

Integration of Information Communication Technology in Technology Livelihood Education- Food Processing: Impact, Challenges, and Pathways

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Abstract — This study evaluated the status of Information and Communication Technology (ICT) integration in Technology and Livelihood Education (TLE) - Food Processing and its relationship with students' digital skills and academic achievement at a public secondary school in the District of Maria 2, Siquijor, during the 2024-2025 school year. Questionnaires were distributed to the respondent groups. Utilizing descriptive-correlational quantitative research design, the study aimed to systematically collect, analyze, and interpret data for a comprehensive understanding of ICT integration. A total of 150 respondents, comprising 114 students or 76 percent and 36 teachers or 24 percent, were selected using simple random sampling based on Slovin's formula. Statistical analyses, including Pearson's Chi-square tests and Fisher's Exact Probability Test, will be employed to determine the relationships between ICT integration, students' digital skills, and academic achievement. The research analyzes the demographic profiles of teachers and students, revealing a youthful and educated teaching workforce alongside a predominantly early adolescent

student. Findings indicate a generally positive perception of ICT integration among both teachers (grand mean of 2.84) and students (grand mean of 2.66), with infrastructure rated highest by both groups. The study establishes a statistically significant relationship between ICT integration and both students' digital skills (Pearson's Chi-Square Test: $\chi^2 = 4.15$, $p = 0.0415$) and academic performance (Pearson's Chi-Square Test: $p = 0.0223$), suggesting that effective ICT utilization enhances learning outcomes. Students demonstrated Near Mastery level of academic achievement in key competencies, resulting in overall grand mean of 3.11. However, challenges such as inadequate infrastructure, limited teacher ICT skills, and insufficient access to digital resources hinder full integration. Recommendations include improving ICT infrastructure, providing continuous professional development for teachers, and fostering student engagement with digital tools. The study aimed to develop and implement school-based ICT integration program to address these challenges and enhance technology use in instruction.

Keywords — Educational Administration, Information Communication Technology, digital skills, academic achievement, descriptive-correlational quantitative research method, Candaping National High School, District of Maria 2, Siquijor, Philippines

I. Introduction

The swift progress of ICT has notably revolutionized education on a global scale, enhancing the standard of instruction and support provided to learners and educational communities. ICT includes a diverse array of technological tools and resources that aid in communication, content creation, distribution, and information management, such as radio, television, computers, the internet, and social media platforms. In the last ten years, there has been an increasing emphasis on utilizing ICT tools—like laptops, interactive whiteboards, LCD projectors, and online resources—to boost the effectiveness of teaching and learning processes. Nonetheless, despite its promise, the incorporation of ICT in education is still in its nascent stages, with numerous schools continuing to depend on conventional media such as radio and television.

In the Philippines, efforts to strengthen ICT integration in education have been initiated through policies such as the DepEd Computerization Program (DCP) and the Department of Education Internet Computerization Program (DICP). Furthermore, DepEd has mandated public elementary schools to utilize ICT in instruction to better equip learners in an increasingly digital world. The DepEd ICT Programs and Projects envision a 21st-century education system where students become lifelong learners and globally competent individuals through ICT-enabled education.

The DepEd Order No. 016, s.2023 outlines the updated guidelines for the execution of the DCP, which aims to equip public schools and DepEd offices with suitable, high-quality, and fair technologies designed to improve learning, teaching, governance, and operational processes, practices, programs, and policies to address the demands of contemporary society.

In response to this policy initiative, the Philippine Education Technology Master Plan has been implemented with the following operational goals (Bonifacio, 2019: 5): (1) every public secondary school will receive a suitable educational technology package; (2) 75 percent of public secondary schools will feature a computer laboratory equipped with essential multimedia tools; (3) all public secondary schools will have an electronic library system in place; (4) 75 percent of public secondary schools will focus on skill development and the use of Internet resources alongside computer-assisted instruction; and (5) ICT applications will be integrated into every relevant aspect of the curriculum.

Integration of Information and Communication Technology (ICT) in secondary schools within the Siquijor Division remains a critical area for development. While national and regional initiatives have aimed to enhance ICT adoption in education, significant gaps persist, particularly in rural and island provinces like Siquijor. According to DepEd's 2020 ICT Infrastructure Report, only 60 percent of public secondary schools in the Central Visayas region (which includes Siquijor) have basic ICT facilities, and fewer than 40 percent have stable internet connectivity. Furthermore, the DepEd Computerization Program (DCP) has reached only a portion of the schools, with some institutions still relying on outdated computer units.

Furthermore, access to ICT resources for students presents another concern. In Siquijor, where many students hail from economically challenged families, the digital gap is likely even more severe, restricting opportunities for technology-enhanced education. Considering these statistically backed observations, the research aims to assess the present condition of ICT integration in secondary schools within Siquijor Division, identify significant barriers, and propose a school-focused ICT program to enhance digital education. Tackling these disparities will promote a more inclusive and effective educational setting, ensuring that both teachers and students possess the essential digital skills required for the 21st century.

Recognizing these limitations, the researcher is motivated to conduct this study to evaluate the present state of ICT integration in education, especially in public secondary schools throughout Siquijor Division. As an educator in the public school system, the researcher firmly believes that integrating ICT into teaching can enhance lesson delivery, making learning more interactive, engaging, and aligned with the needs of 21st-century learners. However, the lack of teacher training, financial constraints, and varying attitudes toward technology pose significant challenges to its successful implementation.

Considering these issues, the objective of this research is to create a structured ICT Integration program for schools that will facilitate the incorporation of technology into educational practices. By doing so, this research seeks to empower teachers, enhance their technological competencies, and promote a more effective and modernized educational system that benefits both educators and students.

Thus, quality education can be offered to students using ICT and through conscientious effort and competence of teachers, administrators and other stakeholders. Furthermore, using ICT in teaching could enhance teachers' teaching competencies and skills, making them good stewards of technology and globally competent users of it. But as a common problem in a public school, some lack the knowledge and skills in using the technology, consequently, resorting to a more traditional way of teaching. One pressing reason why they lack the knowledge and skills in applying the technology is the absence of training, and seminars. Another is that most schools cannot afford to purchase ICT resources due to financial constraints. Ultimately, the attitude of the educators is essential for the successful implementation of an ICT program.

The extent of this research is constrained to evaluating the status and challenges of ICT integration in TLE-Food Processing at one public secondary school in the District of Maria 2, Siquijor during the academic year 2024–2025. It specifically focuses on the relationship between ICT integration and students' digital skills and academic achievement. The study is descriptive-quantitative in nature, involving 150 respondents (36 teachers and 114 students) selected through random sampling. The study's limitations involve its restriction to one specific district, potentially limiting the applicability of the results, and the dependence on self-reported information, which could result in individual bias.

This study evaluates the status of Information Communication Technology integration in the instruction of Technology and Livelihood Education (TLE) – Food Processing in a public secondary school in District of Maria 2, Siquijor. It aims to determine the relationship between ICT integration, students' digital skills, and academic performance, while identifying the key challenges that hinder effective implementation. Through the findings, the study proposes a school-based ICT integration program designed to enhance teaching practices, support student learning outcomes, and promote equitable access to digital tools, ultimately serving as a blueprint for modernizing education in similar rural school settings.

Literature Review

This study aims to evaluate the degree of incorporation of Information Communication Technology in education and its impact on students' academic achievement, along with the challenges educators encounter when integrating Information Communication Technology into their teaching strategies.

In the study, Kyakulumbye and Isaac (2019) provided several suggestions to address challenges or obstacles associated with the use of ICT, which include: "... (a) the government should create, share, and implement policies for schools to integrate ICT within the curriculum; (b) tackle strategies to change teachers' negative attitudes towards ICT incorporation and provide assistance to school management to improve their practices in overseeing the ICT integration process into the curriculum; and (c) additional e-learning software and hardware should be made accessible to different schools. Moreover, the government should seek to attract more investors in

ICT software and hardware to promote further ICT implementation in schools to enhance e-learning.” Additionally, Sharaideh and Salem (2019) highlighted the significance of computers in education as “... (1) enriching the learning environment, (2) improving the learning process, (3) making education more accessible, and (4) providing cost-effective solutions for spreading knowledge.” In the Philippines, Potes (2019) developed a Division Memorandum outlining guidelines regarding the use and upkeep of computers, internet access, and other ICT issues to assist both teachers and students in Quezon in properly utilizing technology. The guidelines include: “...computers should be located in computer labs, the principal’s office, or the library, ICT integration should be applied across all subjects to enhance teaching and learning, computer labs should not be exclusively for Edukasyong Pangkalusugan at Pantahanan (EPP) or Technology Livelihood Education (TLE), elementary schools need to have an ICT literacy class or program, the use of computers should be limited to official business only, and a nominal fee may be collected for the maintenance of the computer laboratory.”

In the research carried out by Nalugon (2018), various notable obstacles to the integration of ICT in basic education were highlighted: many teachers expressed concerns regarding the technology, there were constraints within the yearly education budget, there was insufficient upkeep of ICT resources and technical personnel, and there was a limited supply of educational software and course materials.

According to the research conducted by Ghwanmeh and Sameh (2022), there has been a growing interest in ICT-based blended-learning approaches due to recent advancements in information and communication technology, aiming to enhance access to education and support lifelong learning among individuals through ICT. Their goal was to create an electronic environment that integrates ICT within the educational framework.

Bhaumik (2022) conducted a study that investigated the utilization of ICT on the management education. He stated that “technology acts as an enabler rather than the main force behind the teaching/learning process.” He noted that 'ICT promotes the creation and enhancement of innovative teaching tools within the classroom. Additionally, management education necessitates the cultivation of a broad range of technical, interpersonal, and conceptual skills, leading to a substantial integration of ICT in its teaching methods.

Additionally, Snoeyink and Ertmer (2022) discovered in their research that “educators did not recognize the significance and applications of integrating technology until they acquired fundamental skills and knowledge such as accessing the network and performing basic word processing.” It is essential for educators to have the necessary knowledge and skills in technology-enhanced teaching techniques to effectively weave technology into their educational practices.

Abcede (2019) and DepEd (2019) articulated the educational goals and vision for Information Communication Technology. In the same vein, the researcher acknowledged the authors' contributions by integrating the DepEd ICT vision into the research.

The ongoing study is unique because it is the initial attempt to evaluate how well Information Communication Technology is integrated into TLE-Food Processing in relation to students' digital skills and academic success at a public high school in Maria 2, Siquijor. Moreover, a school-focused ICT initiative is suggested to assist schools in successfully integrating it into their educational methods.

II. Methodology

Research Design

The research design adopted in this dissertation was descriptive-correlational, which was used to assess the current state of Information and Communication Technology (ICT) integration in Technology and Livelihood Education (TLE)–Food Processing, and to investigate its connection with students' digital skills and academic performance in a public secondary school located in Siquijor. The descriptive aspect aimed at depicting the demographic characteristics of both teachers and students, as well as their views on ICT infrastructure, literacy, and assessment methods. On the other hand, the correlational aspect evaluated the degree to which ICT integration is related to students' performance, especially concerning their digital skills and proficiency.

According to the data provided by the Department of Education in Division of Siquijor, there were six hundred (600) Junior High School students and forty (40) Junior High School teachers in the District of Maria 2. In this study, a target sample of one hundred fourteen (114) students and thirty-six (36) teachers will be selected using a sampling technique, and they will complete the structured questionnaire to collect data effectively.

As a result, the statistical methods used in data analysis include the Chi-square test to evaluate whether there is a significant relationship between the status of ICT integration and students' digital skills and their academic performance in TLE. Additionally, we will examine the reliability and consistency of the developed instrument through a normality test to determine if the samples are drawn from a normally distributed population, enabling the selection of suitable statistical methods for inferential and descriptive statistics that will be used for sampling frequency distribution.

Sample of the Study

The researcher employed Slovin's formula to ascertain the suitable sample size. In the field of statistics, Slovin's formula serves as a technique for calculating the minimum sample size necessary to estimate a statistic while factoring in an acceptable margin of error. This formula serves as a technique for determining the minimum sample size required for a study focused on a specific population during a survey or research. It is especially beneficial for researchers who aim to ensure that their sample accurately reflects the larger population while keeping the number of participants manageable.

Respondents	F	%
Teachers	36	24.00
Students	114	76.00
Total	150	100.00
StdDev	0.43	

Table 1. Table presented the Distribution of the Respondent Groups at Candaping National High School

After determining the simple random sample for each group, the respondents will be selected using a research randomizer. In this research, the sample size for student participants is 150, indicating that the random selection range will be from 1 to 150. Using a research randomizer, a set of unique numbers will be generated to identify the selected respondents (e.g., 4, 8, 12, 15, 18, 22, 26, 30, 34, 38, 42, and so on) until the required sample size is reached. The same method will be applied to teacher respondent.

Measures

The research gathered data using a modified structured questionnaire designed to meet the specific research goals. The researcher applied a simple random sampling method and conducted the survey through direct face-to-face interactions.

The questionnaire consisted of five (5) parts. Part I requested information about the demographic profile of the respondents, including teachers' age, gender, marital status, highest level of education attained, years of teaching experience, and the number of relevant training sessions or seminars attended, as well as students' age, gender, and family size.

Procedures

The research assessed the level of integration of Information Communication Technology and its effect on students' academic performance in TLE-Food Processing. Information will be gathered using a structured questionnaire based on a similar study. The tool will be meticulously designed to guarantee the relevance and precision of the data collected, enabling the researcher to gain valuable insights and formulate well-supported conclusions from the research.

The research was carried out at a public secondary school located in the District of Maria 2, Siquijor, during the academic year of 2024–2025, with the aim of assessing the integration of Information and Communication Technology (ICT) within the context of Technology and Livelihood Education (TLE) – Food Processing. A total of 150 participants, consisting of 114 students and 36 teachers, were chosen through simple random sampling as per Slovin's formula. After collecting data, the researcher examined the information to uncover trends, correlations, and possible impacts of integrating ICT on student learning outcomes. The findings were organized and presented in tables and other visual formats to improve clarity and aid in interpretation.

In addition, the results will be discussed alongside existing literature, making comparisons and contrasts with prior studies on ICT integration in education. This examination offered deeper insights into how digital tools contribute to enhancing teaching effectiveness and student involvement.

As key outcome in the study, a school-based Information Communication Technology program will be designed to address challenges in ICT integration and maximize its benefits for both educators and students. This program will be tailored to support effective teaching strategies, improve student digital competencies, and foster a more interactive learning environment. Additionally, future research directions will be suggested to further explore ICT's role in education, particularly in addressing learning gaps and supporting diverse student needs.

Data Processing

The information gathered through the survey questionnaire follows the sampling procedure outlined earlier. This information was obtained from various respondents, including Junior High School students and teachers in a public secondary school located in District of Maria 2, Maria, Siquijor. A comprehensive analysis was conducted to draw conclusions regarding the status of Information Communication Technology integration, its connection to the academic performance of students in TLE-Food Processing, and the obstacles faced in incorporating ICT in teaching and learning delivery.

The respondents were provided with a set of questionnaires, which will be administered through face-to-face interactions. Before distribution, the research instrument will undergo content validation by a panel of examiners during the proposal defense to ensure its relevance and accuracy.

The questionnaires were given to 150 participants in total to assess the questions' reliability and internal consistency. The results from this evaluation were crucial in determining if a notable connection exists between the study variables, thus confirming the validity and precision of the research findings. The study utilized a combination of descriptive and inferential statistical techniques to examine the data collected from teachers and students.

The study also utilized mean scores to interpret the perceived status of ICT integration in terms of infrastructure, ICT literacy of learners, and assessment and evaluation. Average scores were calculated from Likert-scale responses to assess the extent of agreement or perception among the respondents. In a similar way, aggregate means were utilized to assess the overall state of ICT integration along with the students' digital skills proficiency and academic performance. These scores were interpreted using descriptive categories, such as "Strongly Agree," "Agree," "Disagree," and "Strongly Disagree" for ICT status, and "Highly Proficient," "Proficient," "Less Proficient," and "Least Proficient" for digital skills. This helped the researcher draw general conclusions about the existing practices and perceived effectiveness of ICT use in TLE instruction.

For inferential analysis, the study utilized Pearson's Chi-Square Test of Independence and Fisher's Exact Test to evaluate the null hypotheses and identify the connections between key variables. The Chi-Square Test was employed to investigate if there were statistically significant relationships between the level of ICT integration and students' digital skills, as well as between ICT integration and students' academic performance.

III. Results and Discussion

The results highlight the extent to which technology is incorporated into the curriculum and how it influences students' ability to develop essential digital competencies. Additionally, the study examines the relationship between Information Communication Technology integration and students' academic performance, revealing notable trends in how the use of digital tools enhances learning outcomes.

- 1. Demographic Profile Analysis.** The findings revealed a dynamic profile of both teachers and students within the educational setting. The teacher respondents are relatively young, with a mean age of 36 years old, predominantly falling within the 20–30 age bracket 44.44 percent. Females made up the majority of the 36 teacher respondents, with 21 representing 58.33 percent of the total population. Out of 36 teacher respondents, 18 are single, comprising 50 percent, and 14 teachers or 38.89 percent are college graduate. Teachers had between one (1) to ten (10) years of teaching experience, with in-service training webinars being the most attended, cited by 10 teacher respondents. Meanwhile, the age distribution of the 114 student respondents with the majority falling within 13-14 years old range or 28.07 percent with the mean age of 14 years old. Out of 114 students, 68 are females comprising 59.65 percent of the total population. A substantial majority, 62 families or 54.39 percent, are categorized as large families, consisting of parents and more than four children. The demographic profile of teachers in this study aligns with global patterns in the teaching profession. This emphasizes the need for policies that address gender equity in the workforce and encourage diversity in leadership positions. This highlights the importance of community-based support systems that can help mitigate these challenges and create a fairer educational experience for every student.
- 2. The status of ICT integration in TLE-Food Processing.** The results showed that teachers and students largely concur on the existing level of integration of Information Communication Technology in the TLE-Food Processing curriculum, as indicated by the overall grand mean of 2.84 for teachers and 2.66 for students. Among the three key areas assessed Infrastructure, ICT Literacy of the Learners, and Assessment and Evaluation teachers consistently gave slightly higher ratings than students. Infrastructure received the highest rating from both groups, suggesting the presence of adequate digital tools and facilities, although students rated it lower, possibly reflecting limited access or awareness. This is supported by the study of Tinio (2019), which emphasized that successful Information Communication Technology

integration requires not only infrastructure and teacher readiness but also learner engagement and access.

3. **Student's level of digital skills.** The findings revealed that students demonstrated a proficient level of digital skills, with digital recipe research and food costing both averaging a weighted mean of 3.16, social media for food promotion at 3.18, and digital creativity in food presentation at 3.09. The overall Grand Mean of 3.14 confirms their proficiency across all digital skill areas assessed. The result highlighted that while students are proficient in essential digital skills related to food technology, there is still room for enhancement to reach the Highly Proficient level. These findings underscored the need for continuous ICT integration and capacity-building programs in technical-vocational education to develop globally competitive and digitally fluent learners, in line with national educational goals. The research conducted by Reyes and Santos (2022) emphasizes that digital platforms boost creative expression and digital skills, especially in the context of food presentation.
4. **Level of academic achievement of students in Technology Livelihood Education-Food Processing.** The findings revealed that students demonstrated a Near Mastery level of academic achievement in TLE-Food Processing across three key competencies. Specifically, students showed moderate proficiency in discussing the proper use, maintenance, and storage of food processing tools ($M = 3.15$), explaining the principles and procedures of salting, curing, and fermentation ($M = 3.03$), and developing simple marketing strategies for processed food products ($M = 3.14$), with a grand mean of 3.11. These results suggested that while students are performing relatively well, there is still a need to enhance instruction to move toward full mastery. This reinforces the findings of Domingo and Delos Reyes (2019), who emphasized the importance of hands-on learning in developing technical skills within TLE. In a similar vein, Kolb's Experiential Learning Theory (1984) supports the concept that students retain information more effectively when they participate in real-world tasks and reflective activities. The moderate achievement in food preservation methods further validates Dewey's (1938) principles of experiential learning, as highlighted by Morales and Dela Peña (2021), which underscores the importance of contextual and laboratory-oriented instruction. Meanwhile, the nearly complete mastery of entrepreneurship corresponds with Vygotsky's (1978) Social Development Theory, which highlights the importance of social interaction and practical application in education, as reiterated by Lopez and Rivera (2021). The implications suggest a need for the continued execution of practical, project-based, and performance-oriented activities to fully achieve the aspirations of the DepEd's K to 12 TLE Curriculum, which seeks to cultivate technically proficient, entrepreneurial, and job-ready Filipino learners.
5. **Test of Significant Relationship between the status of ICT integration and the level of student's digital skills.** The results of the Chi-Square Test ($\chi^2 = 7.59, p = 0.0415$) and Fisher's Exact Test ($p = 0.048$) both indicated that there is a statistically significant relationship between the status of ICT integration and the level of students' digital skills in TLE-Food Processing,

leading to the rejection of the null hypothesis. This implies that the extent to which ICT is integrated into teaching practices directly influences students' proficiency in digital tasks. These findings are consistent with Ally (2018), who emphasized the transformative role of Information Communication Technology in fostering interactive, student-centered learning. The digital literacy is a core 21st-century skill, critical for competitiveness in the global workforce. In the same way, DepEd Order No. 42, s. The year 2017, acknowledged as the year for the National Adoption and Implementation of the Philippine Professional Standards for Teachers (PPST), highlights the importance of leveraging ICT to improve teaching and foster higher order thinking skills.

6. **Test of Significant Relationship between the status of ICT integration and the level of academic achievement in TLE.** The findings from both the Pearson's Chi-Square Test ($p = 0.0223$) and Fisher's Exact Test ($p = 0.030$) revealed a statistically significant relationship between the status of ICT integration and the academic achievement of students in the TLE-Food Processing leading to the rejection of the null hypothesis. The implication is that ICT use through tools such as multimedia presentations, digital simulations, and interactive online content enhances student engagement, comprehension, and mastery of subject matter. This is consistent with Olaniran (2020), who claimed that ICT enhances student engagement and understanding in technical subjects. Similarly, Lim (2019) and Tadesse (2021) found that lessons supported by ICT not only improve academic performance but also enhance critical thinking and problem-solving skills. These findings highlight the necessity of investing in ICT infrastructure and training for teachers, as advocated by DepEd's frameworks such as the DepEd ICT Strategic Plan and the K to 12 Curriculum Guide for TLE, which promote technology-enhanced education to cultivate 21st-century skills. Therefore, the study confirms that intentional integration of ICT is a crucial approach for enhancing student outcomes in TLE, particularly in food processing.
7. **Challenges encountered in the integration of Information Communication Technology.** The findings revealed that the top challenges in integrating Information and Communication Technology (ICT) in education are largely infrastructure-related, with the most pressing issues being the inadequate quantity of internet-enabled computers and outdated or malfunctioning devices. These are closely followed by teachers' lack of sufficient ICT skills, limited access to devices for both students and teachers, and a lack of instructional support. These barriers significantly impede the efficient application of digital tools in classroom teaching. The implications point to the urgent need for a multifaceted strategy that includes improving infrastructure, providing ongoing teacher training, and developing relevant digital teaching resources. Research by Yilmaz (2019) and Alharbi (2019) indicates that the integration of ICT is frequently hindered by outdated equipment and inadequate internet access, which restricts student engagement and the availability of quality learning experiences. Further research commissioned by DepEd corroborates that schools with enhanced ICT access and better teacher training demonstrate improved student outcomes and heightened learner motivation

(DepEd, 2020). Thus, addressing these challenges in a comprehensive manner—through hardware improvements and by empowering educators with necessary skills and support—will be crucial for advancing ICT integration and achieving improved academic performance, especially in vocational subjects such as TLE.

IV. Conclusion

This study provided valuable insights into the status of Information and Communication Technology (ICT) integration in the TLE-Food Processing strand, specifically examining its impact on students' digital skills and academic achievement. Through rigorous analysis, the study highlights the relationship between effective ICT utilization and the development of essential digital competencies among students, while also identifying key factors that influence their academic performance in food processing.

In conclusion, based on the findings of the study:

1. **ICT Integration and Digital Skills.** The study confirmed a significant relationship between ICT integration and students' digital skills in TLE-Food Processing. This indicates that when ICT is seamlessly incorporated into the curriculum, students' digital proficiency improves, equipping them with essential skills for future career opportunities. The integration of digital tools in lessons fosters a more dynamic and captivating educational setting that improves students' tech skills.
2. **ICT Integration and Academic Achievement.** A statistically meaningful connection was also identified between the integration of ICT and students' academic performance in TLE-Food Processing. The results indicate that students with access to ICT-integrated lessons achieve superior academic performance, showing greater engagement, understanding, and mastery of the material. ICT tools such as multimedia, simulations, and digital assessments play a key role in helping students understand complex concepts and retain knowledge more effectively.
3. **Challenges in ICT Integration.** The study identified several challenges that hinder the full implementation of ICT in TLE-Food Processing. These include infrastructure limitations, such as the insufficient number of internet-connected computers and outdated devices, which significantly impact the accessibility of digital learning tools. Additionally, a lack of Information Communication Technology skills among teachers and limited instructional support exacerbate these challenges, preventing effective ICT integration and reducing its potential benefits for students.

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