



PREPAREDNESS OF TECHNICAL VOCATIONAL WORKSHOP LABORATORIES: ITS EFFECT ON STUDENTS' COMPETENCE AND SKILLS ACQUISITION

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ABSTRACT

This study examines how students' competence and skill development in a technical vocational high school are impacted by workshop laboratory readiness. The respondents were 281 students who were officially enrolled in the school year 2022-2023 in Monkayo National High School-Senior High School. This study aims to provide understanding and recommendations for the improvement of workshop laboratories in Technical Vocational Workshop Laboratories for Food and Beverage Services, Bread and Pastry Production and Information and Communications Technology.

Correlational methods were conducted and validated through survey questionnaire to measure the level of preparedness of workshop laboratories for Information and Communications technology, food and Beverage Services and Bread and Pastry Production and the level of competence and skill acquisition of students in technical vocational livelihood track.

The result reveals that the p-value .05 is less than the correlation coefficient of 0.155 which means that there is no significant relationship between preparedness of ICT laboratory and the level of competence and acquisition of skills of the students.

For Food and Beverage, it is clearly indicated in the table that the p-value 0.834 is greater than the correlation coefficient of .059 set at the significant level of 0.05 this means that there is no significant relationship established between the preparedness of the FBS laboratory and the level of competence and skills acquisition of the students.

Bread and Pastry Production, the p-value 0.433 is greater than the computed value of .219 set at the significant level of 0.05, this means that there is no significant relationship established between the preparedness of the bread and pastry production laboratory and the level of competence and skills acquisition of the students.

The lack of a statistically significant correlation between readiness and competence suggests that learning outcomes are influenced by variables other than the tools and facilities provided in the lab. It is recommended that educators need to check the Training Regulations of Technical Education Skill Development Authority (TESDA) section 3 of the training standards to determine what tools, materials, equipment necessary for the conduct of training the said technical vocational education program.

Chapter 1

INTRODUCTION

The Problem and its Background

Technical Vocational Education is defined as education that exposes the learner to the acquisition of demonstrable skills that could be transformed into economic benefits and sustainable livelihood (Akerele 2007).

In a study in Nigeria, the majority of Technical Vocational Education institutions are underperforming owing to limited workshop facilities, which make it difficult for Technical Vocational Education students to learn new skills (Umar & Maaji, 2010).

Currently, in Monkayo National Senior High School the Technical-Vocational Livelihood workshop laboratories particularly in food and beverage, bread and pastry, and Information and Communication Technology (ICT) experienced hardship in transferring skills due to a lack of training tools, materials, and equipment. Teachers are having difficulty in emphasizing performance tasks because of the absence of training equipment. With almost no available training equipment in the workshop laboratories, teachers tend to focus on theory rather than actual or hands-on activity. The competence of the students becomes low, and skills acquisition becomes impossible.



With the absence of proper training equipment, teachers tend to focus more on theory rather than hands-on activities, which delays the acquisition of practical skills by students. The Technical-Vocational Livelihood Education in Monkayo National Senior High School highlights the need for improvements in the workshop laboratories.

Statement of the Problem

The main purpose of this study was to assess the Technical Vocational Workshop laboratories and their effects on the competence and skills acquisition of the students who were enrolled Monkayo National High School- Senior High School, Monkayo, Davao de Oro for school year 2022-2023. Specifically, it sought to answer the following questions:

1. What is the level of preparedness of TVL workshop laboratories in terms of:
 - 1.1 Information and Communication Technology,
 - 1.2 Food Beverage Services, and
 - 1.3 Bread and Pastry Production?
2. What is the level of competence and skills acquisition of the TVL student?
 - 2.1 Information and Communication Technology,
 - 2.2 Food Beverage Services, and
 - 2.3 Bread and Pastry Production?
3. Is there a significant relationship between preparedness of technical vocational workshop laboratory and the level of competence and skills acquisitions of students in terms of:
 - 3.1 Information and Communication Technology,
 - 3.2 Food and Beverage Services, and
 - 3.3 Bread and Pastry Production?

Null Hypothesis

To determine statistically all the answers to the presented problems, a null hypothesis is formulated.

HO₁: There is no significant correlation between the preparedness of TVL workshop laboratories and the competence and skills acquisition of the students.

Scope and Delimitation of the Study

The study focused on the preparedness of TVL workshop laboratories and the competence and the acquisition of skills of the 281 TVL Grades 11 and 12 senior high school students who were enrolled in Monkayo National High School-Senior High School for school year 2022-2023. The respondents of the study were purposively selected from the area of the specialized subject in TVL track: information and communication technology, food and beverage services, and bread and pastry production.

Chapter 2

Research Design

This study used the quantitative descriptive-survey research design. According to Siedlecki (2020), a descriptive quantitative study is used to describe individuals, events, and conditions of the subjects without manipulation while Creswell (2002) noted that quantitative research is the process of collecting, analyzing, interpreting, and writing the results of the study.

Research Locale

The study was conducted in Monkayo National High School-Senior High School West district located in Lorenzo Sarmiento Población Monkayo Davao de Oro. The school is the center school of Monkayo with a total population of 3,381 students for junior high school and with 120 junior high school teachers headed by a school principal. For Senior high school, a population of 702 students and 48 senior high school teachers with an Assistant School Principal.

Respondents of the Study

The respondents under study were the TVL students in Grade 11 and Grade 12 of Technical Vocational Livelihood, with a specialization in computer system servicing, food and beverage, and bread and pastry production. Students were selected purposively because they have been exposed to laboratory workshops wherein there is an inadequacy of training tools, materials, and equipment. The research respondents were the 281 TVL learners who were officially enrolled in Monkayo National High School-Senior High School for academic year 2022-2023. These respondents were considered since they had been exposed to workshop facilities with limited resources.



Statistical Treatment of Data

For the statistical computations, the researcher used the Statistical Packages of Social Sciences (SPSS) to determine the frequency count, percentages, and mean to describe the students' level of competence and skills.

Chapter 3

RESULTS

This chapter presents the data, which were gathered through the research instrument of the study. It also provides statistical analysis and the interpretation of data to answer the problems of the study.

Level of Preparedness of TVL Workshop Laboratories

Information and Communications Technology. Table 1 presents the results of the level of preparedness of ICT laboratory.

Table 1
Information and Communication Technology Laboratory

The laboratory...	Weighted Mean	Descriptive Rating
Overall mean	2.78	Agree

According to Al-Zyoud et al. (2019), Worldwide reports of accidents in chemical laboratories have been made for a variety of causes, including a lack of personal protective equipment (PPE), a lack of experience, improper chemical handling, and ignorance of what should be done in an emergency.

Food and Beverage Services. Table 2 indicates the level of preparedness of the food and beverage laboratory.

Table 2
Food and Beverage Laboratory

The laboratory...	Weighted Mean	Descriptive Rating
Overall Mean	2.99	Agree

The availability of instruments for training should imply that they are offered in sufficient numbers to the point where it is possible for individual students to use them during training sessions in workshops (Umunadi, 2010).

Bread and Pastry Production. It is reflected in Table 3 the level of preparedness of bread and pastry laboratory.

Table 3
Bread and Pastry laboratory

The laboratory	Weighted Mean	Descriptive Rating
Overall Mean	2.95	Agree

The implementation of Technical vocational education is hampered by inadequate teaching and learning resources (Indoshi et al., 2010).

Level of Competence and Skills Acquisition of the TVL Students

Competence level and skills acquisition of students in Information and Communication Technology. Reflected in Table 4 is the level of competence and skill acquisition of the students in ICT.

Table 4
Competence Level and Skill Acquisition of Students in ICT

Overall Mean	2.74	Needs Improvement
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The instructional material should focus on developing the necessary abilities while in school, and this should be totally practical to fulfill both personal and industrial demands OLUWALOLA (2020).

Competence level and skills acquisition of students in Food and Beverage Services. Table 5 shows the level of competence and skill acquisition of the students in FBS.



Table 5
Competence Level and Skill Acquisition of Students in Food and Beverage Services

	Mean	Descriptive Rating
Overall Mean	3.23	Needs Improvement

Technical Vocation education graduates struggle to get employment because they lack employability skills (Audu, Kamin, & Balash, 2013).

Competence level and skills acquisition of students in Bread and Pastries Production. Table 6 shows the level of competence and skill acquisition of the students in bread and pastries production.

Table 6
Competence Level and Skill Acquisition of Students in Bread and Pastries Production

	Mean	Descriptive Rating
Overall Mean	3.30	Needs Improvement

According to Toth (2006), many people learn and master skills more effectively by putting them into practice than by merely being a spectator for skills like listening to teachers discuss the talent, reading about the skill, or watching others perform the skill. It can be seen in the table that all indicators receive a descriptive rating of needs improvement.

Correlation between the Preparedness of TVL Workshop Laboratories and the Level of Competence and Skill Acquisition of the Students

Table 7
Relationship between Preparedness of ICT Laboratory and Students' Competence and Skills Acquisition

Variables	p-value	Correlation coefficient	Remarks
PREPAREDNESS	0.581	0.155	NOT SIGNIFICANT
COMPETENCE			

p-value > .05, not significant

The p-value of 0.581 is greater than the usually accepted significance level of 0.05, indicating that there is no statistically significant link between readiness and students' competence and skill acquisition. This observation is further supported by the correlation coefficient of 0.155, which is near to zero and denotes a weakly positive correlation. According to Nageswari et al. (2004), Through kinesthetic learning, practical skills are acquired.

Table 8
Relationship between Preparedness of FBS Laboratory and Students' Competence and Skills Acquisition

Variables	p-value	Correlation coefficient	Remarks
PREPAREDNESS	0.834	.059	NOT SIGNIFICANT
competence			

p-value > .05, not significant

The link between readiness and students' competence and skill acquisition is not statistically significant, as the p-value of 0.834 is far greater than the usually accepted significance level of 0.05. This conclusion is further supported by the correlation coefficient of 0.059, which is very near to zero and denotes an exceedingly weak positive correlation.

Table 9
Relationship between Preparedness of Bread and Pastries Production Laboratory and Students' Competence and Skills Acquisition

Variables	p-value	Correlation coefficient	Remarks
PREPAREDNESS	0.433	.219	NOT SIGNIFICANT
COMPETENCE			

p-value > .05, not significant

These results are in line with the body of research on educational settings, which suggests that, while crucial, the readiness of the learning environment may not be the only factor in determining the development of students' competence and skills.

The p-value of 0.433 is higher than the usual significance level of 0.05, indicating that there is no statistically significant link between readiness and student competence and skill acquisition. This conclusion is further supported by the correlation coefficient of 0.219, which is pretty near to zero and denotes a weakly positive link.



Chapter IV

DISCUSSIONS AND CONCLUSIONS

Discussions

After the data were analyzed and interpreted, the following discussions were made:

Level of preparedness for Information and Communication Technology laboratory. The Information and communication laboratory is orderly and well-maintained, and the students agreed that it had adequate lighting and ventilation (weighted mean of 3.20). These supportive environments are necessary for a productive learning environment since they can increase students' concentration and productivity. Students would actually perform better academically if they were motivated by their school's internal environment (Fielding, 2006; Pulay, 2010).

The students differ on a number of issues, including the availability of a sufficient first aid kit (weighted mean of 2.02), personal protective equipment (weighted mean of 2.36), accessible network devices (weighted mean of 2.91), and enough workspace size (weighted mean of 2.44). These findings draw attention to potential safety and resource constraints that may have an impact on how well pupils learn and may even prevent them from developing the necessary skills.

Level of preparedness for Food and Beverage Services Laboratory. The level of preparedness of the food and beverage laboratory also received an overall mean of 2.99 which is interpreted as agree. This means that there is a need for improvement in several areas, especially regarding safety and the accessibility of specific commodities. This result is consistent with Audu's (2014) findings that work-based learning, simulation, field trips, project work, and context-based learning are the most effective and efficient teaching approaches to be employed in order to enable students to gain skills.

Level of preparedness of Bread and Pastry Production Laboratory. With an overall mean of 2.95 falling into the "Agree" category, the students generally concur with the bread and pastry laboratory's readiness.

However, there are several areas that need attention and development. With a weighted mean of 2.18, the accessibility of bakery goods like yeast, dough, and quick bread obtained a rather low agreement grade. For students to practice diverse techniques and recipes, it's essential to have a variety of baking items, therefore filling this gap could improve the laboratory's performance.

Level of competence and skill acquisition for Information and Communication Technology students. The level of competence and skill acquisition of the students in Information and Communication Technology has an overall mean of 2.74 which is interpreted as needs significant improvement. This means that the skills need significant improvement specifically on students' acquisition of important marketable skills. Osibanjo and Tella (2010) noted in their study, "Assessment of Technical and Vocational Education and Training in Nigeria: A Tool for Sustainable Development," that the infrastructure and facilities present in the training institutions have a significant impact on the efficacy of technical vocational education programs.

Level of competence and skill acquisition of Food and Beverage Services students. The level of competence and skill acquisition of the students in food and beverage has an overall mean of 3.23 which is interpreted as needs improvement. In the study made by Li and Sun (2021) on the effectiveness of technical and vocational education and training technical vocational education in China found out that having well-prepared and equipped laboratories was essential to improving TVET and student proficiency.

Level of competence and skills acquisition of Bread and Pastry Production students. The level of competence and skill acquisition of learners in bread and pastry received an overall mean of 3.30 which is interpreted as needs improvement. This means that the competence of the students should improve, and they have to expose themselves to practice and training. The skills acquired by the students are not enough to prepare them for work.

Relationship between preparedness of Information and Communication Technology Laboratory and students' competence and skills acquisition. There was no significant relationship between the preparedness of Information and Communication Technology laboratory and the level of students' competence and skills acquisition. A study by Kaur et al. (2019) revealed no connection between students' learning of practical abilities in the field of computer technology and workshop laboratory facilities. Also, in the context of Taiwanese universities, a study by Liaw et al. (2010) found no statistically significant relationship between the caliber of technology infrastructure and students' ICT competencies.

Relationship between preparedness of Food and Beverage Services Laboratory and students' competence and skills acquisition. There was no significant relationship established between the preparedness of the FBS laboratory and the level of competence and skills



acquisition of the students. The lack of a substantial correlation between readiness and competence suggests that learning outcomes are influenced by variables other than the tools and facilities provided in the lab. According to a study by Chen and colleagues (2019), a variety of elements, including learner motivation, instructional strategies, and peer and teacher support, are crucial to students' ability to acquire skills in vocational education. While having the appropriate supplies and tools on hand can make it easier to perform services, it may not always result in greater proficiency in those fields (Nguyen, Ngo 2019).

Relationship between preparedness of Bread and Pastry Production Laboratory and students' competence and skills acquisition.

There was no significant relationship established between the preparedness of the bread and pastry production laboratory and the level of competence and skills acquisition of the students. According to a study by Khan et al. (2020) on the variables affecting students' performance in Technical Vocational Education and training (TVET) programs, while resources and facilities are essential for improving TVET's quality, other variables like teaching strategies, curriculum design, and teacher qualifications also have a significant impact on students' performance. While having appropriate resources and facilities is essential for a workshop laboratory to be fully functional, it might not be enough to improve students' bread-making proficiency. To enhance learners' competence and employability, it is also crucial to make sure that the laboratory equipment is current and pertinent to current industry standards (Cao, 2017).

Conclusion

The statistical analysis of the Technical Vocational Workshop Laboratories revealed that there is need for improvement as well as the students' competency and skill acquisition in the fields of information and communication technology, food and beverage production, and bread and pastry production. The absence of a statistically significant relationship between readiness and competence suggests that factors other than laboratory readiness play a role in the students' capacity to pick up competence and skills. Therefore, there is no significant correlation between the preparedness of TVL workshop laboratories and the competence and skills acquisition of the students. Thus, in order to increase students' acquisition of skills in vocational education, attention must be made to improve crucial components such as the curriculum, instructional methodologies, student motivation, and instructor support. The results indicate that making investments in modernizing the laboratory's equipment, facilities, and safety regulations can help create a more conducive learning environment.

Recommendations

Level of preparedness for Information and Communication Technology laboratory. The curriculum and instruction methodologies utilized in the Information and Communication Technology laboratory should be assessed and improved. Also, the institution invests in enhancing security measures, purchasing appropriate hardware and network devices, and giving students enough room to work. Additionally, providing more manufacturer manuals, instructional videos, and other learning resources accessible to students will help them improve their skills.

Level of preparedness for Food and Beverage Services. To offer a more thorough foodservice experience, the institution concentrates on increasing the selection of beverage alternatives, including wines. The provision of a first aid kit and the prioritization of safety standards will also help to create a secure learning environment.

Level of preparedness for Bread and Pastry Production. The institution should put its efforts toward expanding the selection of bakery and pastry goods. This can be accomplished by routinely replenishing supplies and goods and making sure there is a constant supply of different baking and pastry ingredients. Enhancing the laboratory's capacity to support students' learning and development in bread and pastry production is necessary for the Bread and Pastry Production laboratory.

Competence level and skills acquisition of students in Information and Communication Technology. Strengthen Practical Training: It's essential to provide students with more hands-on experience using ICT. Utilize Interactive Learning Resources: Provide interactive learning tools including interactive software manuals, online simulations, and virtual labs. Internships in the Industry: Form associations with businesses and individuals in the ICT sector to offer students possibilities for internships.

Competence level and skills acquisition of students in Food and Beverage Services. Practical Training and Role-Playing: Conduct role-playing exercises with students to imitate real-world situations that might occur in a restaurant. Students can learn effective communication techniques, improve their comprehension of consumer needs, and practice precise reservation details recording by role-playing.

Implement customer service training programs to give students the knowledge and abilities to respond to client inquiries, accurately repeat reservation information, and accommodate visitor requests. A crucial component of the business is providing excellent customer service.



Professional Development Workshops: Arrange conferences and training sessions with business experts to introduce students to the newest trends and top techniques in the food and beverage services industry. Students who align their skills with market expectations benefit from industry knowledge.

The researcher recommends checking Training Regulations of TESDA section 3 of the training standards page 59-61 or 3.4 and 3.5 for ICT -specifically in Computer System Servicing NC II to look for reference for the standard tools, materials, resources, and learning area. For Food and Beverage NC II check Training regulation of TESDA section 3 of the training standards page 66-68 or 3.4 and 3.5. For Bread and Pastry Production NC II check Training regulation of TESDA section 3 of the training standards page 53-55 or 3.4 and 3.5 and the training regulation. This helps educators to determine what tools, materials, equipment are necessary for the conduct of training the said technical vocational education program.

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