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CHALLENGES IN THE IMPLEMENTATION OF CLASSROOM OF TOMORROW IN ZONE 1 DIVISION OF ZAMBALES

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ABSTRACT

This study examined the challenges encountered in the implementation of the Classroom of Tomorrow (CoT) in public schools within Zone 1 of the Schools Division of Zambales. A quantitative research design was utilized using a survey questionnaire as the primary data-gathering instrument. Data were collected from school heads and teachers while observing anonymity and informed consent. Statistical analyses were employed to determine significant differences in the challenges encountered based on respondents' profile variables. Findings revealed that both school heads and teachers encountered challenges in the implementation of CoT, particularly in infrastructure and resources, training and professional development, equity and access, pedagogical integration, and maintenance and support. Significant differences were identified across selected profile variables such as key stage, sex, age, position, and years in service. The study concludes that demographic and professional factors influence the challenges experienced in CoT implementation. A program enhancement plan may be implemented, and training programs focusing on ICT integration, pedagogical strategies, and classroom management may be conducted to strengthen the effective implementation of the program.

Keywords: Classroom of Tomorrow, ICT Integration, Implementation Challenges, Enhancement Plan, and Professional Development

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INTRODUCTION

Nations around the world are working to transform education so that it meets the challenges presented by the contemporary digital, globally connected, and information-centric reality. Facing shifts in educational paradigms and 21st-century learning requirements, Department of Education has taken initiatives to integrate Information and Communication Technology (ICT) in public schools. One of the novel initiatives under this program is CoT or Classroom of Tomorrow which aims at future-oriented classrooms designed using technology to make classrooms energetic, participative, inclusive, and student-centered.

The Classroom of Tomorrow is aligned with the Sustainable Development Goal 4, which promotes inclusive and equitable quality education and lifelong learning opportunities for all (United Nations, 2015). It supports the DepEd Computerization Program (DCP), which aims to provide public schools with equitable technologies and enhance educational processes. The program's goal is to equip teachers and learners with the digital literacy necessary to thrive in a technology-driven society.

This study examined the challenges faced by public schools in Zone 1, Division of Zambales, while implementing the Classroom of Tomorrow program. It aimed to identify key barriers, understand the experiences of educators and administrators, and provide insights for policy adjustments and support mechanisms. Understanding challenges allows educational leaders and policymakers to design context-sensitive solutions. Addressing implementation gaps in Classroom of Tomorrow initiative is crucial for advancing digital education and ensuring equitable access to quality learning for all Filipino children.

This study was significant as it provides valuable insights into the real-world challenges faced by public schools in implementing the Schools Division of Zambales Classroom of Tomorrow (CoT) initiative in Zone 1 of the Division of Zambales. The results of this study significantly benefit the learners, school administrators, teachers, parents, the Department of Education (DepEd), Local Government Units (LGUs) and stakeholders and future researchers.

METHODOLOGY

Research Design

In this study, the descriptive quantitative analysis has focused on the implementation Classroom of Tomorrow on school heads and teachers faced challenges among public schools in Zone 1 of the Schools Division of Zambales, specifically in the municipalities of Masinloc, Candelaria, and Sta. Cruz. It will focus on the perceptions and experiences of school heads and teachers who were directly involved in carrying out the program.

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Respondents and Location

Table 1

Key Stage 1	Teachers (f)	School Heads
1. Inhobol Elementary School	3	1
2. Sinabacan Elementary School	2	1
3. Don Marcelo C. Marty Elementary School	3	1
Key Stage 2	**Teachers (f)**	**School Heads**
4. Masinloc Central Elementary School	2	1
5. Catol Elementary School	4	1
6. Sta. Cruz South Central Elementary School	4	1
Key Stage 3	**Teachers (f)**	**School Heads**
7. Taltal National High School	13	1
8. Lauis National High School	13	1
9. Sta. Cruz South High School	12	1
Key Stage 4	**Teachers (f)**	**School Heads**
10. Taltal National High School	8	1
11. Pamibian Integrated School	8	1
12. Sta. Cruz National High School	6	1
Total	**78**	**12**

The respondents of the research study were the school heads and teachers who received packages for the Classroom of Tomorrow of the Division of Zambales as stated in the DM 388 s. 2024, from Elementary School (Key Stage 1) to Senior High School (Key Stage 4) at Zone 1, Division of Zambales. The respondents were selected purposively; Table 1 below shows the frequency distribution of the respondents by school.

As shown in Table 1, a total population of ninety (90), including seventy-eight (78) teachers and twelve (12) school heads were the respondents of the research study. They were the recipients of Classroom of Tomorrow package from the Division of Zambales for two consecutive school years 2024-2025 and 2025-2026.

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Don Marcelo C. Marty Elementary School
Sta. Cruz South Central Elementary School
Sta. Cruz National High School
Sta. Cruz South High School
Catol Elementary School
Sinabacan Elementary School
Laus National High School
Pamibian Integrated School
Inhobol Elementary School
Masinloc Central Elementary School
Taltal National High School

INSTRUMENT

The main instrument of the research study was a survey-questionnaire. In the preparation of the survey questionnaire, the researcher has conducted literature reviews to identify the items/indicators of the research instrument. The items and indicators of the questionnaire were developed based on and patterned after the studies of Celeste and Nimfa (2024), entitled *Challenges and Implementation of Technology Integration: Basis for Enhanced Instructional Program*; Harrel and Bynum (2018), *Factors Affecting Technology Integration in the Classroom*; and Lituañas and Ferenal (2025), *Implementation of ICT on Teachers' Competence and Challenges*. While these studies provided the foundational framework, the instrument was systematically modified and adapted to align with the specific indicators, context, and objectives of the present research.

The survey questionnaire evaluated the respondents' level of challenges on the implementation of classroom of tomorrow in the following indicators: Infrastructure and Resources, Training and Professional Development, Equity and Access, Pedagogical

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integration and Maintenance and Support. They have answered from the scale ranging from 4 (Strongly agree), 3 (Agree), 2 (Disagree) and 1 (Strongly Disagree).

DATA COLLECTION

The first step undertaken in the data collection process was securing a written permit and endorsement from the Schools Division Superintendent of the Department of Education (DepEd) Division of Zambales to authorize the distribution of survey questionnaires to the teacher-respondents. After which, the researcher sought the permission and assistance of the School Principals/Heads of the Public Schools of Zone 1, Division of Zambales to administer the survey questionnaire.

The administration of the research instrument was conducted during the School Year 2025–2026, based on the experiences and perceptions of the respondents from the previous school year, which marked the initial year of the program's implementation. The researcher has administered the survey instrument to the school heads and teachers' participants.

DATA ANALYSIS

Since this research study is quantitative in nature, several statistical tools were employed to analyze the data systematically. Percentage was used to determine the proportion of respondents corresponding to each category of personal profile variables. To organize the data after collection, a frequency distribution table was prepared, allowing the responses to be ranked from highest to lowest. The weighted mean was then computed to capture the overall perceptions of the respondents regarding the challenges they faced in the implementation of CoT, with interpretations guided by a four-point scale. Finally, Analysis of Variance (ANOVA) was applied to test the significance of differences in the mean values, thereby examining the hypotheses concerning the views of school heads and teachers in the adoption of CoT.

RESULTS AND DISCUSSION

Respondents' Profile

The study involved 90 respondents, consisting of 12 school heads and 78 teachers. In summary, the respondents were predominantly female, middle-aged, experienced educators assigned mainly to Key Stage 3, with moderate to high educational qualifications but limited exposure to CoT-related training.

A growing number of teachers and school heads pursue higher degrees as part of professional development and to comply with the Department of Education's continuous learning and

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qualification standards (Rivera and Gomez, 2022).

Many public-school teachers in the Philippines fall within the mid-level range of service years, representing educators who are transitioning from early career to more experienced professional stages (De Guzman, 2024).

A significant proportion of teachers have between 6 to 15 years of experience, reflecting the stability and retention of mid-career educators in the basic education sector (Santos and Villanueva, 2023).

Many teachers in Philippine public schools have limited exposure to ICT or digital pedagogy training despite ongoing modernization initiatives (Bautista and Cruz, 2023). Insufficient access to professional development in technology integration remains a major barrier to implementing digital learning frameworks in basic education (Flores, Mendoza, and Ramirez, 2022).

Table 2

Challenges Encountered in the Implementation of the Classroom of Tomorrow	School Heads			Teachers		
	Mean	Descriptive Rating	Rank	Mean	Descriptive Rating	Rank
Infrastructure and Resources	3.00	Agree	4	3.08	Agree	2
Training and Professional Development	3.01	Agree	3	3.02	Agree	4
Equity and Access	3.15	Agree	2	3.07	Agree	3
Pedagogical integration	3.27	Strongly Agree	1	3.32	Strongly Agree	1
Maintenance and Support	2.68	Agree	5	2.93	Agree	5
Grand Mean	**3.02**	**Agree**		**3.08**	**Agree**	

These results imply that school leadership must pay more attention to technical support and maintenance systems of the program and not just in reactive (repair) method, but in proactive and preventive maintenance.

Derder, Sudaria, and Paglinawan (2023) noted that even well-equipped schools may experience underutilization of digital tools when maintenance and support management are lacking.

Meanwhile, the teacher-respondents agreed on all areas, with an overall weighted mean of 3.08. They rated pedagogical integration as the highest aspect, with a mean of 3.32 and a strongly agree descriptive rating. On the other hand, the lowest mean of 2.93 was noted for maintenance and support. Overall, teacher-respondents agreed that the implementation of the Classroom of Tomorrow is generally effective, particularly in pedagogical integration, manifested in a grand mean of 3.08.

The results suggests that teachers still need continuous training to keep up with evolving

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technologies and teaching strategies. Most importantly, the biggest obstacle lies in maintenance and technical support, indicating that without reliable systems, repairs, and assistance, the long-term effectiveness and sustainability of the Classroom of Tomorrow may be compromised.

Furthermore, studies have found that organizational and managerial aspects, including systematic maintenance programs and technical support, are strongly associated with successful technology integration in educational settings. Without consistent maintenance and responsive support, equipment malfunctions can disrupt teaching and learning, reduce teacher confidence, and limit student engagement with technology (Gil-Flores, Rodríguez-Santero, & Ortiz-de-Villate, 2024).

Table 3 presents the test of significant difference on challenges encountered between school heads and teacher respondents on the implementation of Classroom of Tomorrow.

Table 3

	F	Sig.	t	df	Sig. (2-tailed)	Decision/ Interpretation
Infrastructure and Resources	3.75	0.06	-0.49	88	0.62	Accept Ho Not Significant
Training and Professional Development	1.88	0.17	-0.05	88	0.96	Accept Ho Not Significant
Equity and Access	1.19	0.28	0.44	88	0.66	Accept Ho Not Significant
Pedagogical integration	3.42	0.07	-0.34	88	0.74	Accept Ho Not Significant
Maintenance and Support	3.02	0.09	-1.64	88	0.10	Accept Ho Not Significant

The computed P-values for Infrastructure and Resources (0.62), Training and Professional Development (0.96), Equity and Access (0.66), Pedagogical Integration (0.74), and Maintenance and Support (0.10) were all greater than (>) the 0.05 Alpha Level of Significance; therefore, the Null Hypothesis is accepted. Hence, there is no significant difference in the challenges encountered between the school head-respondents and teacher-respondents on the implementation of the Classroom of Tomorrow across all domains.

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This result is consistent with the conclusion of Fullan (2023), who found that school leaders and teachers often share similar perceptions of implementation challenges. Such alignment reflects a collaborative school culture, where both groups maintain coordinated priorities in planning, managing, and executing innovative classroom initiatives. Moreover, the absence of significant differences may be attributed to consistent institutional support, clear school policies, and equitable access to resources, which help both teachers and school heads face similar challenges and opportunities when implementing innovative teaching environments (Leithwood, Harris, & Hopkins, 2020).

CONCLUSIONS

Based on the findings of the study, the researcher concluded that the respondents were predominantly female, with school heads generally serving as School Principal IV, holding Master's or Doctorate degrees, and having extensive administrative experience, while teachers were mostly Teacher III, bachelor's degree holders, assigned to Key Stage 3, and had moderate years of service. Both groups generally had limited exposure to CoT-related trainings. Among the challenges encountered in the implementation of the Classroom of Tomorrow (CoT), both school heads and teachers identified pedagogical integration as the most significant concern. School heads ranked equity and access, training and professional development, infrastructure and resources, and maintenance and support as subsequent challenges, while teachers ranked infrastructure and resources, equity and access, training and professional development, and maintenance and support in that order. The study further revealed significant differences in certain challenge domains when respondents were grouped according to selected profile variables such as Key Stage, sex, age, position, and years in service. However, no significant difference was found between school heads and teachers regarding the challenges encountered across all CoT implementation domains. Based on these findings, a Program Enhancement Plan was developed to strengthen and improve the implementation of the Classroom of Tomorrow.

RECOMMENDATIONS

Based on the findings and conclusions of the study, the researcher recommends strengthening the sustainability and effectiveness of the Classroom of Tomorrow (CoT) through improved maintenance, technical support, funding, monitoring, and stakeholder collaboration. School heads and ICT coordinators may institutionalize preventive maintenance practices, maintain monitoring systems for equipment condition, and advocate for CoT maintenance initiatives. The Division ICT Unit and DepEd may provide timely technical assistance and dedicated funding support to address

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equipment repair and upgrade needs. Furthermore, partnerships with Local Government Units (LGUs), School Governing Councils, and ICT-skilled community volunteers may be established to support school-based maintenance efforts. Monitoring and Evaluation teams may also integrate maintenance indicators into regular audits, while ICT coordinators may collaborate through inter-school networks to share resources and expertise. Lastly, future researchers are encouraged to conduct broader and longitudinal studies across various educational contexts to validate the findings and identify additional strategies for improving CoT implementation.

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