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Learners' Readiness in Technical Vocational Education As Influenced by Teachers' Training in Agriculture

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Abstract. This study investigates the impact of teacher training in Agriculture on the readiness of learners in Technical Vocational Education and Technology Livelihood Education (TVE-TLE) within the Senior High School Track in the Dujali District, Davao del Norte Schools Division. Employing a non-experimental descriptive-correlational research design, data was collected from a randomly selected sample of TVE-TLE teachers using an adapted survey instrument. The analysis included Mean scores, Pearson r, and Simple Linear Regression Analysis to determine correlations between teacher training domains and student readiness. Results revealed that teacher training in Agriculture is moderately extensive, while learners exhibit extensive readiness for TVE-TLE. Significant positive correlations were found between various domains of teacher training—such as knowledge and content mastery, pedagogical skills, hands-on experience, technology integration, and assessment and evaluation—and learners' readiness. This underscores the importance of comprehensive teacher training programs in Agriculture to enhance student preparedness in vocational education. The study suggests further exploration of the long-term impacts of integrating agricultural and technological education in the senior high school curriculum.

KEY WORDS

1. Teacher Training in Agriculture 2. Learners' Readiness 3. Technology Vocational Education

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1. Introduction

Teacher training programs in agricultural education are evolving in response to prominent trends. One notable trend is the growing emphasis on sustainability and environmental stewardship of farming practices. Teachers are increasingly equipped with the knowledge and skills to educate students on sustainable farming methods, climate-smart agriculture, and conserving biodiversity. Moreover, there is a noticeable shift towards integrating technology into agricultural education. Teachers are being trained to incorporate digital resources, precision farming technologies, and data analytics tools into their curricula, preparing students for the digital transformation in agriculture. Teacher training programs promote a holistic approach to agriculture education, encompassing traditional farming, agribusiness, entrepreneurship, and soft skills like critical thinking and problem-solving. These trends reflect a global recognition of the importance of agriculture education in addressing food security, environmental chal-

lenges, and the changing landscape of the agricultural industry. International teacher training programs are thus adapting to ensure that educators are well-prepared to inspire and equip the next generation of agriculturists with the knowledge and skills to navigate these complex and evolving challenges (Caner Aydin, 2021). This aligns with the Philippines' commitment through the MATATAG Agenda to address environmental challenges and promote sustainable agriculture in a changing climate. Another noteworthy trend is the integration of technology into agriculture education. Teachers are being trained to incorporate digital tools, precision farming technologies, and data analytics into their curricula, ensuring that students are prepared for modern agriculture's technological advancements (Kim Ko, 2020). Furthermore, teacher-training programs are placing a stronger emphasis on experiential and hands-on learning, encouraging educators to take students beyond the classroom and into real-world agricultural settings. This trend is aimed at providing students with practical skills and knowledge that are directly applicable to the field (Wang et al., 2020). Teachers in Davao del Norte schools face several challenges regarding teacher training in the context of Technology and Livelihood Education (TLE) and Technical-Vocational Education (TVE) programs, significantly influencing students' preparedness for the Senior High School track. One primary challenge is the need for specialized training and resources to keep up with the ever-evolving landscape of vocational skills and industry demands. Like many regions in the Philippines, Davao del Norte has diverse industries, including agriculture, tourism, and technology, each requiring tailored vocational education. Teachers often need help accessing up-to-date training materials and resources to address these industry-specific needs effectively (Williams, 2022). Additionally, Davao del Norte's geographical layout poses logistical challenges. The province encompasses urban and rural areas, and some schools may be located in remote or less accessible locations. This can hinder teachers' access to centralized training centers and workshops, making receiving comprehensive and timely professional development in TLE-TVE challenging. Constraints may exist regarding the availability of qualified trainers and mentors who specialize in TLE-TVE areas. As a result, teachers might have limited opportunities for mentorship and peer collaboration, which are essential for skill enhancement and effective teaching practices. Financial limitations and budget constraints can also affect the quality and quantity of teacher training programs. Adequate resources are needed to conduct hands-on training, acquire modern equipment, and facilitate experiential learning opportunities for teachers and students. Addressing these challenges in teacher training is crucial to ensure educators in Davao del Norte can effectively prepare students for the Senior High School track in TLE-TVE. Tailored training programs, improved access to resources, and strategic collaborations with industry partners can contribute to overcoming these challenges and enhancing the quality of vocational education in the province.

1.1. Review of Significant Literature—

1.1.1. Teacher-Training Skills—Globally, teacher training in agriculture emphasizes experiential learning, technology integration, and interdisciplinary perspectives. Effective programs prepare educators to bridge theory and practice and navigate international agriculture (Jukes et al., 2023; Hartman Martin, 2021). Teachers need a solid foundation in agricultural sciences and the ability to use digital tools in modern farming practices. Programs also integrate cross-cultural perspectives to address global agricultural challenges.

1.1.2. Knowledge and Content Mastery—Effective teacher training in agriculture requires deep knowledge of crop science, animal husbandry, sustainable farming, agribusiness, and

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new technologies (Tugelbayeva et al., 2020; Ha et al., 2021). Educators with this mastery can convey complex concepts, stay current with advancements, and prepare students for industry changes. They can address students' inquiries, provide real-world examples, and guide hands-on experiences (Wang et al., 2020).

1.1.3. Pedagogical Skills—In agriculture education, pedagogical skills are essential. Effective teachers employ diverse teaching methodologies, adapt to students' needs, and foster a motivating learning environment (Ada Altay, 2022). This includes integrating critical pedagogy to address social justice issues within agricultural education (Hartman Martin, 2021).

1.1.4. Hands-on Experience—Hands-on experience in real-world agricultural settings is crucial. Teachers who have worked on farms or in agribusiness can provide practical guidance and inspire students to pursue agricultural careers (Bird Rice, 2021; Njura et al., 2020). This experience enhances their ability to lead agricultural projects, internships, and competitions (Teece et al., 2021).

1.1.5. Technology Integration—Modern agriculture relies heavily on technology for precision farming and sustainability. Teachers need to proficiently use digital tools and integrate technology into their teaching to prepare students for the evolving agricultural landscape (Ada Altay, 2023).

1.1.6. Assessment and Evaluation—Effective assessment practices are vital for identifying student strengths and areas for improvement. Teachers skilled in this area can tailor their instruction, provide constructive feedback, and ensure students are prepared for certification exams and industry standards (Bird Rice, 2021).

1.1.7. Interest and Motivation—Interest and motivation are key to students' readiness for the TVE-TLE track. Students passionate about agriculture are more likely to engage deeply with the material, persist through challenges, and maintain a positive attitude toward learning (Joshi et al., 2022; Herpratiwi, 2022). This intrinsic motivation enhances their preparedness for the specialized curriculum.

1.1.8. Technical Skills and Adaptability—Students need a solid foundation in relevant subjects and technical competence. The TVE-TLE programs emphasize hands-on training and real-world experiences, requiring students to be adaptable and technically skilled (Johnson et al., 2022).

1.1.9. Career Clarity—Understanding potential career pathways within the TVE-TLE track helps students set goals, make informed decisions, and navigate their educational and career trajectories effectively. This clarity is crucial for long-term success in technical and vocational fields (Maaz et al., 2022).

1.1.10. Soft Skills—Effective communication, teamwork, and problem-solving skills are essential for success in TVE-TLE occupations. Students with these skills are better prepared for collaborative and dynamic work environments (Joshi et al., 2022).

Teacher training in agriculture that emphasizes experiential learning, technology integration, and pedagogical skills is crucial for preparing educators. These educators, in turn, play a vital role in equipping students with the knowledge, skills, and motivation needed for success in the TVE-TLE track. Ensuring students' readiness involves fostering their interest, technical skills, adaptability, career clarity, and soft skills. This comprehensive approach enhances the effectiveness of agricultural education and prepares students for their future careers.

1.2. Synthesis—In technical vocational education, learners' readiness is pivotal in shaping their success and engagement with the curriculum, particularly in specialized fields such as agriculture. Teachers' training in agriculture significantly influences learners' readiness by equipping educators with the necessary skills, knowledge, and pedagogical strategies to engage students in agricultural concepts and prac-

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tices effectively. Through specialized training programs, teachers can cultivate a deep understanding of agricultural principles, modern farming techniques, and industry trends, enabling them to deliver engaging and relevant instruction tailored to the needs and interests of their students. Furthermore, teachers trained in agriculture can effectively integrate hands-on learning experiences, real-world applications, and industry partnerships into the curriculum, fostering experiential learning opportunities that enhance students' readiness for future careers in the agricultural sector. By empowering teachers with the expertise and resources needed to facilitate meaningful learning experiences, training programs in agriculture contribute to the cultivation of a skilled and prepared workforce capable of meeting the demands of the ever-evolving agricultural industry.

1.3. Theoretical Framework—The theory of skills development, as espoused by Ozdimer (2019), training for teachers is grounded in the belief that educators play a pivotal role in shaping the future of students and society. This theory posits that teachers must continually acquire and enhance their skills, knowledge, and competencies to provide high-quality education that meets the evolving needs of learners. Skills development training encompasses various aspects, including subject matter expertise, pedagogical skills, classroom management, and integrating modern technology and teaching methodologies. Moreover, it recognizes that effective teaching goes beyond traditional knowledge dissemination; it encompasses cultivating students' critical thinking, problem-solving abilities, and social-emotional skills (McBride Talbert, 2022). The theory underscores the importance of ongoing professional development, collaboration, and reflective practice for teachers' growth and effectiveness. Ultimately, the theory of skills development training for teachers aims to empower educators to inspire and equip the next generation with the skills and knowledge needed to thrive in an ever-changing world (Edgerton, 2023). The theory of skills development training for teachers significantly influences students' readiness for Senior High School (SHS) in the Philippine setting. As the country continues to implement the K-12 education reform, which includes the SHS program, the quality of teaching becomes paramount. Skills development training ensures that educators are adequately prepared to meet the evolving educational needs of students. Teachers who undergo this training have enhanced pedagogical skills, enabling them to employ modern and student-centric teaching methodologies. This, in turn, fosters a more engaging and effective learning environment for students, making them better prepared for the challenges of SHS. Moreover, skills development training strongly emphasizes subject matter mastery. In SHS, where students delve deeper into specific disciplines, teachers' expertise becomes critical to students' academic growth. By enhancing their subject knowledge and staying up-to-date with the latest developments in their respective fields, teachers can provide students with a solid foundation of information and insights, instilling confidence and readiness to tackle advanced coursework. Furthermore, integrating technology and innovative teaching approaches promoted through skills development training aligns with the digital transformation in education. This equips students with valuable digital literacy and problem-solving skills, essential for their success in SHS, higher education, and the workforce. Figure 1 shows the conceptual framework of the study. The association between teacher training in agriculture and its impact on students' readiness for the Technology and Vocational Education - Technical Livelihood Education (TVE-TLE) track in the Senior High School (SHS) setting is paramount in education in the Philippines. The quality of teacher training directly influences students' preparedness as they embark on the TVE-TLE track, which plays a critical role in

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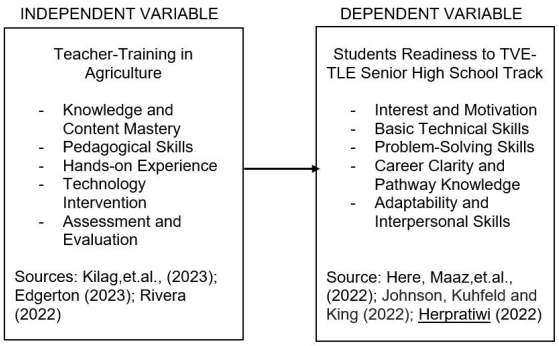

Fig. 1. Conceptual Framework of the Study

equipping them with practical skills and knowledge relevant to their future careers.

When teacher-training programs focus on enhancing pedagogical skills, subject matter expertise, and integrating modern technology in agriculture education, students benefit from more effective and engaging instruction. This, in turn, leads to better knowledge retention, improved problem-solving abilities, and a higher level of readiness for the specialized coursework and hands-on experiences offered in the TVE-TLE track. The association between practical teacher training in agriculture and students' readiness underscores the need for continuous professional development for educators, ensuring they are well equipped to guide and inspire the next generation of agriculturists and technologists in the SHS setting. In summary, the theory of skills development training for teachers is highly relevant in the Philippine setting as it ensures that educators are well-prepared to provide high-quality education in SHS. This, in turn, enhances students' readiness for the challenges and opportunities that await them in their Senior High School journey and beyond.

1.4. Statement of the Problem—The study was purposely conducted to determine the extent of teacher training in Agriculture and its impact on learners' readiness for Technology Vocational Education – Technology Livelihood Education in Senior High School Track in Dujali District, Davao del Norte Schools Division. This specifically sought to answer the following statement of the problem:

(1) What is the extent of teacher training in Agriculture in terms of;
    (1) knowledge and content mastery;
    (2) pedagogical skills;
    (3) hands-on experience;
    (4) technology intervention, and
    (5) assessment and evaluation?
(2) What is the extent of learners' readiness for Technology Vocational Education – Technology Livelihood Education in Senior High School Track in terms of;
    (1) interest and motivation;
    (2) basic technical skills;
    (3) problem-solving and critical thinking;
    (4) career clarity and pathway knowledge, and
    (5) adaptability and interpersonal skills?

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(3) Is there a significant relationship between teacher training in agriculture and learners' readiness for technology vocational education and technology livelihood education in the senior high school track?
(4) Which domain of teacher training in Agriculture significantly influences learners' readiness for Technology Vocational Education—Technology Livelihood Education in Senior High School Track?

1.5. Hypothesis—To provide empirical evidence given the posed theoretical and conceptual frameworks as claimed by the study, null hypotheses were tested at 0.05 alpha level of significance, stating: ' Ho 1: There is no significant relationship between teacher training in Agriculture and learners' readiness for Technology Vocational Education – Technology Livelihood Education in Senior High School Track; and, Ho 2: None of the domains of teacher training in Agriculture significantly influences learners' readiness for Technology Vocational Education—technology Livelihood Education in Senior High School Track. This proposed study entitled Evaluating the teacher-training in Agriculture and its Impact on Learners' Readiness for Technology Vocational Education – Technology Livelihood Education in Senior High School Track is defined. Results will be of significance to the following: School Principals and Administrators. School administrators can use the findings to enhance the curriculum and allocate resources effectively. They can identify areas where additional training or support for teachers may be required. The study can inform the development of policies related to teacher professional development, ensuring that teachers receive training that aligns with student's needs and the school's objectives. Teachers. Teachers can benefit from insights into the effectiveness of teacher training programs. They could use this information to seek targeted professional development opportunities and improve their teaching methods. Teachers can adjust their teaching strategies to meet student's needs better, enhancing the quality of education in the TVE-TLE track. Parents and Stakeholders. Parents can make more informed decisions regarding their children's educational pathways. They can understand the role of teacher training in students' preparedness for the TVE-TLE track and help guide their children accordingly. Armed with knowledge about the significance of teacher training, parents can actively support their children's education, advocate for quality training, and engage with educators. Future Researchers. Future researchers could build upon this study to further explore the impact of teacher training on various aspects of education. They can explore specific teacher training models and strategies and their effects on learners' readiness in different contexts. Research findings can inform policy recommendations at the national and regional levels, contributing to improvements in the education system. In summary, this study's significance extends to school administrators, teachers, parents, and future researchers by providing valuable insights into the relationship between teacher training and students' readiness for the TVE-TLE track. It empowers stakeholders to make informed decisions, improve educational practices, and contribute to the overall advancement of education in the Philippines. Teacher training in agriculture was a specialized professional development process designed to prepare educators to teach agricultural subjects and concepts effectively. It encompasses a comprehensive set of skills and knowledge areas, including subject matter expertise, pedagogical techniques tailored to agriculture education, practical hands-on experience, the integration of modern technology into teaching, and effective assessment strategies. This training equips

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teachers with the competencies necessary to provide high-quality agricultural education, instill a passion for the subject in students, and prepare them for future careers or further studies in agriculture-related fields. In this study, indicators of practical teacher training in agriculture include educators who demonstrate a deep understanding of agricultural principles and practices, possess the ability to employ engaging and student-centered teaching methods, have practical experience in real-world farm settings, effectively utilize technology as a teaching tool, and can assess student performance and provide constructive feedback in an agriculture-specific context. These indicators collectively ensure that teachers are well-prepared to inspire and equip the next generation with the knowledge and skills required to excel in the dynamic field of agriculture in terms of knowledge and content mastery, pedagogical skills, hands-on experience, technology intervention, and assessment and evaluation. Learners' readiness for the Technology and Vocational Education - Technical Livelihood Education (TVE-TLE) track in Senior High School (SHS) signifies their preparedness to engage effectively in a specialized and practical educational pathway focusing on technical and vocational skills development. It combines the knowledge, skills, and attitudes necessary to thrive in TVE-TLE courses, often including hands-on training and industry-specific content. Indicators of learners' readiness for the TVE-TLE track encompass a strong foundation in foundational subjects relevant to the chosen specialization, technical competence and adaptability, effective communication and teamwork skills, a clear understanding of potential career pathways, and a proactive interest and motivation to excel in the TVE-TLE field. These indicators collectively ensure that students are well-equipped to make the most of their SHS education, ultimately leading to successful transitions to higher education or the workforce within their chosen vocational or technical field. This study's indicators include interest and motivation, basic technical skills, problem-solving and critical thinking, career clarity and pathway knowledge, adaptability, and interpersonal skills.

2. Methodology

This chapter will outline the processes and steps involved in conducting the study. This will encompass selecting the study's design, identifying the respondents and the sampling method, choosing the research instruments for data collection, and delineating the data analysis process. The researcher employed artificial intelligence methods to proofread this work during its preparation meticulously. Artificial Intelligence (AI) enhanced the manuscript's quality, coherence, and precision. This methodology is being openly communicated to adhere to ethical norms in research. Leveraging AI for proofreading underscores a commitment to the responsible use of cutting-edge technologies and acknowledges AI's growing role and potential in professional and academic writing.

2.1. Research Design—This study used a non-experimental descriptive-correlational and predictive research design. This design is a comprehensive approach to research methodology that combines several key elements to explore relationships and systematically predict outcomes. It typically involves observing and analyzing existing data or naturally occurring phenomena without intervening, manipulating, or controlling variables (Creswell, 2014). The use of a non-experimental descriptive-correlational and predictive research design in a study holds

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several advantages, especially when evaluating complex educational phenomena such as the impact of teacher training in agriculture on students' readiness for the Technology and Vocational Education - Technical Livelihood Education (TVE-TLE) track in Senior High School (SHS). This research design offers a valuable framework for understanding the relationships and patterns among variables without manipulating them, making it particularly suitable for observing naturally occurring educational scenarios. This study's non-experimental descriptive component can provide a comprehensive snapshot of teacher training in agriculture and students' readiness in the Philippine setting. It allows researchers to collect rich qualitative and quantitative data, such as survey responses, interviews, and academic records, to describe the characteristics of teacher training programs, the qualifications of educators, and the level of preparedness among SHS students. The correlational aspect of this design enables researchers to examine potential associations or relationships between variables, such as the quality of teacher training and students' preparedness. By employing statistical analyses, researchers can identify whether a relationship exists and the strength and direction of that relationship. For example, it could reveal if there was a positive correlation between teachers' pedagogical skills acquired through training and students' readiness in the TVE-TLE track. Additionally, the predictive component allows for developing models or equations that estimate students' preparedness based on certain teacher training variables. This could be instrumental in forecasting the impact of specific teacher training improvements on students' readiness, helping education policymakers and institutions make informed decisions to enhance educational outcomes. In conclusion, a non-experimental descriptive-correlational and predictive research design is a robust approach for investigating the intricate connections between teacher training in agriculture and students' readiness for the TVE-TLE track in SHS. It provides valuable insights, highlights potential areas for improvement, and contributes to evidence-based decision-making in education.

2.2. Research Respondents—Respondents of the study were the Secondary School TVE-TLE Teachers among five national high schools in Dujali District, Davao del Norte Schools Division. He used the Raosoft sample size calculator, where 120 respondents were taken randomly from each National High School within Dujali District. One randomly determined, the respondents were informed through online platforms and face-to-face considering the availability of the Wifi connections, and they were likewise oriented about the purpose and importance of the study and its contribution to their professional development status. These TVE-TLE teacher-respondents were selected because they were assumed to have been engaged in the Junior High School teaching TVE-TLE to learners from Grade 7 to 10 levels. They are qualified for the position and expected to have performed and contributed, given that they have attended seminars and training related to their field of specialization- components of TLE-TVE. This is done through School Learning Action Cells to improve the school and the learners' awareness and educational stages given the new regular learning system during SY 2023-2024. Further, they have frequently engaged in various activities and advocacy-policy through school-based initiatives and in support of the school management and curriculum development delivery system. Moreover, assumptions in the respective schedule of classes during data collection were explicitly discussed with the respondents, and even observance of health protocol was strictly implemented based on Executive Order 31 S 2020 to avoid possible and lower the risk of contamination.

2.3. Research Instrument—This research study used the adapted instrument from re-

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viewed literature and related studies. The researcher took time gathering and reading reviews of related literature to develop concepts for the content that support the instrument and its corresponding strands in articulating the set of question items, reducing threats to validity. As the authors argued, items were adapted from the reviewed literature. The survey questionnaire had two parts, each containing indicators of teacher training in agriculture regarding knowledge and content mastery, pedagogical skills, hands-on experience, technology integration, and assessment and evaluation. Likewise, the second part of the survey measured the students' readiness for the TVE-TLE Senior High School Track regarding interest and motivation, basic technical skills, problem-solving and critical thinking, career clarity and pathway knowledge, adaptability, and interpersonal skills. Further, the survey statements were subjected to a test-retest or validity and reliability testing using Cronbach Alpha at a .05 confidence level. They generated an alpha Cronbach of 0.874, meaning there is an 87.4 percent confidence level in the validity and reliability of the survey statement's constructs (Pallant, 2010). The questionnaire used a 5-point Likert scale to determine the extent of teacher-training skills in agriculture. Scale, descriptive rating, and interpretation are provided below:

Scale	**Descriptive Rating**	**Interpretation**
4.20 – 5.00	Very Extensive	The teacher-training skills in agriculture are always manifested
3.40 – 4.19	Extensive	The teacher-training skills in agriculture are oftentimes manifested
2.60 – 3.39	Moderately Extensive	The teacher-training skills in agriculture are sometimes manifested
1.80 – 2.59	Less Extensive	The teacher-training skills in agriculture are rarely manifested
1.00 – 1.79	Not Extensive	The teacher-training skills in agriculture are not manifested

Meanwhile, to determine the extent of learners' readiness for the TVE-TLE Track, a 5-point Likert scale was used in this study, as presented below;

2.4. Data Gathering Procedure—The preceding statements explain the data-gathering procedure steps that the researcher must comprehensively consider and follow. The statements are based on the policies and guidelines of the Rizal Memorial Colleges and the existing guidelines of the IATF to ensure safety and lower risks in the gathering of pertinent data, most especially in the current entire face-to-face interaction. Permission to conduct the study. The second week of October 2023, the researcher started conceptualizing the thesis proposal's contents and objectives. She then prepared documents such as letter requests for the study. The research study adopted the standard procedures of ethics in data collection (Creswell, 2004) and health protocol as provided by the IATF policy. From the last week of January up to the first week of February 2024, as soon as the research proposal presentation was approved by the panel of members and the dean of the college, the researcher wrote and sent a letter of

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Scale	Descriptive Rating	Interpretation
4.20 – 5.00	Very Extensive	The learners' readiness for TVE-TLE Track is always manifested
3.40 – 4.19	Extensive	The learners' readiness for TVE-TLE Track is oftentimes manifested
2.60 – 3.39	Moderately Extensive	The learners' readiness for TVE-TLE Track is sometimes manifested
1.80 – 2.59	Less Extensive	The learners' readiness for TVE-TLE Track is rarely manifested
1.00 – 1.79	Not Extensive	The learners' readiness for TVE-TLE Track is not manifested

permission to the office of the Schools Division Superintendent of Davao de Oro, through the channel and sought permission to collect data and conduct the study within the Secondary schools of Braulio E. District, Davao del Norte Schools Division. Distribution and retrieval of the questionnaire. In March 2024, the researcher prepared and created a Google sheet form for the online survey collection process, which was sent to the randomly selected respondents via email addresses and to respondents without internet access. Likewise, a prepared hard copy of the survey sheets was given to each of them. Once done, the link was sent, and right away, responses were generated, thus, ready for sorting, analyzing, and interpreting. This activity was done right after the approval of the Schools Division Superintendent to proceed with data gathering, which commenced on the third week of March 2024. Collation and statistical treatment of data. The preliminary analysis results were given to the thesis adviser during the first week of April 2024. For coaching and in terms of statistical treatment, the thesis adviser sought the assistance of the graduate school statistician to provide technical discussions in running the data and its interpretations and implications of the study sometime in the first week of April 2024 and further deepening the analysis to make more meaning with the interpretations of results on the first week of April 2024.

2.5. Research Ethics—Ethical considerations are pivotal in ensuring the integrity and respect for individuals' rights within research and educational endeavors. In the context of voluntary participation, ethics underscore the principle that individuals should willingly and without coercion choose to participate in any activity or study. This ethical guideline emphasizes informed consent, which involves providing participants with comprehensive information about the activity or research's nature, purpose, risks, and benefits. Voluntary Participation. Ensures that individuals can make decisions based on their values, beliefs, and interests. This approach safeguards against undue influence, manipulation, or pressure that might compromise the validity and ethical foundation of the endeavor. This further fosters a sense of ownership and engagement among respondents, allowing them to contribute to their experience actively. It also upholds the principles of respect and human dignity by recognizing that each individual's consent is paramount. By adhering to ethical considerations regarding voluntary participation, the researcher cultivates an environment built on trust, transparency, and the fundamental values of moral conduct. Privacy and Confidentiality. In this study, upholding privacy means respecting individuals' boundaries and ensuring that their data is collected,

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stored, and used only for the intended purpose with their informed consent. Conversely, confidentiality dictates that information shared in trust remains secure and undisclosed to unauthorized parties. This involves implementing secure data storage, anonymizing information whenever possible, and obtaining explicit consent for publicly shared information. The Informed Consent Process. All participants in this study would be provided with a clear explanation of the research procedures and goals and any potential risks or benefits associated with participation. Informed consent involves providing individuals with comprehensive and understandable information about the nature, purpose, methods, risks, benefits, and potential outcomes of an activity or study. This empowers individuals to make informed decisions based on their values and preferences. Within the informed consent process, individuals should be allowed to ask questions and seek clarification before voluntarily agreeing to participate. The information must be presented in a language and format accessible and understandable to the participants, ensuring they fully grasp the implications of their involvement. Adhering to the informed consent process ensures that individuals are treated ethically, their rights are respected, and their participation is voluntary, without coercion or pressure. Benefits. Ethical considerations regarding benefits are integral to ensuring the well-being and integrity of individuals engaged in research, education, or professional interactions. Ethical practice entails transparently communicating potential benefits to participants so they can make informed decisions about their involvement. Furthermore, researchers, educators, and professionals are responsible for upholding these benefits while ensuring they outweigh potential risks. In research, identifying potential benefits for participants is crucial. These benefits might encompass gaining new knowledge, contributing to advancements in a field, receiving access to valuable resources, or receiving personalized feedback that promotes personal growth. Permission from the Organization/Location. Obtaining permission from the organization or location where research, education, or activities occur is a fundamental ethical consideration that ensures respect, transparency, and responsible conduct. Seeking permission is essential when engaging in activities that might impact the organization's resources, reputation, or individuals associated with it. In research, gaining permission from relevant institutions or organizations is crucial for conducting studies that involve data collection, observations, or interactions with participants. This demonstrates a commitment to ethical research practices, informed consent, and respect for individuals' rights. By ethically addressing permission from the organization or location, I uphold values such as respect, responsibility, and transparency. This approach not only safeguards the reputation and rights of organizations but also fosters an environment of collaboration, trust, and ethical conduct that benefits all stakeholders.

2.6. Data Analysis—Mean scores and standard deviation were used to address statement problems posed in statement problem number one (1) regarding the extent of teacher-training skills in Agriculture and statement problem number two (2) regarding the extent of students' readiness for TVE-TLE in the Senior High School track in Dujali District, Davao del Norte Division. Pearson Product Moment Correlation Coefficient or Pearson-r was used to determine its strength/direction significant relationship between teacher-training skills in Agriculture and the extent of students' readiness for TVE-TLE in the Senior High School track in Dujali District, Davao del Norte Division. Simple Linear Regression analysis was used to address statement problem number 4, on the indicators of teacher-training skills in Agriculture that significantly influence students' readiness for TVE-TLE in the Senior High School track

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in Dujali District, Davao del Norte Division (Pallant, 2000) and (Gujarati, 2000). All data processing and analysis were performed using Jeffrey's Statistics Amazing Program (JASP) version 0.12.20. When results were yielded, discussions and interpretations followed.

3. Results and Discussion

This chapter centers on the presentation, analysis, and interpretation of the collected data. Both tabular and textual formats enhance the depth of analysis and draw meaningful implications, further supporting the hypothesis's claim.

3.1. Teacher-Training Skills in Agriculture—The nature of teacher-training skills in agriculture in the international setting reflects a dynamic and evolving landscape. Globally, there is a recognition of the critical role that agriculture plays in addressing food security, sustainability, and economic development. As a result, teacher training in agriculture has shifted from traditional approaches to encompass a more comprehensive and interdisciplinary perspective. Instructors are expected to possess a strong foundation in agricultural sciences and pedagogical expertise to impart knowledge to students effectively (Jukes et al., 2023). Additionally, technology integration is pivotal, as modern agriculture relies heavily on data-driven decision-making, precision farming, and sustainable practices. Therefore, teachers must proficiently utilize technology and incorporate digital tools into their teaching methodologies. In essence, the nature of teacher-training skills in agriculture internationally was evolving to produce educators who were not only subject matter experts but also capable of fostering critical thinking, innovation, and adaptability among students, thereby preparing the next generation of agriculturists to meet the challenges of a rapidly changing world (Hartman Martin, 2021).

3.1.1. Knowledge and Content Mastery—The concept of knowledge and content mastery as indicators of Teacher-Training Skills in Agriculture underscores the fundamental importance of educators possessing a deep and comprehensive understanding of agricultural subjects. This mastery extends to various aspects of agriculture, including crop science, animal husbandry, sustainable farming practices, agribusiness, and emerging technologies (Tugelbayeva et al., 2020). Table 1 shows the extent of teacher training in agriculture in terms of knowledge and content mastery. The result is focused on the highest and lowest mean ratings of indicators, which are as follows: Teachers exhibit a commitment to lifelong learning in agriculture, regularly updating their knowledge base to stay current with industry trends and advancements often manifested, while teachers demonstrate the ability to effectively communicate complex agricultural topics to students clearly and understandably (3.35), teacher training programs have equipped educators with up-to-date knowledge about emerging agrarian technologies, sustainable farming methods, and environmental conservation practices (3.10), teachers exhibit a strong command of fundamental agricultural concepts, principles, and practices relevant to their area of specialization (3.00) and training has enhanced teachers' understanding of local and regional agrarian contexts, enabling them to relate theoretical knowledge to practical, real-world applications (3.00) are sometimes manifested. The overall mean rating of 3.31 denotes the extent of teacher training in agriculture regarding knowledge and content mastery, which is continually manifested and thus extensive.

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Table 1: Extent of teacher training in Agriculture in Terms of Knowledge and Content Mastery

No	Knowledge and Content Mastery	Mean	Descriptive Equivalent
1	Strong command of fundamental agricultural concepts, principles, and practices relevant to specialization	3.00	Moderately Extensive
2	Knowledge of emerging agricultural technologies, sustainable farming methods, and environmental practices from training programs	3.10	Moderately Extensive
3	Effective communication of complex agricultural topics to students	3.35	Moderately Extensive
4	Understanding of local and regional agricultural contexts, linking theory to practical applications	3.00	Moderately Extensive
5	Commitment to lifelong learning in agriculture, staying current with industry trends	4.12	Extensive
Overall Mean		**3.31**	**Moderately Extensive**

Teachers who have undergone effective training exhibit theoretical knowledge and practical expertise, allowing them to convey complex agricultural concepts with clarity and authority. They can address students' inquiries, provide real-world examples, and guide hands-on experiences. Moreover, this knowledge mastery ensures that educators stay current with advancements and innovations in agriculture, enabling them to prepare students for the ever-evolving landscape of the agricultural industry (Ha et al., 2021). This grounded theory study explored the pedagogical content knowledge (PCK) of experienced agriculture teachers in the plant sciences. The central phenomenon during data collection and analysis was the influence of beliefs on shaping participants' PCK. The data presented here focus on the most emergent category shaping PCK, integrated belief systems, which included participants' beliefs about the purpose of agricultural education, beliefs about plant science education, and beliefs about teaching and learning in agricultural education. A substantive level theory illustrated the relationships between the three belief components on participants' PCK. These findings support further investigation into how beliefs shape agriculture teachers' PCK in plant sciences and other agriculture content areas (Rice Kitchel, 2018). Meanwhile, Kim and Ko (2020) examined how content knowledge (CK) varies between teachers with different levels of content expertise in teaching volleyball. In addition, it investigated changes to the content-experienced (C-Exd) teachers' enacted pedagogical content knowledge (PCK) and their students' performances after developing CK, compared with those of the content-expert (C-Ext) teachers. The results of this study indicated that the C-Ext teachers possessed stronger CK than the C-Exd teachers and that the C-Exd teachers improved their enacted PCK and the students' motor performance after the CK workshop without showing statistically significant differences from those of the C-Ext teachers. Knowledge and content mastery are integral indicators of Teacher-Training Skills in Agriculture. They ensure that educators are well-equipped to impart information and inspire a deep appreciation for the subject among students. This, in turn, contributes to the overall effectiveness of agriculture education, preparing students for successful

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careers and academic pursuits.

3.1.2. Pedagogical Skills—Pedagogical skills are a crucial factor and a significant indicator of Teacher-Training Skills in Agriculture. In agriculture education, pedagogical skills refer to the teacher's ability to employ effective teaching methodologies and strategies tailored to the specific needs of agricultural subjects. This indicator underscores that educators must possess subject matter expertise and be adept at transferring that knowledge to students meaningfully and engagingly (Ada Altay, 2022). Pedagogical skills encompass several aspects, including lesson planning, classroom management, active learning techniques, and adapting teaching methods to different learning styles. These skills are particularly vital in agriculture education due to the subject's often hands-on and experiential nature. Teachers with solid pedagogical skills can create dynamic and interactive learning environments, ensuring students acquire knowledge and develop critical thinking, problem-solving, and practical skills relevant to agriculture. Table 2 shows the extent of teacher training in Agriculture regarding pedagogical skills. The result is focused on the highest and lowest mean ratings of indicators which are as follows: teachers effectively use formative and summative assessments to gauge student understanding and adjust instruction accordingly, resulting in improved learning outcomes in agriculture (4.15) and teachers exhibit proficiency in integrating technology and digital resources into agricultural lessons, enhancing the overall educational experience for students (4.10) are oftentimes manifested; while, teachers demonstrate the ability to design engaging and learner-centered lesson plans that effectively address the unique needs and interests of students in agricultural education (3.20), teacher training programs have equipped educators with a variety of teaching strategies and instructional methods tailored to agriculture, fostering active learning and critical thinking among students (3.10) and training has enabled teachers to adapt their teaching approaches to accommodate diverse learning styles, ensuring that all students have the opportunity to succeed in agricultural education (3.00) are sometimes manifested. The overall mean rating of 3.31 denotes the extent of teacher training in Agriculture regarding pedagogical skills, which is continually manifested and, thus, extensive. The result reflects the study of Tugelbayeva et al. (2020), which aimed to determine the problems of preservice teachers regarding technological pedagogical knowledge skills. The socio-economic transformations taking place in the country indicate the presence of a society's need for a person who can set goals and achieve them independently. In this regard, education is faced with the task of forming the personality of the future teacher as a subject capable of diagnosing the process and results of its activities. However, the educational technologies used at the university most often alienate students from academic activities, offering ready-made goals and ways to solve them, thereby excluding them from the diagnostic process. A change in the modern educational situation actualizes the formation problem of technological pedagogical knowledge skills in a future teacher.

Meanwhile, the most critical requirement in Vietnam is improving the quality of training teachers by developing professional skills to meet the requirements of national innovation in education. Ha et al. (2021) aim to investigate lecturers' and pre-service teachers' evaluation of the process of teaching pedagogical skills in educational institutions in Vietnam. The results of this study are evidence of the inadequacy of learners' needs in pedagogical training programs in teacher training institutions in Vietnam. Educational universities must improve

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Table 2: Extent of Teacher-Training in Agriculture in Terms of Pedagogical Skills

No	Pedagogical Skills	Mean	Descriptive Equivalent
1	Teachers demonstrate the ability to design engaging and learner-centered lesson plans that effectively address the unique needs and interests of students in agricultural education	3.20	Moderately Extensive
2	Teacher training programs have equipped educators with a variety of teaching strategies and instructional methods tailored to agriculture, fostering active learning and critical thinking among students	3.10	Moderately Extensive
3	Teachers exhibit proficiency in integrating technology and digital resources into agricultural lessons, enhancing the overall educational experience for students	4.10	Extensive
4	Training has enabled teachers to adapt their teaching approaches to accommodate diverse learning styles, ensuring that all students have the opportunity to succeed in agricultural education	3.00	Moderately Extensive
5	Teachers effectively use formative and summative assessments to gauge student understanding and adjust instruction accordingly, resulting in improved learning outcomes in agriculture	4.15	Extensive
Overall Mean		**3.51**	**Extensive**

their training plans, contents, and curriculum to maximize professional skills practice, facilitate soft skills development, and support interaction between lecturers and pre-service teachers. Enhancing professional skills for lecturers and monitoring their teaching process is also recommended. Furthermore, effective pedagogy fosters a positive and motivating learning atmosphere, inspiring students to explore the subject further and pursue careers in agriculture-related fields. Thus, pedagogical skills are a crucial indicator of a teacher's ability to impart knowledge effectively, making them an essential component of Teacher-Training Skills in Agriculture. Teachers who excel in pedagogical techniques are pivotal in preparing students for success in the agricultural industry and its associated challenges.

3.1.3. Hands-on Experience—Hands-on experience is a pivotal factor and a crucial indicator of Teacher-Training Skills in Agriculture. In the realm of agriculture education, it is widely recognized that effective educators should not only possess theoretical knowledge but also practical expertise in agricultural practices. Hands-on experience signifies that teachers have worked in real-world farm settings, engaging in farming, animal husbandry, agribusiness, or related agrarian enterprises. Table 3 shows the extent of teacher training in agriculture in terms of hands-on experience. The result is focused on the highest and lowest mean ratings of indicators which are as follows: teachers leverage their hands-on experience to create authentic, context-rich learning opportunities in agriculture, enhancing the relevance and impact of their instructional approaches (4.15) and

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training has equipped teachers with the ability to guide students in conducting agricultural experiments and projects, promoting active engagement and skill development (4.00) are oftentimes manifested; while, teachers can effectively demonstrate farming techniques and practices, fostering a deeper understanding of concepts through experiential learning (3.10), teachers have gained practical, hands-on experience in various aspects of agriculture, including fieldwork, farm management, and the application of agricultural technologies (3.00) and teacher training programs have provided opportunities for educators to participate in real-world agricultural settings, allowing them to develop firsthand knowledge of industry practices (2.50) are sometimes manifested. The overall mean rating of 3.33 denotes the extent of teacher training in Agriculture regarding hands-on experience, which is sometimes manifested; thus, it is moderately extensive. To investigate the effect of the agricultural teaching approaches employed in secondary schools on skills development for food security in Kenya. The agricultural teaching approaches employed in secondary schools positively contributed to skills development and increased food security. However, the low integration of practical agriculture with hands-on experiences derailed adequate skills development and their application for food security (Njura et al. (2020). Educational policy and management emphasize the role of science (e.g., earth science, geography) as a fundamental aspect of societal advancement. However, student enrollment in these university disciplines still needs to be higher.

Table 3: Extent of Teacher-Training in Agriculture in Terms of Hands-on Experience

No	Hands-on Experience	Mean	Descriptive Equivalent
1	Teachers have gained practical, hands-on experience in various aspects of agriculture, including fieldwork, farm management, and the application of agricultural technologies	3.00	Moderately Extensive
2	Teacher training programs have provided opportunities for educators to participate in real-world agricultural settings, allowing them to develop firsthand knowledge of industry practices	2.50	Moderately Extensive
3	Teachers can effectively demonstrate agricultural techniques and practices, fostering a deeper understanding of concepts through experiential learning	3.10	Moderately Extensive
4	Training has equipped teachers with the ability to guide students in conducting agricultural experiments and projects, promoting active engagement and skill development	4.00	Extensive
5	Teachers leverage their hands-on experience to create authentic, context-rich learning opportunities in agriculture, enhancing the relevance and impact of their instructional approaches	4.15	Extensive
Overall Mean		**3.35**	**Moderately Extensive**

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Teece et al. (2021) explore ways to foster more collaboration between university academics and high school teachers to implement STEM-related curricula through hands-on exploration of novel earth observation (EO) technologies. The team developed project-based learning activities through the Copernicus applications and services for low-impact agriculture in Australia (COALA) project, an international venture of eleven partners seeking to promote the adoption of products and services for sustainable agriculture in Australia, underpinned by satellite technology from the European Copernicus program. Ada and Altay (2023) stated that effective teaching demands educators to have diverse competencies and skills, which is quite challenging. Much research examining the difficulties relating to these concerns has been carried out in traditional face-to-face educational settings, notably by focusing on classroom management skills and technological proficiency, which are considered crucial for teachers. However, it remains uncertain how instructors use technology, their pedagogical abilities in virtual classrooms, and their approaches to using these skills vary depending on their teaching experience. The results show no substantial difference between the instructors with different levels of teaching experience while using technology and pedagogical skills in online classrooms. To foster utilizing those skills more competently and firmly, seminars where prospective teachers can apply their technological and instructional skills could be incorporated into the curricula of every field. Moreover, teachers with hands-on experience serve as role models, inspiring students to appreciate the value of experiential learning and encouraging them to pursue careers in agriculture with confidence. It also enhances their ability to effectively guide students in agricultural projects, internships, and competitions.

3.1.4. Technology Integration—Technology integration is a fundamental and significant indicator of Teacher-Training Skills in Agriculture. In today's rapidly evolving agricultural landscape, the effective use of technology is paramount, making it crucial for educators to stay current and proficient in integrating digital tools and resources into their teaching methodologies (Bird and Rice, 2021). It was also found out by (Grandeza et al., 2024) that the integration of digital platforms in training and assessment enhances the performance of students in TLE. In agriculture education, technology integration entails leveraging digital platforms, software applications, precision farming technologies, and data analytics tools to enhance the teaching and learning experience. Teachers who excel in this area can create interactive and engaging lessons, facilitate virtual farm simulations, and expose students to cutting-edge agricultural innovations. They can also incorporate multimedia resources, such as videos, webinars, and online databases, to give students access to the latest industry trends and research. Table 4 shows the extent of teacher training in Agriculture regarding technology intervention. The result is focused on the highest and lowest mean ratings of indicators which are as follows: teachers actively seek and incorporate feedback from students on the integration of technology in agriculture education, fostering a dynamic and responsive learning environment (4.10), training has enabled teachers to adapt to the evolving technological landscape within the agriculture industry, ensuring that students are prepared for the use of advanced technologies in their future careers (4.00) are oftentimes manifested, teacher training programs have equipped educators with the skills to utilize agricultural software, precision farming equipment, and data analysis tools to enhance student learning (3.50), teachers consistently incorporate technology-based resources, such as online simulations, into their agriculture lessons to provide interactive and immersive learning experiences (3.40) are oftentimes manifested; while, teachers are pro-

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ficient in effectively integrating modern agricultural technologies and digital tools into their instructional practices (3.20) is sometimes manifested. The overall mean rating of 3.64 denotes the extent of teacher training in Agriculture regarding technology intervention, which is often manifested and, thus, extensive.

Table 4: Extent of Teacher-Training in Agriculture in Terms of Technology Intervention

No	Technology Intervention	Mean	Descriptive Equivalent
1	Teachers are proficient in effectively integrating modern agricultural technologies and digital tools into their instructional practices	3.20	Moderately Extensive
2	Teacher training programs have equipped educators with the skills to utilize agricultural software, precision farming equipment, and data analysis tools to enhance student learning	3.50	Extensive
3	Teachers consistently incorporate technology-based resources, such as online simulations, into their agriculture lessons to provide interactive and immersive learning experiences	3.40	Extensive
4	Training has enabled teachers to adapt to the evolving technological landscape within the agriculture industry, ensuring that students are prepared for the use of advanced technologies in their future careers	4.00	Extensive
5	Teachers actively seek and incorporate feedback from students on the integration of technology in agriculture education, fostering a dynamic and responsive learning environment	4.10	Extensive
Overall Mean		**3.64**	**Extensive**

The result aligns with Williams (2022), who explored how teachers perceive technology integration in their classrooms and examined factors contributing to teacher reluctance and apprehension toward technology integration. This study centered on teachers' perceptions of the learning management system (LMS) Google Classroom. The findings presented the four significant themes of pragmatism, cognizance, optimism, apprehension, and several subthemes. The results indicated that educators need support establishing a more balanced approach to integrating technology into the classroom. Participants noted a lack of time as their primary challenge regarding technology integration (Williams, 2022). Caner and Aydin (2021) stated that the widespread use of technology in every part of life eventually forced educators to integrate up-to-date technologies into teaching environments, given the increased demands of millennial learners. Thus, the teachers' efficacy in integrating technology into teaching environments becomes a vital issue, in addition to the potential and positive role of using tech-

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nology in educational settings. Furthermore, technology integration extends to agritech and agribusiness software, which are increasingly prevalent in modern agriculture. Teachers with expertise in this area can prepare students to navigate these tools, equipping them with valuable digital literacy skills and positioning them as tech-savvy contributors to the agricultural workforce. Educators who effectively integrate technology into their agricultural teaching enhance students' technical competencies and prepare them for the digital transformation shaping the industry. Technology integration is a crucial indicator of Teacher-Training Skills in Agriculture, ensuring that educators can deliver relevant, up-to-date, and innovative agricultural education that meets the demands of the 21st-century agricultural sector.

3.1.5. Assessment and Evaluation—Assessment and evaluation are integral factors and critical indicators of Teacher-Training Skills in Agriculture. In agriculture education, practical assessment and evaluation strategies are essential for gauging students' understanding, progress, and readiness for practical application. Teachers who excel in this area possess the ability to design appropriate assessment tools and evaluation methods that align with the unique characteristics of agricultural subjects. Assessment in agriculture education goes beyond traditional testing; it encompasses a wide range of methods, including field observations, project-based assessments, performance tasks, and real-world problem-solving exercises. Educators with solid assessment skills can design authentic assessments that mirror the challenges and scenarios students will encounter in the agricultural industry. Pantleo et al. (2022) conducted using quantitative methods to determine if a relationship exists between former Agriculture Career and Technical Education (CTE) concentrators' Technical Skills Assessment (TSA) performance and their attaining related placement after high school. Authors stated that students who pass their TSA assessment are more likely to attain related placement than those not. Agriculture students' rates of passing the TSA assessment and attaining related placement were high. Table 5 shows the extent of teacher training in Agriculture regarding assessment and evaluation. The result is focused on the highest and lowest mean ratings of indicators which are as follows: teachers actively engage in ongoing self-assessment and professional development related to assessment and evaluation practices in agriculture education, ensuring continuous improvement (4.10) and teachers consistently provide timely and constructive feedback to students based on their performance in agricultural assignments, projects, and practical tasks (3.40) are oftentimes manifested; while, teacher training programs have equipped educators with the ability to create fair and valid assessments that accurately measure student learning outcomes in agriculture (3.20), teachers demonstrate proficiency in designing and implementing a variety of assessment methods, including formative and summative assessments, tailored to agricultural education (3.10) and training has enhanced teachers' skills in using assessment data to inform their instructional decisions, enabling them to adapt their teaching strategies to better meet the needs of their students (3.00) are sometimes manifested. The overall mean rating of 3.36 denotes the extent of teacher training in agriculture in assessment and evaluation, which is sometimes manifested and, thus, moderately extensive. The validity of evidence obtained from classroom assessments in schools is essential as significant decisions are made from teachers' judgments of this evidence. However, what needs to be clarified are the classroom assessment practices that teacher teams use to ensure that the evidence of student learning produced from classroom assessments is valid for their purpose.

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Table 5: Extent of Teacher-Training in Agriculture in Terms of Assessment and Evaluation

No	Assessment and Evaluation	Mean	Descriptive Equivalent
1	Teachers demonstrate proficiency in designing and implementing a variety of assessment methods, including formative and summative assessments, tailored to agricultural education	3.10	Moderately Extensive
2	Teacher training programs have equipped educators with the ability to create fair and valid assessments that accurately measure student learning outcomes in agriculture	3.20	Moderately Extensive
3	Teachers consistently provide timely and constructive feedback to students based on their performance in agricultural assignments, projects, and practical tasks	3.40	Extensive
4	Training has enhanced teachers' skills in using assessment data to inform their instructional decisions, enabling them to adapt their teaching strategies to better meet the needs of their students	3.00	Moderately Extensive
5	Teachers actively engage in ongoing self-assessment and professional development related to assessment and evaluation practices in agriculture education, ensuring continuous improvement	4.10	Extensive
Overall Mean		**3.36**	**Moderately Extensive**

Furthermore, effective evaluation practices enable teachers to provide constructive feedback, identify areas of improvement, and tailor their instructional approaches to meet individual student needs. This fosters a growth mindset among students and encourages continuous improvement. In agricultural education, assessment and evaluation also play a critical role in preparing students for certification exams, industry standards, and successful transitions to higher education or careers in agriculture. Buckley-Walker and Lipscombe (2022) examined the assessment practices, focusing on validity, from three primary school teacher teams in Australia as they designed classroom assessments in mathematics. The analysis identified four broad themes associated with validity: alignment with curriculum and instruction, catering to student abilities, the scoring rubric, and using classroom assessment data to meet students' needs. These findings could contribute to research and assessment practices in schools that enhance the validity of the evidence collected from classroom assessments. Educators skilled in this area contribute to the overall quality of agricultural education by ensuring students are well-prepared and equipped with the knowledge and skills required in the field. Therefore, assessment and evaluation are essential indicators of Teacher-Training Skills in Agriculture, ensuring educators can effectively measure and enhance student learning outcomes in agricultural education. Table 6 shows the summary of the extent of teacher training in Agriculture. The result is focused on the highest and lowest mean ratings of indicators

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which are as follows: Technology Intervention (3.64) and Pedagogical Skills (3.51) are often manifested; while, Assessment and Evaluation (3.36), Hands-On Experience (3.35) and Knowledge and Content Mastery (3.31) are sometimes manifested. The overall mean rating of 3.43 denotes that the extent of teacher training in Agriculture is often manifested, thus, extensive. The extent of teacher training in agriculture plays a crucial role in shaping the agricultural sector's future and fostering sustainable development. Agricultural education is a multifaceted discipline encompassing various aspects of farming, technology, and environmental stewardship.

Table 6: Summary of the Extent of Teacher Training in Agriculture

No	Teacher-Training Area	Mean	Descriptive Equivalent
1	Knowledge and Content Mastery	3.31	Moderately Extensive
2	Pedagogical Skills	3.51	Extensive
3	Hands-On Experience	3.35	Moderately Extensive
4	Technology Intervention	3.64	Extensive
5	Assessment and Evaluation	3.36	Moderately Extensive
Overall Mean		**3.43**	**Extensive**

Pantleo, Conrad, Parr, and Parr (2022) said practical teacher training in agriculture is essential to equip educators with the knowledge and skills to impart relevant and up-to-date information to students. This training extends beyond traditional pedagogical methods to include practical experiences in the field, enabling teachers to bridge the gap between theory and real-world application. Additionally, teachers must stay abreast of technological advancements and changing agricultural practices to provide students with a comprehensive understanding of the industry. A well-trained cadre of agriculture educators contributes to developing a skilled workforce, promotes innovation in farming techniques, and instills a sense of environmental responsibility among future farmers. Therefore, the extent of teacher training in agriculture directly influences the quality of education and has a lasting impact on the sustainability and productivity of the agricultural sector. As agricultural challenges evolve, continuous investment in teacher training becomes imperative for ensuring a resilient and adaptive workforce capable of addressing the complex issues facing modern agriculture.

3.1.6. Students' Readiness for TVE–TLE Track—Students' readiness for the Technology and Vocational Education—Technical Livelihood Education (TVE-TLE) Senior High School (SHS) track significantly influences their educational and career trajectories. This readiness is a pivotal determinant of their success in the specialized and practical TVE-TLE curriculum, which focuses on technical and vocational skills development. It encompasses not only academic preparedness but also the cultivation of practical skills, soft skills, and a clear understanding of potential career pathways. Well-prepared students for the TVE-TLE track typically exhibit a strong foundation in foundational subjects relevant to their chosen specialization. This academic grounding serves as a platform for deeper exploration of specialized topics within the track. Moreover, their technical competence and adaptability are crucial. TVE-TLE programs often involve hands-on training, apprenticeships, and real-world ex-

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periences. Students ready to embrace these opportunities can gain practical skills directly applicable to the workforce or higher education.

3.1.7. Interest and Motivation—Interest and motivation influence students' readiness for the Technology and Vocational Education - Technical Livelihood Education (TVE-TLE) Senior High School (SHS) Track. When students are genuinely interested in the subject matter and motivated to pursue a TVE-TLE specialization, their readiness is significantly enhanced. Firstly, interest sparks curiosity and enthusiasm for learning. Students with a keen interest in a particular TVE-TLE field are more likely to engage actively in class, explore related topics independently, and seek additional learning opportunities. This intrinsic motivation drives them to delve deeper into the subject matter, resulting in a higher level of preparedness (Joshi et.al., 2022). Table 7 shows the extent of students' readiness for Technology Vocational Education – Technology Livelihood Education in Senior High School Track in terms of interest and motivation. The result is focused on the highest and lowest mean ratings of indicators which are as follows: training has fostered a sense of purpose and career aspiration among students, as evidenced by their explicit goals and ambitions within the tve-tle track (4.15) and students exhibit a strong sense of self-efficacy and self-confidence in their ability to succeed in tve-tle subjects, reflecting their intrinsic motivation to excel in vocational and technical fields (4.10) are oftentimes manifested; many students actively seek additional opportunities to engage in tve-tle-related activities, clubs, or projects outside of regular coursework, highlighting their intrinsic motivation (3.20), students consistently participate in class discussions, ask relevant questions, and show a strong desire to learn and excel in their chosen tve-tle specialization (3.15) and students express genuine enthusiasm and curiosity about pursuing technical or vocational education, demonstrating a high level of interest in tve-tle subjects (3.10) are sometimes manifested. The overall mean rating of 3.54 denotes that the extent of students' readiness for Technology Vocational Education—Technology Livelihood Education in Senior High School Track in terms of interest and motivation is often manifested, thus extensive.

In the education process, almost all skills, knowledge, habits, and attitudes are developed through the learning process. Achieving good learning outcomes involves several components, such as interests, talents, good psychological factors, abilities, motivation, attitudes, maturity, discipline, and others. Herpratiwi (2022) determined the influence of learning interest and discipline on learning motivation. Interest in learning influences learning motivation, which also applies to disciplines that strongly influence student motivation. Thus, student learning motivation can be increased by putting in the effort and attention to increase and develop student interest and discipline. Interest in learning and discipline have a positive influence on motivation. Learning motivation is not only influenced by interest and discipline; in this study, it is only limited to interest and discipline, which affect students' learning motivation.

3.1.8. Basic Technical Skills—Basic technical skills influence students' readiness for the Technology and Vocational Education - Technical Livelihood Education (TVE-TLE) Senior High School (SHS) Track. These skills, including foundational competencies like computer literacy, machinery operation, or technical drawing, are essential prerequisites for success in many TVE-TLE specializations. Students who enter the TVE-TLE SHS Track with a strong foundation in basic technical skills are better equipped to tackle the specialized coursework

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Table 7: Extent of Students' Readiness Technology Vocational Education – Technology Livelihood Education in Senior High School Track in Terms of Interest and Motivation

No	Interest and Motivation	Mean	Descriptive Equivalent
1	Students express genuine enthusiasm and curiosity about pursuing technical or vocational education, demonstrating a high level of interest in TVE-TLE subjects	3.10	Moderately Extensive
2	Many students actively seek additional opportunities to engage in TVE-TLE-related activities, clubs, or projects outside of regular coursework, highlighting their intrinsic motivation	3.20	Moderately Extensive
3	Students consistently participate in class discussions, ask relevant questions, and show a strong desire to learn and excel in their chosen TVE-TLE specialization	3.15	Moderately Extensive
4	Training has fostered a sense of purpose and career aspiration among students, as evidenced by their clear goals and ambitions within the TVE-TLE track	4.15	Extensive
5	Students exhibit a strong sense of self-efficacy and self-confidence in their ability to succeed in TVE-TLE subjects, reflecting their intrinsic motivation to excel in vocational and technical fields	4.10	Extensive
Overall Mean		**3.54**	**Extensive**

and hands-on training that characterize this educational pathway. For instance, proficiency in computer skills is vital for students pursuing careers in information technology. At the same time, knowledge of machinery operation is essential for those interested in fields like automotive technology or engineering. Basic technical skills also foster confidence and autonomy among students. When they have a solid grasp of foundational concepts and competencies, they are more likely to approach more advanced technical topics with self-assurance. Table 8 shows the extent of students' readiness for Technology Vocational Education – Technology Livelihood Education in Senior High School Track regarding basic technical skills. The result is focused on the highest and lowest mean ratings of indicators which are as follows: students exhibit a high degree of adaptability when faced with new technical challenges or tasks, highlighting their ability to quickly learn and apply fundamental skills within the tve-tle context (4.10) and training has equipped students with a strong understanding of safety protocols and practices within their tve-tle specialization, ensuring their preparedness to work in a secure and responsible manner (4.00) are oftentimes manifested; while, students possess a solid foundation of technical skills relevant to their chosen tve-tle specialization, including proficiency in using essential tools, equipment, and software (3.15), many students demonstrate competence in fundamental technical tasks, such as computer literacy, hands-on craftsmanship, or the safe operation of machinery associated with their tve-tle field (3.10) and students con-

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sistently perform well in practical assessments or projects that require the application of essential technical skills, showcasing their ability to effectively execute tasks related to their chosen vocational path (3.10) are sometimes manifested. The overall mean rating of 3.49 denotes that the extent of students' readiness for Technology Vocational Education – Technology Livelihood Education in Senior High School Track in terms of essential technical skills is often manifested and, thus, extensive.

Table 8: Extent of Learners' Readiness Technology Vocational Education – Technology Livelihood Education in Senior High School Track in Terms of BasicTechnical Skills

No	Basic Technical Skills	Mean	Descriptive Equivalent
1	Students possess a solid foundation of technical skills relevant to their chosen TVE-TLE specialization, including proficiency in using essential tools, equipment, and software	3.15	Moderately Extensive
2	Many students demonstrate competence in fundamental technical tasks, such as computer literacy, hands-on craftsmanship, or the safe operation of machinery associated with their TVE-TLE field	3.10	Moderately Extensive
3	Students consistently perform well in practical assessments or projects that require the application of basic technical skills, showcasing their ability to effectively execute tasks related to their chosen vocational path	3.10	Moderately Extensive
4	Training has equipped students with a strong understanding of safety protocols and practices within their TVE-TLE specialization, ensuring their preparedness to work in a secure and responsible manner	4.00	Extensive
5	Students exhibit a high degree of adaptability when faced with new technical challenges or tasks, highlighting their ability to quickly learn and apply fundamental skills within the TVE-TLE context	4.10	Extensive
Overall Mean		**3.49**	**Extensive**

Rivera (2022) examined the understanding and implementation of college and career readiness skills among career and technical education (CTE) teachers and administrators in a technical high school setting. A qualitative study was conducted at one technical high school in an urban setting in Connecticut. Findings revealed that teachers focused on integrating fundamental, technical, technology, and soft skills. Teaching strategies included goal setting, collaborative projects, and self-reflection. Students were often assessed on presentations, production work, electronic portfolios, and earned credentials. Recommendations for further research include a mixed-method study of student understanding and perception of college and career

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readiness skills that includes a post-graduate survey to compile data on college completion rates and placements in selected careers. In summary, basic technical skills influence students' readiness for the TVE-TLE SHS Track. These skills serve as a strong foundation upon which students can build their technical knowledge and expertise, fostering confidence and autonomy and enhancing their preparedness for success in the specialized vocational and technical fields of the TVE-TLE program.

3.1.9. Problem-solving and Critical Thinking—Problem-solving and critical thinking skills profoundly influence students' readiness for the Technology and Vocational Education - Technical Livelihood Education (TVE-TLE) Senior High School (SHS) Track. These skills are integral to success in the TVE-TLE curriculum, which often requires students to grapple with complex real-world challenges and practical applications of knowledge. Students with strong problem-solving skills are better prepared to navigate the multifaceted issues encountered in TVE-TLE specializations. They can analyze situations, identify problems, and develop innovative solutions. This ability to think critically and solve problems is particularly relevant in engineering, information technology, and agribusiness, where real-world challenges demand creative and analytical approaches (Johnson et.al., 2020). Table 9 shows the extent of students' readiness for Technology Vocational Education – Technology Livelihood Education in Senior High School Track regarding problem-solving and critical thinking. The result is focused on the highest and lowest mean ratings of indicators which are as follows: students actively engage in creative and innovative approaches to overcome technical hurdles, showcasing their capacity to adapt and find practical solutions within the tve-tle context (4.20), students exhibit a high degree of resilience when facing setbacks or failures in their technical projects, demonstrating their commitment to learning from challenges and improving their problem-solving skills (4.15) and training has fostered a culture of inquiry and exploration among students, encouraging them to ask questions, seek answers, and develop a deeper understanding of technical concepts (4.10) are oftentimes manifested; while, many students exhibit the ability to think critically, analyze complex problems, and apply logical reasoning when encountering unfamiliar or intricate technical issues (3.15) and students consistently demonstrate strong problem-solving skills, efficiently identifying and addressing technical challenges and obstacles within their chosen tve-tle specialization (3.10) are sometimes manifested. The overall mean rating of 3.74 denotes that the extent of students' readiness for Technology Vocational Education – Technology Livelihood Education in Senior High School Track in problem-solving and critical thinking is often manifested, thus, extensive.

Problem-solving and critical thinking skills enhance students' adaptability and resilience. They enable students to confidently approach new tasks and scenarios, knowing that they can evaluate options, make informed decisions, and overcome obstacles. This adaptability is crucial in TVE-TLE, where students are exposed to various technical challenges and dynamic industry demands. Furthermore, these skills encourage a deep understanding of the subject matter. Students who engage in critical thinking are more likely to grasp their chosen specialization's underlying principles and concepts rather than rote memorization. This depth of understanding enhances their readiness to apply their knowledge in practical settings (Solomonson, 2022). In conclusion, problem-solving and critical thinking skills are influential factors that significantly

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Table 9: Extent of Students' Readiness Technology Vocational Education – Technology Livelihood Education in Senior High School Track in Terms of Problem-Solving and Critical Thinking

No	Problem-Solving and Critical Thinking	Mean	Descriptive Equivalent
1	Students consistently demonstrate strong problem-solving skills, efficiently identifying and addressing technical challenges and obstacles within their chosen TVE-TLE specialization	3.10	Moderately Extensive
2	Many students exhibit the ability to think critically, analyze complex problems, and apply logical reasoning when encountering unfamiliar or intricate technical issues	3.15	Moderately Extensive
3	Students actively engage in creative and innovative approaches to overcome technical hurdles, showcasing their capacity to adapt and find effective solutions within the TVE-TLE context	4.20	Extensive
4	Training has fostered a culture of inquiry and exploration among students, encouraging them to ask questions, seek answers, and develop a deeper understanding of technical concepts	4.10	Extensive
5	Students exhibit a high degree of resilience when facing setbacks or failures in their technical projects, demonstrating their commitment to learning from challenges and improving their problem-solving skills	4.15	Extensive
Overall Mean		**3.74**	**Extensive**

impact students' readiness for the TVE-TLE SHS Track. They empower students to approach complex challenges with confidence, adaptability, and a deep understanding of their chosen specialization, ultimately setting them up for success in the dynamic and evolving technical and vocational fields of TVE-TLE.

3.1.10. Career Clarity and Pathway Knowledge—Career clarity and pathway knowledge influence students' readiness for the Technology and Vocational Education - Technical Livelihood Education (TVE-TLE) Senior High School (SHS) Track. When students clearly understand their career goals and the pathways to achieve them, their readiness and motivation to excel in their chosen specialization significantly increase. Career clarity helps students set meaningful goals and make informed decisions about their educational and vocational pursuits. When students have a well-defined career direction, they are more likely to engage actively in TVE-TLE coursework, as they see a direct connection between their studies and future aspirations. This clarity also fosters a sense of purpose and determination, which are essential for success in the program (Edgerton, 2023). Table 10 shows the extent of students' readiness for Technology Vocational Education – Technology Livelihood Education in Senior High School Track regarding career clarity and pathway knowledge. The result is focused on the highest and lowest mean ratings of indicators which are as follows: students actively engage in career exploration activities, such as infor-

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mational interviews, job shadowing, or industry visits, reflecting their proactive pursuit of career clarity (4.20) and training has equipped students with the ability to set realistic and informed career goals within the tve-tle track, aligning their aspirations with their interests and aptitudes (4.10) are oftentimes manifested; while, students confidently communicate their career intentions and demonstrate a strong sense of purpose in pursuing vocational and technical education, showcasing their pathway knowledge and commitment (3.30), students demonstrate a clear understanding of the various career pathways available within the tve-tle track, including specific vocations, industries, and potential job opportunities (3.20) and many students exhibit in-depth knowledge of the educational requirements, certifications, and skills necessary for success in their chosen tve-tle specialization (3.10) are sometimes manifested. The overall mean rating of 3.74 denotes that the extent of students' readiness for Technology Vocational Education—Technology Livelihood Education in Senior High School Track in terms of career clarity and pathway knowledge is often manifested, thus extensive. Pathway knowledge ensures students know the educational and professional steps required to achieve their career goals within the TVE-TLE field. Students who understand the educational qualifications, certifications, and industry requirements are better prepared to plan their academic journey and navigate the necessary steps.

This knowledge minimizes confusion and facilitates a smoother transition from SHS to higher education or the workforce. Furthermore, career clarity and pathway knowledge enable students to make more informed choices about their TVE-TLE specialization. They can select the specialization that aligns with their interests and long-term career objectives, increasing their motivation and commitment to the coursework (England et.al., 2023). Kilag et.al. (2023) aim to explore the determinants of senior high school (SHS) track preference among grade 10 students in the Philippines using a mixed-method approach. A total of 179 respondents from two private and four public schools in the division of Toledo City were selected through stratified random sampling. The study found that the most significant factors influencing SHS track preference were academic performance, career prospects, personal interests, and parental influence. Students who performed well tended to choose the academic track, while those who struggled academically were likelier to choose the technical-vocational-livelihood (TVL) track. Career prospects played a crucial role in students' decision-making, as they were more likely to choose tracks that they believed would lead to better job opportunities. Personal interests and skills also influenced track preferences, with students opting for tracks aligned with their hobbies and talents. Finally, parental influence played a vital role in students' decision-making, as parents often encouraged their children to pursue specific tracks. The study provides insights into the factors influencing SHS track preference among grade 10 students in the Philippines. The findings suggest that academic performance, career prospects, personal interests, and parental influence are critical factors in students' decision-making. The study's results could inform policy and program development aimed at improving SHS education and helping students make informed decisions about their future education and career paths. In summary, career clarity and pathway knowledge significantly influence students' readiness for the TVE-TLE SHS Track by giving them a sense of purpose, direction, and informed decision-making. These factors empower students to make the most of their ed-

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Table 10: Extent of Learners' Readiness Technology Vocational Education – Technology Livelihood Education in Senior High School Track in Terms of Career Clarity and Pathway Knowledge

No	Clarity and Pathway Knowledge	Mean	Descriptive Equivalent
1	Students demonstrate a clear understanding of the various career pathways available within the TVE-TLE track, including specific vocations, industries, and potential job opportunities	3.20	Moderately Extensive
2	Many students exhibit in-depth knowledge of the educational requirements, certifications, and skills necessary for success in their chosen TVE-TLE specialization	3.10	Moderately Extensive
3	Students actively engage in career exploration activities, such as informational interviews, job shadowing, or industry visits, reflecting their proactive pursuit of career clarity	4.20	Extensive
4	Training has equipped students with the ability to set realistic and informed career goals within the TVE-TLE track, aligning their aspirations with their interests and aptitudes	4.10	Extensive
5	Students confidently communicate their career intentions and demonstrate a strong sense of purpose in pursuing vocational and technical education, showcasing their pathway knowledge and commitment	3.30	Moderately Extensive
Overall Mean		**3.58**	**Extensive**

ucational opportunities and ultimately prepare them for successful careers in the technical and vocational fields.

3.1.11. Adaptability and Interpersonal Skills—Adaptability and interpersonal skills substantially influence students' readiness for the Technology and Vocational Education - Technical Livelihood Education (TVE-TLE) Senior High School (SHS) Track. In the dynamic and diverse environments of TVE-TLE, these skills are essential for success and effective participation. Adaptability is crucial because TVE-TLE programs often expose students to technical challenges, industry developments, and evolving technologies. Students who possess adaptability skills can adjust to changing circumstances, learn quickly, and embrace new techniques or tools. They are better prepared to thrive in an ever-changing professional landscape, where flexibility and the ability to embrace innovation are highly valued Hile et.al., 2022). Table 11 shows the extent of learners' readiness for Technology Vocational Education – Technology Livelihood Education in Senior High School Track regarding adaptability and interpersonal skills. The result is focused on the highest and lowest mean ratings of indicators which are as follows: students actively engage in career exploration activities, such as informational interviews, job shadowing, or industry visits, reflecting their proactive pursuit of career clarity (4.20) and training has equipped students with the ability to set realistic and informed career goals within the tve-tle track, aligning

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their aspirations with their interests and aptitudes (4.10) are oftentimes manifested; while, students confidently communicate their career intentions and demonstrate a strong sense of purpose in pursuing vocational and technical education, showcasing their pathway knowledge and commitment (3.30), students demonstrate a clear understanding of the various career pathways available within the tve-tle track, including specific vocations, industries, and potential job opportunities (3.20) and many students exhibit in-depth knowledge of the educational requirements, certifications, and skills necessary for success in their chosen tve-tle specialization (3.10) are sometimes manifested.

Table 11: The extent of Learners' Readiness Technology Vocational Education – Technology Livelihood Education in Senior High School Track in Terms of Adaptability and Interpersonal Skills

No	Adaptability and Interpersonal Skills	Mean	Descriptive Equivalent
1	Students demonstrate a clear understanding of the various career pathways available within the TVE-TLE track, including specific vocations, industries, and potential job opportunities	3.20	Moderately Extensive
2	Many students exhibit in-depth knowledge of the educational requirements, certifications, and skills necessary for success in their chosen TVE-TLE specialization	3.10	Moderately Extensive
3	Students actively engage in career exploration activities, such as informational interviews, job shadowing, or industry visits, reflecting their proactive pursuit of career clarity	4.20	Extensive
4	Training has equipped students with the ability to set realistic and informed career goals within the TVE-TLE track, aligning their aspirations with their interests and aptitudes	4.10	Extensive
5	Students confidently communicate their career intentions and demonstrate a strong sense of purpose in pursuing vocational and technical education, showcasing their pathway knowledge and commitment	3.30	Moderately Extensive
Overall Mean		**3.58**	**Extensive**

The overall mean rating of 3.58 denotes that the extent of learners' readiness for Technology Vocational Education – Technology Livelihood Education in Senior High School Track in terms of adaptability and interpersonal knowledge is often manifested, thus, extensive. Interpersonal skills are equally vital as they enable students to collaborate effectively with peers, instructors, and industry professionals. Many TVE-TLE specializations require teamwork, effective communication, and building positive working relationships. Students who excel in interpersonal skills can contribute constructively to group projects, share knowledge, and learn

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from their peers, enhancing the overall quality of their education. Moreover, adaptability and interpersonal skills are essential for building a supportive and inclusive learning environment. They foster community among students, promote a positive classroom atmosphere, and encourage exchanging ideas and experiences (Kilag et al., 2023). Nyang'au et al. (2022) determine the influence of the participation of student youth in decision-making on the implementation of school agriculture programs and suggest measures to improve its impact on the vocational objective. Student youth are in school form fours studying agriculture subject and implementing projects for the Kenya Certificate of Secondary School Examination (KCSE) 2019, a national test. Student youth were selected from three categories of schools offering agriculture subjects, spread in five typical Kenyan farm types found in Kisii and Nyamira counties, Kenya. Hile et al. (2022) aimed to measure agriculture teacher attitudes toward working with gifted students, their preservice teacher preparation, and current professional development needs. Just over half of the participants who completed a traditional teacher preparation program felt adequately prepared to meet the needs of gifted students in their classrooms. Agriculture teachers mostly agreed that students should be challenged, gifted students are a valuable part of their classroom, and that differentiating for gifted students is essential. Responding teachers mostly disagreed that their content knowledge is challenged, gifted students are bored in their classrooms, and they feel threatened by the intelligence of gifted students in their class. Professional development is needed to create challenging classroom content, differentiate instruction, and teach gifted agriculture students problem-solving skills. In conclusion, adaptability and interpersonal skills significantly influence students' readiness for the TVE-TLE SHS Track. These skills enable students to navigate the technical challenges of their chosen specializations and contribute to their personal and professional growth. They prepare students to thrive in collaborative and evolving professional settings, making them well-prepared for success in the diverse technical and vocational fields of TVE-TLE. Table 12 summarizes the extent of students' readiness for Technology Vocational Education – Technology Livelihood Education in the Senior High School Track. The result is focused on the highest and lowest mean ratings of indicators, which are as follows: problem-solving and critical thinking (3.74), career clarity and pathway knowledge (3.58), adaptability and interpersonal skills (3.58), interest and motivation (3.54) and basic technical skills (3.49) are often manifested. The overall mean rating of 3.58 denotes that the extent of students' readiness for Technology Vocational Education – Technology Livelihood Education in Senior High School Track is often manifested and, thus, extensive.

The extent of students' readiness for Technology Vocational Education – Technology Livelihood Education (TVE-TLE) in the Senior High School (SHS) track is a critical factor in preparing individuals for the demands of the modern workforce. TVE-TLE is designed to equip students with practical skills and knowledge in various technical and vocational fields, fostering a seamless transition from education to employment. The readiness of students in this track is multifaceted, encompassing both technical proficiency and a broader understanding of the role of technology in livelihood development. Adequate preparation involves familiarity with tools and equipment, digital literacy, and adaptability to evolving technologies. Furthermore, students need a strong foundation in problem-solving, critical thinking, and commu-

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Table 12: Summary of the Extent of Learners' Readiness Technology Vocational Education – Technology Livelihood Education in Senior High School Track

No	Aspect	Mean	Descriptive Equivalent
1	Interest and Motivation	3.54	Extensive
2	Basic Technical Skills	3.49	Extensive
3	Problem-Solving and Critical Thinking	3.74	Extensive
4	Career Clarity and Pathway Knowledge	3.58	Extensive
5	Adaptability and Interpersonal Skills	3.58	Extensive
Overall Mean		**3.58**	**Extensive**

nication skills to navigate the complexities of vocational fields effectively. The quality of curriculum design influences the extent of students' readiness, the availability of modern facilities and equipment, and the effectiveness of teachers in delivering hands-on and theoretical lessons. Educational institutions must collaborate with industry partners to ensure the TVE-TLE curriculum meets current needs. A well-prepared student in the TVE-TLE track is technically proficient and versatile enough to contribute meaningfully to the ever-changing landscape of technology and livelihood development. As technology continues to reshape industries, the extent of students' readiness in TVE-TLE becomes paramount in cultivating a workforce capable of meeting the demands of the 21st-century job market.

3.2. Significant Relationship Between Teacher-Training in Agriculture And Learners' Readiness Technology Vocational Education – Technology Livelihood Education in Senior High School Track—It can be depicted that Pearson's Correlation generated a significant correlation between teacher training in Agriculture (r=0.876; p¡.000) and learners' readiness for Technology Vocational Education – Technology Livelihood Education in Senior High School Track. Table 13 revealed the significant relationship between teacher training in Agriculture and learners' readiness for Technology Vocational Education – Technology Livelihood Education in Senior High School Track. It provides information that the posed null hypothesis stating that there is no significant relationship between teacher training in Agriculture and students' readiness for Technology Vocational Education – Technology Livelihood Education in Senior High School Track must be rejected for it provided empirical evidence of significant results. The significant relationship between teacher training in agriculture and learners' readiness for Technology Vocational Education – Technology Livelihood Education (TVE-TLE) in the Senior High School (SHS) track is pivotal in shaping a well-rounded and competent workforce for the agricultural and technological sectors. Teacher training in agriculture establishes the foundation for effective education by equipping instructors with the necessary knowledge and pedagogical skills to impart agricultural expertise. These trained educators play a crucial role in fostering students' understanding of agricultural practices, sustainable farming methods, and the broader implications of technology in agriculture (Carnevale et al., 2023).

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Table 13: Significant Relationship Between Teacher-Training in Agriculture and Learners' Readiness Technology Vocational Education – Technology Livelihood Education in Senior High School Track

Variables	r-value	p-value	Teacher - Training in Agriculture Interpretation	Decision
Students' Readiness in TVE-TLE	0.876	<0.000	Significant	Reject H0

*significant @p<0.05.

The seamless integration of teacher expertise in agriculture with the TVE-TLE curriculum enhances the learners' readiness by providing a holistic approach to vocational education. Teachers trained in agriculture can offer insights into the practical applications of technology in agribusiness, agricultural engineering, and related fields, bridging the gap between theoretical knowledge and real-world practices. This symbiotic relationship ensures that students acquire technical skills and develop a profound appreciation for the interplay between technology and agriculture. Consequently, a well-trained cadre of agriculture teachers contributes significantly to students' overall readiness in the TVE-TLE track, preparing them to meet the evolving challenges of the agricultural and technological landscape in senior high school and beyond (Johnson et al., 2020).

3.3. On the Domains of Teacher-Training in Agriculture Significantly Influence Learners' Readiness Technology Vocational Education – Technology Livelihood Education in Senior High School Track—Table 14 depicts the simple regression coefficient analysis showing that teacher training in agriculture significantly influences learners' readiness for technology vocational education—technology livelihood education in the senior high school track. Domains of teacher training in Agriculture in terms of knowledge and content mastery (0.001), pedagogical skills (0.001), hands-on experience (0.000), technology integration (0.000), and assessment and evaluation (0.001) suggest a significant influence on learners' readiness Technology Vocational Education – Technology Livelihood Education in Senior High School Track. Meanwhile, the R2 value of 0.885 suggests that learners' readiness for Technology Vocational Education – Technology Livelihood Education in Senior High School Track is explained by 86.5 percent of teacher training in Agriculture. This provides empirical evidence that variability of learners' readiness for Technology Vocational Education – Technology Livelihood Education in Senior High School Track can be accounted for and explained by the domains of teacher training in Agriculture.

In addition, the F-value shows all the sums of squares, with regression being the model and Residual being the error. The F-value (273.817) and F-statistic are significant p¡.001, which tells that the model is a better predictor of teacher training in Agriculture. Teacher training in agriculture significantly influences learners' readiness for Technology Vocational Education – Technology Livelihood Education (TVE-TLE) in the Senior High School (SHS) track. The expertise and pedagogical skills acquired through teacher training in agriculture empower edu-

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Table 14: Regression Coefficient Analysis on Domains of Teacher-Training in Agriculture Significantly Influence Learners' Readiness Technology Vocational Education – Technology Livelihood Education in Senior High School Track

Model	Variable	B	Beta	Standard Error	p-value	Decision
H	(Intercept)	4.135	0.078	60.426	0.001	4.145
H	(Intercept)	0.323	0.176	1.056	0.270	0.204
	Knowledge and Content Mastery	0.226	0.116	0.102	1.010	0.314
*Reject H						
	Pedagogical Skills	0.242	0.112	0.135	1.299	0.181
*Reject H						
	Hands-On Experience	0.253	0.084	0.212	2.098	0.044
*Reject H						
	Technology Integration	0.213	0.064	0.211	2.098	0.082
*Reject H						
	Assessment and Evaluation	0.245	0.127	0.134	1.299	0.183
*Reject H						
	$R^2 = 0.885$					
	F-value = 273.817					
	p-value ¡ 0.001					

*Significant @ p ¡ 0.05.

cators to effectively convey the intricacies of agricultural practices and their integration with technology (Bird Rice, 2021). These trained teachers are pivotal in shaping students' understanding of the symbiotic relationship between agriculture and technology. By imparting practical knowledge and hands-on experience, they bridge the gap between theoretical concepts and real-world applications in the agricultural sector (Williams, 2022). The impact of teacher training extends beyond traditional classroom settings, as it equips educators to foster critical thinking, problem-solving skills, and a deep appreciation for sustainable agricultural practices among students. Moreover, teachers trained in agriculture bring a dynamic perspective to the TVE-TLE curriculum, aligning it with current industry needs and technological advancements. This alignment ensures that students develop technical proficiency and understand the broader implications of technology in livelihood development. In essence, the significant influence of teacher training in agriculture contributes directly to enhancing students' preparedness for the challenges and opportunities presented in the intersection of agriculture and technology within the Senior High School track (Njura et al. (2020).

4. Conclusions and Recommendations

This chapter presents the findings, conclusion, and recommendation based on the results of the data analyzed, discussed, and drawn implications. Findings are based on the posed statement of the problem; conclusions are based on the findings generated, and recommendations are based on the implications of the discussions.

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4.1. Findings—The following are the study's findings, which are given in the presentation, analysis, and discussions. The extent of teacher training in Agriculture in terms of technology intervention and pedagogical skills is often manifested. In contrast, assessment and evaluation, hands-on experience, knowledge, and content mastery are sometimes manifested. The overall mean rating denotes that the extent of teacher training in agriculture is often manifested as extensive. The extent of learners' readiness for Technology Vocational Education – Technology Livelihood Education in Senior High School Track in problem-solving and critical thinking, career clarity and pathway knowledge, adaptability, interpersonal skills, interest and motivation, and basic technical skills (3.49) are often manifested. The overall mean rating denotes that the extent of learners' readiness for Technology Vocational Education – Technology Livelihood Education in Senior High School Track is often manifested and, thus, extensive. There is a significant correlation between teacher training in Agriculture and learners' readiness for Technology Vocational Education—technology Livelihood Education in the Senior High School Track. Domains of teacher training in Agriculture in terms of knowledge and content mastery, pedagogical skills, hands-on experience, technology integration (0.000), and assessment and evaluation suggest a significant influence on students' readiness for Technology Vocational Education—technology Livelihood Education in Senior High School Track.

4.2. Conclusions—Given the findings of the study presented, the following are the conclusions to wit; The extent of teacher training in Agriculture in terms of technology intervention and pedagogical skills is often manifested. In contrast, assessment and evaluation, hands-on experience, knowledge, and content mastery are sometimes manifested. This means that the extent of teacher training in agriculture is often manifested as extensive. The extent of learners' readiness for Technology Vocational Education – Technology Livelihood Education in Senior High School Track in problem-solving and critical thinking, career clarity and pathway knowledge, adaptability and interpersonal skills, interest and motivation, and basic technical skills are often manifested. This means that the extent of students' readiness for technology vocational education – technology livelihood education in senior high school track is often manifested as extensive. Pearson's Correlation generated a significant correlation between teacher training in Agriculture and students' readiness for Technology Vocational Education—Technology Livelihood Education in Senior High School Track. Domains of teacher training in Agriculture in terms of knowledge and content mastery, pedagogical skills, hands-on experience, technology integration, and assessment and evaluation suggest a significant influence on students' readiness Technology Vocational Education – Technology Livelihood Education in Senior High School Track. The implications of the results of the theory of skills development, as espoused by Ozdimer (2019), suggest that teacher training is grounded in the belief that educators play a pivotal role in shaping the future of students and society at large. Teachers must continually acquire and enhance their skills, knowledge, and competencies to provide high-quality education that meets the evolving needs of learners. Skills development training encompasses various aspects, including subject matter expertise, pedagogical skills, classroom management, and integrating modern technology and teaching methodologies. Moreover, it recognizes that effective teaching goes beyond traditional knowledge dissemination; it encompasses cultivating students' critical thinking, problem-solving abilities, and social-emotional skills. This further underscores the importance of ongoing professional development, collaboration, and reflective practice for teachers' growth and effective-

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ness. Ultimately, the theory of skills development training for teachers aims to empower educators to inspire and equip the next generation with the skills and knowledge needed to thrive in an ever-changing world.

4.3. Recommendations—With the presented conclusions of the study, the following are recommendations to wit; Public School District Supervisor. The supervisor may consider facilitating continuous professional development programs for teachers, specifically focusing on enhancing their skills in agricultural education and integrating technology into the curriculum. The supervisor should also explore opportunities for collaboration with local agricultural industries to ensure that the curriculum aligns with the sector's current needs. School Principal. May prioritize the provision of updated resources and equipment necessary for effective teaching in both agriculture and technology. Adequate investment in facilities and technology will create an environment conducive to hands-on learning experiences, fostering students' practical skills and readiness for the workforce demands. Teachers. May actively actively engage in ongoing professional development opportunities to stay abreast of the latest advancements in agriculture and technology. Collaboration among teachers, both within the school and through partnerships with external experts, should be encouraged to share best practices and innovative teaching methods. Future Researchers. They may explore the long-term impact of integrating agriculture and technology in the Senior High School track. This includes evaluating the career trajectories of students who have undergone such education and assessing the sustainability of the implemented curriculum in meeting the evolving needs of the agricultural and technological sectors. Continuous research and evaluation will contribute to refining and improving educational practices, ensuring the ongoing relevance and effectiveness of the TVE-TLE curriculum in preparing students for successful futures.

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