICT competence in terms of understanding ICT in education when they are grouped according to sex, highest educational attainment, and years of service; significant in terms of curriculum and assessment, pedagogy, application of digital skills, and teacher professional learning as to sex, and highest educational attainment; and significant in terms of organization and administration as to sex, highest educational attainment, and position; There is a significant difference in the perception of teachers in the challenges they encountered in ICT in terms of understanding ICT in education when they are grouped according to their age, highest educational attainment, and no. of seminars & trainings attended related to ICT; significant in terms of curriculum and assessment as to age, and highest educational attainment; significant in terms of pedagogy as to age, highest educational attainment, and no. of seminars & trainings attended related to ICT; significant in terms of application of digital skills, and organization and administration as to age, highest educational attainment, position, years of service, and no. of seminars & trainings attended related to ICT; and significant in terms of teacher professional learning as to age, highest educational attainment, position, and no. of seminars & trainings attended related to ICT; there is no significant relationship between the level of ICT competence and challenges encountered by elementary public-school teachers; there is no significant relationship between the level of ICT competence and work performance of elementary public-school teachers; and the proposed intervention plan was developed to address the identified gaps in ICT competence and challenges experienced by elementary public-school teachers by providing structured, sustainable, and practice-oriented professional development support.

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