

The Utilization of the Information and Communication Technology (ICT) Tools in Improving the Schools' Performance in Science in the Public Secondary Schools in San Pascual North District, Division of Masbate

Conzuelo V. Saludes¹

¹San Pascual National High School, Bolod, San Pascual Masbate, Philippines

ARTICLE INFORMATION	ABSTRACT
Article history: Published: October 2026	The utilization of the Information and Communication Technology (ICT) tools has become essential in improving Schools' Performance in science. This descriptive research determined the Utilization of the Information and Communication Technology (ICT) Tools in Improving the Schools' Performance in Science in the Public Secondary Schools in San Pascual North District, Division of Masbate. The survey design that was utilized to collect data is a researchers made questionnaire checklist. A samples of 100 science teachers from public secondary schools in San Pascual North District were selected using random sampling. The data collected were analyzed using frequency counting, percentage, and weighted mean, and Kendall coefficient of concordance w and its corresponding chi square. The study reveals that the level of the utilization of the Information and Communication Technology (ICT) Tools is Much Utilized; There is no significant agreement on the rank order of the extent of the level of the utilization of the Information and Communication Technology (ICT) Tools, except on Presentation and Multimedia Tools, Online Learning Platform, and Communication Tools for Collaboration; The utilization of the Information and Communication Technology (ICT) Tools in improving the Schools' Performance in Science is Much Evident; There is no significant agreement on the rank order of the extent of the utilization of the Information and Communication Technology (ICT) Tools in improving the Schools' Performance in Science; Policy recommendations are formulated to improve the Utilization of the Information and Communication Technology (ICT) Tools in Improving the Schools' Performance in Science.
Keywords: (ICT) Tools School Performance	

1. Introduction

The utilization of the Information and Communication Technology (ICT) tools has become essential in improving Schools' Performance in science. Through multimedia presentations, educational videos, simulations, virtual laboratories, digital modules, and online learning platforms, science lessons become more interactive, engaging, and easier to understand. These tools help learners visualize abstract scientific concepts, develop critical thinking and problem-solving skills, and participate more actively in the learning process.

Studies consistently highlight the importance of Information and Communication Technology (ICT) in strengthening teaching, learning, and academic performance. Suleiman et al. (2020) emphasized that effective ICT utilization supports student-centered learning and improves access to quality education. Paudel (2020) found that teachers showed strong motivation to use ICT despite limitations in skills, knowledge, and confidence, highlighting the need for continuous training. Bashkireva et al. (2020) stressed the importance of digital competence while identifying the digital divide as a major barrier to technology integration. Amponsah & Stonier (2020) showed that ICT promotes learner-centered instruction, collaboration, motivation, accessibility, and academic achievement. Akwaowo & Enyioko (2021) found that strong ICT skills improve the use of electronic information resources. Dyhrkopp (2021) identified digital storytelling, game-based learning, coding, robotics, and virtual activities as effective ways of creating engaging learning experiences. Murithi & Yoo (2021) reported that inadequate ICT facilities and limited teacher training hinder effective technology integration in schools.

Almaiah et al. (2020) identified technological factors, system quality, self-efficacy, trust, technical concerns, and financial support as major influences on successful e-learning utilization. Borgonovi & Pokropek (2021) found that moderate ICT use was associated with better learning outcomes than either very low or excessive use. Carstens et al. (2021) showed that technology increases student engagement and learning opportunities but requires proper teacher and learner training. Hatos et al. (2022) reported that teachers' digital competencies were influenced by prior ICT training, age, teaching field, gender, and professional status. Hailegebreal et al. (2022) found that ICT knowledge, formal training, technology-related courses, and digital skills significantly influenced students' ICT utilization. Bachalapur & Manjunatha (2022) emphasized that ICT competence and positive attitudes support teaching and learning, although continuous training remains necessary. Yalley (2022) identified inadequate software, internet access, facilities, and ICT-related training as barriers to effective technology use in school administration. Josol et al. (2023) found that pupils taught Science through ICT integration performed better than those taught through traditional methods, while Esmaquilan et al. (2023) reported highly effective ICT use in lesson planning, delivery, monitoring, and evaluation but found no significant relationship with pupils' academic performance.

Owusu et al. (2023) demonstrated that ICT-based instruction improved students' understanding and performance in genetics compared with traditional teaching methods. Orhani et al. (2024) showed that ICT improves school efficiency, communication, administrative processes, and flexible learning environments, while Baloch et al. (2024) linked technology-based learning with improved academic performance, critical thinking, communication, and problem-solving skills. Zafeer et al. (2025) found that technology access, teachers' digital competence, and frequent digital tool use positively influenced engagement and achievement in Science. Soriano-Sánchez (2025), and Ruijia et al. (2025) further showed that ICT supports motivation, participation, academic achievement, and learning outcomes among primary and disadvantaged learners. Ventura et al. (2025), Das & Middya (2025), and Nyongesa (2025) emphasized ICT's role in sustaining learning, improving engagement, and expanding access while identifying infrastructure, connectivity, digital skills, and equitable resources as continuing concerns. Raoatra et al. (2026) likewise found that ICT utilization was positively associated with academic performance, information access, idea sharing, and more engaging learning experiences. Policy recommendations were identified by Youssef, et. al., (2022), Usman and Abdulrazaq, (2025), and Palines, et. al., (2025). Therefore, the present study is significant because it can offer meaningful insights into the use of ICT tools in making Science lessons more engaging, practical, and easier for learners to understand. Its findings can help teachers enhance their teaching strategies, guide school heads in providing ICT-related support and training, and assist education leaders in promoting effective technology integration that contributes to improved learner performance in Science.

1.1 Objectives of the Study

Primarily, this study was conducted to determine The Utilization of the Information and Communication Technology (ICT) Tools in Improving the Schools' Performance in Science in the Public Secondary Schools in San Pascual North District, Division of Masbate. Specifically, the researchers' intended to know (1) the level of the utilization of the Information and Communication Technology (ICT) Tools along: (a) Presentation and Multimedia Tools, (b) Online Learning Platform, (c) Interactive Applications and Educational Software, (d) Audio-Visual Materials in Teaching, (e) Productivity Tools for Teaching and Record-Keeping, (f) Communication Tools for Collaboration, and (g) Assessment and Feedback Tools; (2) the test of significant agreement on the rank orders of the extent of the level of the utilization of the Information and Communication Technology (ICT) Tools along the aforementioned aspects; (3) the utilization of the Information and Communication Technology (ICT) Tools Improve the Schools' Performance in Science in terms of: (a) Mastery of Learning Competencies, (b) Active Participation in Class Activities, (c) Application of Knowledge and Skills in Real-Life Situations, (d) Consistency in Task Completion, and (e) Quality of Output; (4) the test of significant agreement on the rank orders of the utilization of the Information and Communication Technology (ICT) Tools in improving the Schools' Performance in Science among the different groups of respondents; (5) the Policy Recommendations that can be formulated based from the findings of the study.

2. Materials and Methods

The descriptive correlational research design was used. The descriptive design describes the degree of a quantifiable variable. This study was used to explore The Utilization of the Information and Communication Technology (ICT) Tools in Improving the Schools' Performance in Science in the Public Secondary Schools in San Pascual North District, Division of Masbate. Descriptive-Evaluative-Correlational Method described the characteristics of a phenomenon, evaluates its quality or effectiveness, and explores the relationships between different variables. It was used when the goal is to provide a thorough analysis by incorporating descriptive data, evaluation, and exploration of potential correlations.

2.1 Respondents

The respondents were the one hundred (34) the science teachers from public secondary schools in San Pascual North District, Division of Masbate. These respondents were taken for the school year 2025-2026.

2.2 Data Gathering Instrument

The instrument used in gathering the data was a structured researchers-made questionnaire checklist and structured interview guide. Part I was about the extent of the level of the utilization of the Information and Communication Technology (ICT) Tools and Part II was the extent of the utilization of the Information and Communication Technology (ICT) Tools Improve the Schools' Performance in Science. A total of 133 questions were included in this study. For the validation and reliability of the Instrument, the questionnaire was subjected to validation by a set of jurors composed of professors, Adviser, and Dean of Graduate School who was asked to make comments and recommendations to add and delete to modify the questionnaire. The reliability of the instrument has been tested after the validation. The test ranges from a 12.42 to 2.48, indicating consistent measurement and dependability for collecting credible data. Suggestions and recommendations on each item if the questionnaire have been acquired for the improvement of the instrument.

2.3 Data Analysis

Mean was used to generate the Utilization of the Information and Communication Technology (ICT) Tools in Improving the Schools' Performance in Science in the Public Secondary Schools in San Pascual North District, Division of Masbate. It was interpreted using the following scale:

Scale	Numerical Rating	Descriptive Rating	
		The extent of the level of the utilization of the Information and Communication Technology (ICT) Tools	The extent of the utilization of the Information and Communication Technology (ICT) Tools Improve the Schools' Performance in Science
4.50-5.00	5	Very Much Utilized (VMU)	Very Much Evident (VME)
3.50-4.49	4	Much Utilized (MU)	Much Evident (ME)
2.50-3.49	3	Utilized (U)	Evident (E)

1.50-2.49	2	Fairly Utilized (FU)	Fairly Evident (FE)
1.00-1.49	1	Not at All (NAA)	Not at All (NAA)

A Letter of Permission to Conduct the Study to the Schools Division Superintendent of SDO Masbate was sent for their endorsements.

3. Results and Discussion

3.1 The Summary of the extent of the Level of the Utilization of the Information and Communication Technology (ICT) Tools

Based on Table 1, that provide the summary of the extent of the level of the utilization of the Information and Communication Technology (ICT) Tools, it appeared that indicators rated “Much Utilized” were: Audio-Visual Materials in Teaching, 4.18; Communication Tools for Collaboration, 3.83; Productivity Tools for Teaching and Record-Keeping, 3.78; Presentation and Multimedia Tools, 3.57; While, the indicators rated “Utilized” were: Interactive Applications and Educational Software, 3.43; Assessment and Feedback Tools, 3.41; Online Learning Platform, 3.34. Thus, the Summary of the Extent of the level of the utilization of the Information and Communication Technology (ICT) Tools was 3.65 or Much Utilized. This means that ICT was already part of teaching practices, especially in preparing lessons, presenting concepts, communicating with learners, organizing records, and providing learning materials.

The highest result appeared in audio-visual materials in teaching. This area ranked first because teachers commonly use videos, pictures, animations, and other visual resources to make Science lessons clearer, more interesting, and easier to understand. Basod, (2025), found that the use of audio-visual media in Science teaching significantly improved pupils’ understanding of scientific concepts. This indicates that audio-visual materials help learners connect abstract ideas with concrete examples. Teachers need to select short, age-appropriate, and lesson-aligned audio-visual materials, while school heads need to provide projectors, speakers, internet-ready resources, and regular monitoring of audio-visual integration.

Another strong area was communication tools for collaboration. This result shows that teachers regularly use group chats, emails, online platforms, and messaging applications to share announcements, coordinate tasks, and communicate with learners, parents, and co-teachers. Lu and Smiles (2022), found that e-learning platforms supported information sharing, teacher-student communication, and collaboration in online classes. This points to the importance of clear and timely communication in maintaining class organization. Teachers need to use official communication channels with organized reminders and feedback, while school heads need to set guidelines on digital etiquette, data privacy, and proper platform use.

The next result was productivity tools for teaching and record-keeping. This area received a favorable placement because teachers use word processors, spreadsheets, digital folders, cloud storage, and online forms in preparing lessons, organizing files, recording learner information, and preparing reports. Oloyede and Ogunwale, (2022), found that digital productivity tools support greater productivity among educators and other users. This shows that productivity tools help teachers save time and manage school documents more efficiently. Teachers need to maintain organized digital files, updated class records, and secured backups, while school heads need to provide templates, shared drives, and training on spreadsheet use and digital record management.

A moderate result was seen in presentation and multimedia tools. This result reflects that teachers use slides, images, videos, and multimedia presentations to introduce lessons and explain Science concepts, but the use of these tools still needs stronger consistency and interactivity. Akinbadewa, (2020), found that multimedia instructional learning packages improved secondary students’ attitudes toward Biology learning. This highlights that multimedia presentations become more effective when they go beyond displaying information and actively support learner interest and understanding. Teachers need to prepare presentations with clear visuals, guide questions, and real-life examples, while school heads need to strengthen LAC sessions on multimedia lesson design and classroom-based ICT observation.

The result for interactive applications and educational software shows that teachers use simulations, educational games, interactive quizzes, and digital applications, but not yet as regularly as audio-visual or communication tools. This lower placement is linked to the need for devices, internet access, teacher confidence, and enough preparation time. Zafeer et. al. (2025), examined digital learning tools in middle school Science classes and reported their connection with learner engagement and achievement. This means that interactive software strengthens Science learning when teachers use it purposefully for practice, reinforcement, and participation. Teachers need to integrate simple simulations, drills, and gamified activities aligned with MELCs, while school heads need to provide access to devices, sample applications, and peer mentoring.

A lower result was noted in assessment and feedback tools. This area ranked near the bottom because ICT-based quizzes, digital rubrics, automated scoring, and online feedback require preparation, technical skill, stable access, and a clear system for checking learner outputs. Pusa, Elif & Dinçer, Serkan, (2025), found that e-assessment tools provide benefits such as immediate feedback and support for learner engagement, although feedback quality remains important. This shows that digital assessment is useful but still needs stronger classroom routines. Teachers need to use short online quizzes, digital rubrics, exit tickets, and timely feedback schedules, while school heads need to provide assessment templates, technical coaching, and monitoring of ICT-based feedback practices.

The lowest result was online learning platform. This area received the least emphasis because online platforms require stable internet, learner access to devices, regular monitoring, organized posting of materials, and consistent submission routines. Noreen, (2020), found that learning management systems supported the digital journey in distance learning by helping organize online learning processes. This indicates that online platforms remain helpful, but access and consistency affect their full use in Science instruction. Teachers need to post lesson materials, reminders, activities, and feedback in one agreed platform, while school heads need to provide platform orientation, learner-access support, and simple school guidelines for online class management.

To put it briefly, the findings show that ICT tools were used in different ways, with stronger use in audio-visual teaching, communication, and productivity tasks, and weaker use in online platforms, assessment, and interactive applications. The results highlight the need for continuous teacher training, better ICT resources, technical support, and school-based monitoring to make ICT integration more consistent, meaningful, and helpful in improving Schools’ Performance in Science.

Table 1. The Summary of the extent of the Level of the Utilization of the Information and Communication Technology (ICT) Tools

Indicators	Average		
	Mean	Int	Rank
1. Presentation and Multimedia Tools	3.57	MU	4
2. Online Learning Platform	3.34	U	7
3. Interactive Applications and Educational Software	3.43	U	5
4. Audio-Visual Materials in Teaching	4.18	MU	1
5. Productivity Tools for Teaching and Record-Keeping	3.78	MU	3
6. Communication Tools for Collaboration	3.83	MU	2
7. Assessment and Feedback Tools	3.41	U	6
Average	3.65	MU	

3.2 The test of significant agreement on the rank orders of the extent of the Level of the Utilization of the Information and Communication Technology (ICT) Tools

The test of significant agreement on the rank orders of the extent of the Level of the Utilization of the Information and Communication Technology (ICT) Tools are described in Table 2.

Table 2. The test of significant agreement on the rank orders of the extent of the Level of the Utilization of the Information and Communication Technology (ICT) Tools

Indicators	Computed		Tabular					Decision on Null Hypothesis H_0	Significance of Agreement
	W	X^2	X^2	0.05	0.025	0.01	0.005	0.001	
1. Presentation and Multimedia Tools	0.64	17.28	16.92	19.68	21.09	21.95	26.12	Rejected	0.05
2. Online Learning Platform	0.76	18.24	15.51	18.17	20.09	21.95	26.12	Rejected	0.025
3. Interactive Applications and Educational Software	0.33	8.91	16.92	19.68	21.67	23.59	27.88	Accepted	NS
4. Audio-Visual Materials in Teaching	0.33	7.92	15.51	18.17	20.09	21.95	26.12	Accepted	NS
5. Productivity Tools for Teaching and Record-Keeping	0.21	5.67	16.92	19.68	21.67	23.59	27.88	Accepted	NS
6. Communication Tools for Collaboration	0.64	19.20	18.31	21.16	23.21	25.19	29.59	Rejected	0.05
7. Assessment and Feedback Tools	0.59	15.93	16.92	19.68	21.67	23.59	27.88	Accepted	NS

Based on the statistical results, the Coefficient of Concordance W and the computed x^2 value yielded to Presentation and Multimedia Tools, 0.64 and 17.28, ($p < 0.05$); Online Learning Platform, 0.76 and 18.24, ($p < 0.025$); Interactive Applications and Educational Software, 0.33 and 8.91, ($p > 0.05$); Audio-Visual Materials in Teaching, 0.33 and 7.92, ($p > 0.05$); Productivity Tools for Teaching and Record-Keeping, 0.21 and 5.67, ($p > 0.05$); Communication Tools for Collaboration, 0.64 and 19.20, ($p < 0.05$); Assessment and Feedback Tools, 0.59 and 15.93, ($p > 0.05$). Thus, the null hypothesis was accepted, except on Presentation and Multimedia Tools, Online Learning Platform, and Communication Tools for Collaboration.

The significant agreement on the Rank Orders of the extent of the level of the utilization of the Information and Communication Technology (ICT) Tools along Presentation and Multimedia Tools, Online Learning Platform, and Communication Tools for Collaboration shows that teachers generally agreed on which ICT practices were most utilized and which were least utilized in presenting lessons, using online platforms, and communicating for collaboration.

The agreement along presentation and multimedia tools shows that teachers shared a common view on how slides, videos, images, and multimedia materials were used in Science instruction. This happened because these tools are familiar, easy to prepare, and useful in explaining abstract concepts, while more interactive multimedia use requires more time, devices, and technical skills. Kiat, Teo et al. (2020), found that multimedia-based learning improved students' academic achievement in Science and helped them understand concepts better. The finding indicates that presentation and multimedia tools support clearer and more meaningful Science learning. Teachers need to prepare concise, visual, and lesson-aligned presentations with guide questions and real-life examples. School heads need to provide equipment support, peer demonstration sessions, and regular review of ICT-based lesson materials.

The agreement along online learning platform reflects the teachers' similar experiences in using platforms for posting materials, announcements, reminders, and learning tasks. This occurred because platform use depends heavily on internet access, learner participation, device availability, and teacher skill in managing online learning spaces. Akpen et al. (2024), reported that online learning affects student performance and engagement, with effectiveness influenced by the quality of digital tools, internet access, motivation, interaction, and multimedia resources. The result points to the need for more organized and accessible platform use in Science instruction. Teachers need to use one official platform for lessons, submissions, reminders, and feedback. School heads need to set clear platform guidelines, provide technical assistance, and monitor learners' access and participation.

A consistent pattern also appeared in communication tools for collaboration because teachers commonly use group chats, emails, messaging applications, and online spaces for coordination with learners, parents, and co-teachers. This agreement resulted from the shared need to give updates, clarify tasks, and maintain communication beyond regular class hours. Kwiatkowska, and Wiśniewska-

Nogaj (2022), found that digital skills play an important role in collaborative distance learning, especially in supporting communication, cooperation, and learner participation. The finding shows that communication tools strengthen collaboration when messages are clear, timely, and properly managed. Teachers need to maintain organized group chats, feedback routines, and parent communication records. School heads need to establish communication protocols, promote digital etiquette, and guide teachers in using safe and responsible online collaboration tools.

In contrast, the lack of agreement on the Rank Orders of the extent of the level of the utilization of the Information and Communication Technology (ICT) Tools along Interactive Applications and Educational Software, Audio-Visual Materials in Teaching, Productivity Tools for Teaching and Record-Keeping, and Assessment and Feedback Tools indicates that the respondents did not have a common pattern of ranking the indicators under these areas.

The varied ranking along interactive applications and educational software shows that teachers differed in their use of simulations, educational apps, gamified tools, and interactive drills. This difference is understandable because some teachers have better access to devices, internet, and digital skills, while others still depend on simpler ICT tools for instruction. Abareta and Prudente (2025), found that not all Science teachers were prepared to use digital technology tools, and poor internet connectivity remained a challenge despite continued ICT use in online and face-to-face classes. This indicates that interactive software use depends greatly on teacher readiness and available resources. Teachers need to select simple, MELC-aligned applications for drills, simulations, and learner practice. For school heads, support needs to include hands-on training, peer mentoring, internet assistance, and access to functional devices. A different pattern appeared in audio-visual materials in teaching because teachers used videos, pictures, animations, audio clips, and other materials in varied ways depending on lesson objectives and classroom needs. Some teachers used audio-visual materials mainly to introduce lessons, while others used them to explain abstract concepts, motivate learners, or support guided activities. Aljecera et. al., (2023), found that laptops, educational videos, and television were commonly used by Science teachers, and audio-visual materials supported engagement, participation, and clearer lesson delivery. This means that audio-visual materials remain useful, but the manner of use differs from teacher to teacher. Short, age-appropriate, and culturally responsive videos and visuals need to be prepared by teachers for specific parts of the lesson. School heads need to provide projectors, speakers, offline video resources, and training on purposeful audio-visual integration.

The lack of agreement in productivity tools for teaching and record-keeping suggests that teachers had different levels of skill in using spreadsheets, digital folders, cloud storage, word processors, and online forms. This happened because record-keeping tasks require accuracy, organized filing, regular updating, backup procedures, and confidence in using formulas or digital templates. Wagan et. al. (2025), found that digital record management improves efficiency, accuracy, accessibility, and security, but challenges such as staff resistance, technical issues, and inadequate training affect implementation. This implies that productivity tools improve teacher efficiency when systems are organized and consistently followed. Teachers need to maintain updated class records, secured backups, and properly labeled digital files. At the school level, school heads need to provide standard templates, shared drives, spreadsheet training, and clear rules for safe handling of learner data.

The inconsistent ranking along assessment and feedback tools reflects differences in how teachers use digital quizzes, rubrics, automated scoring, progress tracking, and online feedback. This variation occurred because ICT-based assessment requires stable internet, prepared test items, learner access, checking time, and skills in interpreting platform results. Tuna Pusa and Dinçer, (2025), found that e-assessment tools support immediate feedback, progress tracking, student engagement, and assessment efficiency, but limitations include technical issues, time concerns, internet-related problems, and incomplete measurement of learner performance. This shows that digital assessment is helpful, but it needs stronger routines and support. To improve this area, teachers need short online quizzes, digital rubrics, exit tickets, and scheduled feedback. School heads need to organize assessment templates, coaching sessions, technical assistance, and monitoring of ICT-based feedback practices.

In conclusion, the significant agreement shows that teachers had similar practices in using ICT tools for presentation, online platforms, and communication. Meanwhile, the lack of agreement in interactive applications, audio-visual materials, productivity tools, and assessment tools shows varied ICT use due to differences in access, training, skills, and classroom needs. Therefore, stronger school support, regular ICT training, clear guidelines, and improved digital resources are needed to make ICT use more consistent and effective in Science instruction.

3.3 The Summary of The Extent of the Utilization of the Information and Communication Technology (ICT) Tools in Improving the Schools' Performance in Science

Table 3 show the extent of the Utilization of the Information and Communication Technology (ICT) Tools in Improving the Schools' Performance in Science. The indicators rated as "Much Evident" were: Active Participation in Class Activities, 4.07; Application of Knowledge and Skills in Real-Life Situations, 4.05; Mastery of Learning Competencies, 3.87; Quality of Output, 3.87; Consistency in Task Completion, 3.62. Overall, the summary of the extent of the utilization of the Information and Communication Technology (ICT) Tools in improving the Schools' Performance in Science was 3.90 or Much Evident. This means that ICT tools helped learners understand Science lessons, participate in class activities, apply knowledge in real-life situations, complete tasks, and produce better outputs.

Table 3. The Summary of the Utilization of the Information and Communication Technology (ICT) Tools in Improving the Schools' Performance in Science

Indicators	Average		
	Mean	Int	Rank
1. Mastery of Learning Competencies	3.87	ME	3.5
2. Active Participation in Class Activities	4.07	ME	1
3. Application of Knowledge and Skills in Real-Life Situations	4.05	ME	2
4. Consistency in Task Completion	3.62	ME	3.5

5. Quality of Output			
Average	3.87	ME	

Active participation in class activities appeared as the strongest area because ICT tools made Science lessons more engaging, visual, and interactive. Learners became more attentive when lessons used videos, presentations, simulations, quizzes, and other digital activities that invited them to respond and take part. Zafeer et. al. (2025), found that digital learning tools improved students' engagement and achievement in middle school Science classes, especially when learners had access to technology and teachers had strong digital competence. This implies that ICT strengthens participation when it is used for active learning, not only for presentation. Teachers must design ICT-based activities that require learners to answer, explain, collaborate, and share ideas, while School Heads should provide functional devices, internet support, and training on interactive Science instruction.

Application of knowledge and skills in real-life situations followed closely because ICT helped learners connect Science lessons with daily experiences, community concerns, and environmental issues. Digital simulations, videos, and online tasks made it easier for learners to see how Science concepts work in real situations. Laius and Presmann, (2024), emphasized the importance of ICT, inquiry learning, and real-life examples in Science classes, showing that Science becomes more meaningful when learners relate lessons to practical situations. This indicates that ICT integration supports deeper understanding when lessons move beyond memorization. Teachers must prepare community-based digital tasks and problem-solving activities, while School Heads should encourage the use of localized ICT materials that reflect learners' environment and daily life.

Mastery of learning competencies showed that ICT tools supported learners in understanding and retaining important Science concepts. Multimedia lessons, simulations, and digital exercises helped explain difficult topics and gave learners more opportunities to review and practice. Akinbadewa and Sofowora (2020), found that computer-based multimedia instructional packages improved students' achievement in Biology, which supports the use of ICT in strengthening mastery of Science concepts. This implies that ICT becomes effective when digital materials are clearly aligned with MELCs and lesson objectives. Teachers must use ICT for guided practice, remediation, and mastery checks, while School Heads should monitor the alignment of ICT activities with competencies and provide support for digital lesson preparation.

Quality of output had the same result as mastery of learning competencies because good Science outputs depend on understanding, organization, accuracy, and clear presentation of ideas. ICT helped learners improve their outputs through digital references, visual aids, editing tools, and multimedia materials, although learners still needed guidance in using these tools meaningfully. Gürsoy, (2021), found that digital storytelling in Science education helped develop creativity, communication, and other 21st-century skills, which relate to producing clearer and more meaningful outputs. This suggests that ICT improves output quality when learners are guided in organizing content and presenting ideas properly. Teachers should use rubrics, feedback, and revision activities, while School Heads must support access to digital tools and promote sharing of effective ICT-based output strategies.

Consistency in task completion obtained the lowest result because completing Science tasks regularly still depends on learners' time management, access to devices, internet connection, and teacher follow-up. ICT helped provide reminders, instructions, and submission platforms, but some learners still experienced delays or needed closer monitoring. Bradley, (2020), explained that learning management systems support online instruction by helping organize activities, communicate expectations, and manage learner work. This implies that ICT supports task completion when routines, deadlines, and feedback are clear. Teachers must give simple instructions, regular reminders, and timely feedback, while School Heads should monitor submission systems and strengthen support for learners with limited ICT access.

To put it briefly, the findings show that ICT tools helped improve Schools' Performance in Science across participation, application, mastery, output quality, and task completion. The strongest effect was seen in active participation, while consistency in task completion needs greater attention through clearer routines, stronger monitoring, and better access to ICT resources.

3.4 The test of significant agreement on the rank orders of the extent of the Utilization of the Information and Communication Technology (ICT) Tools in Improving the Schools' Performance in Science

The test of significant agreement on the rank orders of the Extent of the Utilization of the Information and Communication Technology (ICT) Tools in Improving the Schools' Performance in Science are described in Table 4.

Table 4. The test of significant agreement on the rank orders of the Extent of the Utilization of the Information and Communication Technology (ICT) Tools in Improving the Schools' Performance in Science

Indicators	Computed		Tabular					Decision on Null Hypothesis H_0	Significance of Agreement
	W	X^2	X^2						
			0.05	0.025	0.01	0.005	0.001		
1. Mastery of Learning Competencies	0.17	4.08	15.51	18.17	20.08	21.95	26.12	Accepted	NS
2. Active Participation in Class Activities	0.42	11.34	16.92	19.68	21.67	23.21	27.88	Accepted	NS
3. Application of Knowledge and Skills in Real-Life Situations	0.11	3.30	18.31	21.16	23.21	25.19	29.59	Accepted	NS
4. Consistency in Task Completion	0.30	9.90	19.68	22.62	24.72	26.76	31.26	Accepted	NS
5. Quality of Output	0.21	6.30	18.31	21.16	23.21	25.19	29.59	Accepted	NS

To test the significant agreement on the rank orders of the extent of the Utilization of the Information and Communication Technology (ICT) Tools in Improving the Schools' Performance in Science, the researcher employed Kendall's Coefficient of Concordance (W), and the Chi-square Test. Table 4 discloses the results.

Based on the statistical results, the Coefficient of Concordance W and the computed χ^2 value resulted to Mastery of Learning Competencies, 0.17 and 4.08, ($p>0.05$); Active Participation in Class Activities, 0.42 and 11.34, ($p>0.05$); Application of Knowledge and Skills in Real-Life Situations, 0.11 and 3.30, ($p>0.05$); Consistency in Task Completion, 0.30 and 9.90, ($p>0.05$); Quality of Output, 0.21 and 6.30, ($p>0.05$). Thus, the null hypothesis was accepted.

The lack of agreement on the Rank Orders of the extent of the utilization of the Information and Communication Technology (ICT) Tools in improving the Schools' Performance in Science along Mastery of Learning Competencies, Active Participation in Class Activities, Application of Knowledge and Skills in Real-Life Situations, Consistency in Task Completion, and Quality of Output suggests that the respondents did not have a uniform view on which area was most or least affected by ICT use.

Mastery of learning competencies reflected a lack of agreement in rank orders because learners did not master Science concepts at the same pace after ICT use. Some learners understood lessons better through videos, simulations, and digital exercises, while others still needed direct teaching, guided practice, and follow-up support. Koyunlu-Unlu and Dokme, (2020) found that technology-supported inquiry-based learning improved students' Science achievement and scientific process skills. This implies that ICT strengthens mastery when it is connected to inquiry, practice, and competency checking. Teachers must align ICT activities with MELCs and provide remediation for difficult lessons, while School Heads should monitor the use of digital materials for mastery-based instruction.

Active participation in class activities differed in ranking because learners showed different responses to digital activities. Some became more interested and attentive when Science lessons used films, augmented reality, presentations, and interactive tools, while others remained quiet because of confidence, access, or digital skill issues. Guvenir and Guven-Yildirim, (2023) found that educational film-supported augmented reality improved Science achievement and motivation. This suggests that ICT increases participation when it creates interest and invites learners to interact with the lesson. Teachers must use ICT activities that require learners to answer, explain, ask questions, and collaborate, while School Heads should provide functional devices and training on interactive Science teaching.

Application of knowledge and skills in real-life situations also varied because learners differed in their ability to use Science concepts in practical situations. ICT helps present real-life problems through virtual laboratories, simulations, videos, and problem-based tasks, but learners still need guidance in analyzing situations and making decisions. Noris et. al. (2022) found that a virtual laboratory based on problem-based learning improved junior high school students' critical thinking skills. This implies that ICT supports real-life application when learners investigate problems and explain solutions. Teachers must prepare ICT-based problem-solving tasks linked to community and environmental issues, while School Heads should support localized digital materials and inquiry-based Science activities.

Consistency in task completion received different rankings because ICT use did not automatically result in regular submission of Science tasks. Learners still differed in time management, internet access, device availability, motivation, and home support. Furqon et. al. (2023) found that learning management system use had a beneficial effect on students' academic performance and supported online learning processes. This indicates that ICT helps task completion when platforms are organized and expectations are clear. Teachers must give simple instructions, deadlines, reminders, and timely feedback, while School Heads should monitor digital submission systems and support learners with limited ICT access.

Quality of output showed varied rankings because learners used ICT tools differently in preparing Science work. Some learners organized ideas, added visuals, revised outputs, and presented explanations clearly, while others needed more guidance in using reliable sources and relevant multimedia. Bilici and Yilmaz, (2024) found that collaborative digital storytelling in Biology improved academic achievement, critical thinking, co-regulation, and narrative skills. This implies that ICT improves output quality when learners receive feedback and use digital tools for meaningful presentation. Teachers should use rubrics, revision activities, and feedback sessions, while School Heads must promote access to digital tools and sharing of effective ICT-based output practices.

In conclusion, the lack of agreement on the rank orders shows that ICT tools affected the five Science learning dimensions in different ways. The result points to differences in learner readiness, teacher strategy, access to technology, task design, and feedback. Overall, Teachers and School Heads must strengthen ICT integration through competency alignment, interactive activities, real-life problem tasks, organized monitoring, and guided improvement of learner outputs.

4. The Policy Recommendations

In light of the findings of the study, the following policy recommendations were arrived at:

- The Science Teachers and ICT Coordinators must prepare slide-based quizzes, visual prompts, and digital presentations for classroom assessments.
- The School Heads and Science Teachers must schedule the use of approved online learning platforms for quizzes, tests, and other assessments.
- The Science Teachers and Master Teachers must integrate quiz games, interactive drills, and gamified Science activities.
- The Learning Resource Coordinators and Science Teachers must provide short audio materials related to Science lessons.
- The Science Teachers and School ICT Coordinators must use spreadsheet templates for recording scores, computing grades, and tracking learner progress.

5. Conclusion and Recommendation

In light of the findings, it can be concluded that The level of the utilization of the Information and Communication Technology (ICT) Tools is Much Utilized; There is no significant agreement on the rank order of the extent of the level of the utilization of the Information and Communication Technology (ICT) Tools, except on Presentation and Multimedia Tools, Online Learning Platform, and Communication Tools for Collaboration; The utilization of the Information and Communication Technology (ICT) Tools in improving the Schools' Performance in Science is Much Evident; There is no significant agreement on the rank order of the extent

of the utilization of the Information and Communication Technology (ICT) Tools in improving the Schools' Performance in Science; Policy recommendations are formulated to improve the Utilization of the Information and Communication Technology (ICT) Tools in Improving the Schools' Performance in Science.

In line with these conclusions, the following recommendations are formulated: The Science Teachers and ICT Coordinators must prepare a simple ICT integration plan for regular use of digital tools in Science instruction; The School Heads and Learning Resource Coordinators must monitor ICT use and conduct peer-sharing sessions to improve consistency among teachers; The Science Teachers and Curriculum Coordinators must align ICT-based activities with Science competencies, participation, task completion, and learner outputs; The School Heads and Public Schools District Supervisors must hold periodic reviews to harmonize ICT-supported Science instruction; The policy recommendations be adopted.

The researcher suggests the following topics for further research: The Effectiveness of Online Learning Platforms in Improving Science Learning Outcomes; The Influence of Multimedia Presentations on Learners' Understanding of Science Concepts; The Role of Interactive Applications in Promoting Active Participation in Science Classes; The Impact of Gamified Learning Applications on Learners' Motivation in Science; The Use of Audio-Visual Materials in Improving Science Comprehension.

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