

Instructional Effectiveness of TLE Teachers in Rural Schools and its Relationship Between Availability of Food Services Tools a Equipment

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Abstract: This review synthesis literature on the relationship between instructional resource availability and teaching effectiveness in Technology and Livelihood Education (TLE), with emphasis on Food Services specialization in rural schools. The objective is to examine how the adequacy, accessibility, functionality, and maintenance of tools and equipment influence instructional delivery, classroom management, learner engagement, and assessment practices. Literature was gathered from ERIC, ScienceDirect, Google Scholar, and Philippine E-Journals, covering studies published between 2012 and 2026. Findings consistently highlight that resource adequacy enhances instructional effectiveness, while shortages in rural schools hinder practical skill acquisition and force teachers to improvise. Theoretical frameworks such as Constructivism and Input-Process-Output (IPO) model support the argument that hands-on resources are essential for meaningful learning. However, gaps remain in localized empirical studies that specifically measure the predictive relationship between resource availability and instructional effectiveness in rural Philippine contexts. This synthesis underscores the importance of resource allocation and policy support to strengthen vocational education. Recommendations call for targeted investments in rural school facilities, continuous monitoring of resource adequacy, and further research on the long-term impacts of instructional resource availability on student outcomes.

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I. INTRODUCTION

➤ Background of the Study

Education serves as a vital instrument for national development, particularly through programs that develop technical and vocational competencies among learners. According to Oviawe et al. (2019), adequate facilities and equipment are indispensable components of effective vocational education because they support skill acquisition and improve the quality of instruction. When tools and equipment are lacking, teachers encounter difficulties in implementing practical lessons and achieving instructional objectives. Technology and Livelihood Education (TLE) plays a significant role in preparing learners with practical skills, technical knowledge, and work values necessary for employment and entrepreneurship. Under the K-12 curriculum of the Philippines, Food and Services is one of the specialized areas that requires hands-on learning experiences through the use of tools, equipment, and facilities. Effective teaching in this area depends not only on the competence of teachers but also on the availability of instructional resources that support practical learning activities. According to

Piaget's Constructivist Theory (1952), learners acquire knowledge through active interaction with their environment. This suggests that students learn more effectively when they engage directly with tools and equipment during practical activities. Similarly, Dewey (1938) emphasized that learning occurs through experience, making practical resources essential in vocational and technical education.

The availability of instructional tools and equipment contributes significantly to the quality of teaching and learning. Candunggo (2026) found that instructional resource availability significantly affects teaching effectiveness among Home Economics teachers. The study revealed that teachers who have access to adequate resources demonstrate better lesson delivery and student engagement. Likewise, Cabusor and Antonio (2025) reported that schools with sufficient instructional resources create more favorable learning environments and improve teachers' instructional performance. Their study highlighted that resource availability enables teachers to implement practical activities effectively.

Despite the importance of tools and equipment, many rural schools continue to experience shortages due to limited funding, inadequate infrastructure, and logistical constraints. Demandante and Lagura (2026) reported that public schools in remote areas often struggle with inadequate laboratory and instructional resources, forcing teachers to improvise during practical lessons. Similarly, Madarang and Abrogena (2026) found that teachers in rural schools frequently encounter challenges in delivering practical competencies because of insufficient equipment and facilities. These conditions may negatively affect instructional effectiveness and student skill acquisition.

It is further explained that resource adequacy positively influences teaching and learning effectiveness in vocational education programs (Edokpolor and Dumbiri, 2019). Findings suggest that students learn more effectively when teachers have access to sufficient instructional resources and facilities. Research revealed that many vocational institutions face shortages of facilities and equipment, which negatively affect instructional delivery and skill development among students (Chinda and Williams). Such conditions are more prevalent in rural and underserved communities where educational resources are often limited. In the Philippine context, the adequacy of facilities remains a concern in many public schools implementing TVL programs. Del Rosario (2025) highlighted that school facilities significantly affect the implementation of TVL programs and influence both teacher performance and student learning outcomes. Moreover, Jumamil (2025) found that the availability of school resources contributes to students' academic competence in Cookery and supports effective teaching practices among TLE teachers. The study emphasized that resource availability serves as an important factor in improving educational outcomes.

Instructional effectiveness refers to the extent to which teachers successfully facilitate learning and achieve educational objectives. Effective TLE teachers demonstrate mastery of content, employ appropriate teaching strategies, manage classroom activities efficiently, and engage students in meaningful practical experiences. However, the absence of necessary tools and equipment may hinder teachers from maximizing their instructional capabilities. Rural schools frequently experience challenges related to insufficient funding, inadequate facilities, and limited access to modern equipment. Consequently, teachers may struggle to provide quality practical instruction despite possessing the necessary knowledge and teaching skills.

Recognizing the importance of instructional resources in vocational education, this study aims to investigate whether the availability of food and services' tools and equipment significantly influences the instructional effectiveness of TLE teachers in rural schools. Since Food and Services is highly practical in nature, the availability of tools and equipment and the instructional effectiveness of TLE teachers in rural schools. This study seeks to address this gap and provide evidence-based information that may guide educational planning and resource allocation. The findings of this study may provide valuable insights for school

administrators, policymakers, and educational stakeholders in improving resource allocation and enhancing the quality of Food and Services' education.

➤ *Theoretical Framework*

This study is anchored on the Resource-Based Theory of Teaching and Learning proposed by Jerome Bruner and the Constructivist Learning Theory, which emphasized that learning becomes more meaningful when learners interact directly with instructional materials and real-life learning resources. Constructivist Theory posits that learners actively construct knowledge through experiences and interactions with their environment. In Food and Services education, tools and equipment serve as learning resources that facilitate hands-on experiences, enabling students to develop practical competencies.

The study is also supported by the Input-Process-Output (IPO) Model. In this framework, the availability of Food and Services tools and equipment serves as the input, instructional delivery and teaching strategies represent the process, and instructional effectiveness serves as the output. Adequate instructional resources enhance the teaching-learning process, leading to improved instructional effectiveness.

Therefore, the theory suggests that schools with sufficient and functional tools and equipment are more likely to support effective teaching practices, resulting in better instructional outcomes.

➤ *Conceptual Framework*

The study investigates the relationship between two variables:

- *Independent Variable*

The Availability of Food and Services Tool and Equipment

- ✓ *Indicators:*

- Adequacy of tools
- Adequacy of equipment
- Accessibility of resources
- Functionality of tools and equipment
- Maintenance and usability

- *Dependent Variable*

The Instructional Effectiveness of TLE Teachers

- ✓ *Indicators:*

- Lesson preparation
- Classroom management
- Demonstration of skills
- Learner engagement
- Assessment practices
- Achievement of learning objectives

II. REVIEW OF LITERATURE

Gregorio (2016) found that many schools offering TLE programs lacked sufficient tools, equipment, and facilities

needed for effective skills training. The study revealed that instructional resources were often below the standards prescribed for competency-based instruction, thereby affecting the implementation of practical activities. The findings highlight the importance of adequate and functional tools and equipment in delivering quality TLE instruction. Retome et al. (2012) reported that both teachers and students perceived instructional tools, equipment, and facilities as inadequate. The researchers emphasized that the availability and condition of learning resources directly affect the conduct of laboratory activities and practical exercises in TLE classes. Their findings support the need to assess the adequacy, accessibility, and functionality of instructional resources. These studies provide a basis for examining the level of availability of Food and Services tools and equipment in rural schools.

Candunggo (2026) found that instructional effectiveness among Home Economics teachers was reflected through effective lesson delivery, classroom management, learner participation, and assessment strategies. The study further emphasized that teachers who had access to sufficient instructional resources demonstrate higher levels of instructional competence. Fabillar and Escarlos (2026) examined factors affecting instructional delivery among TLE teachers and found that effective teaching was characterized by well-planned lessons, learner-centered strategies, proper classroom management, and effective assessment practices. Their study highlighted instructional effectiveness as a multidimensional concept that influences student learning outcomes. The studies suggest that instructional effectiveness encompasses various teaching competencies. These dimensions serve as indicators for measuring instructional effectiveness in the present study.

Candunggo (2026) established a significant positive relationship between instructional resource availability and teaching effectiveness. The study concluded that teachers who had access to adequate facilities and equipment were able to deliver lessons more effectively and engage learners more successfully. Limon (2016) found that school facilities significantly influence educational performance and instructional quality. Schools with adequate learning resources demonstrated better teaching outcomes and improved student achievement compared to schools with limited facilities. These findings provide empirical support for investigating the relationship between the availability of Food and Services tools and equipment and the instructional effectiveness of TLE teachers in rural schools.

➤ *Statement of the Problem*

Generally, the study aims to determine the relationship between the availability of Food Services tools and equipment and the instructional effectiveness of TLE teachers in rural schools specifically SanVilLar (San Isidro, Villaviciosa, Pilar) District Cluster.

Specifically, it seeks to answer the following questions;

- What is the level of availability of Food and Services tools and equipment in terms of:
 - ✓ adequacy;
 - ✓ accessibility;
 - ✓ functionality; and
 - ✓ maintenance?
- What is the level of instructional effectiveness of TLE teachers in terms of:
 - ✓ Lesson preparation;
 - ✓ Classroom management;
 - ✓ Demonstration of skills;
 - ✓ Learner engagement; and
 - ✓ Assessment practices?
- Is there a significant relationship between the availability of Food and Services tools and equipment and the instructional effectiveness of TLE teachers in rural schools specifically in SanVilLar Cluster District?
- Which dimension of tool and equipment availability best predicts instructional effectiveness?

➤ *Hypotheses*

The study will test the following null hypothesis at the 0.05 level of significance:

- H_0 : There is no significant relationship between the availability of Food and Services tools and equipment and the instructional effectiveness of TLE teachers in rural schools.
- H_1 : There is significant relationship between the availability of Food and Services tools and equipment and the instructional effectiveness of TLE teachers in rural school.

➤ *Scope and Limitations of the Study*

This study focuses on determining the relationship between the availability of Food and Services tools and equipment and the instructional effectiveness of TLE teachers in rural schools specifically in the SanVilLar District Cluster.

The study will be conducted among the TLE teachers handling Food and Services subjects in the SanVilLar District Cluster secondary and integrated schools. It will examine the availability of tools and equipment in terms of sufficiency, accessibility, functionality, and quality.

Instructional effectiveness will be assessed through lesson delivery, classroom management, student engagement, assessment practices, and skills demonstration.

The study is limited to the perceptions and responses of TLE teachers and does not include students, school administrators, or other stakeholders. The findings will apply only to the schools included in the study and may not be generalized to all rural schools in the Philippines.

➤ Importance of the Study

The results of the study will be of great benefit to the following:

- *Department of Education (DepEd)*

The study may provide evidence for improving resource allocation and policy implementation concerning TLE laboratories and instructional facilities.

- *School Administrators*

The result may serve as a basis for planning, budgeting, and procuring Food and Services tools and equipment.

- *TLE Teachers*

The study may help teachers identify resource-related factors affecting instructional effectiveness and advocate for necessary instructional support.

- *Students*

The students may benefit from improved instructional delivery and enhanced opportunities for practical skill development.

- *Local Government Units (LGUs)*

The results may encourage support and funding initiatives for rural schools.

- *Future Researchers*

The findings may serve as a reference for future studies or investigations related to instructional resources, TLE instruction, teaching effectiveness and rural education.

➤ Definition of Terms

The following terms are operationally defined to establish an effective understanding of the study.

- **Availability of Tools and Equipment.** Refers to the extent to which food and services tools and equipment are present, accessible, functional, and adequate for instructional use.
- **Food and Services.** A specialization under TLE that focuses on food preparation, food service, housekeeping, table setting, and hospitality related competencies.
- **Instructional Effectiveness.** The ability of teachers to successfully facilitate learning and achieve instructional objectives through effective teaching practices.
- **Rural Schools.** Educational institutions located in geographically isolated or less urbanized communities.
- **Sufficiency.** The adequacy of tools and equipment needed to conduct instructional activities.
- **Accessibility.** The ease with which teachers and students can utilize available tools and equipment.
- **Functionality.** The operational condition and usability of tools and equipment.
- **Quality.** The degree to which tools and equipment meet instructional standards and requirements.
- **TLE Teachers.** Educators responsible for teaching Technology and Livelihood Education subjects.

III. METHODOLOGY

A. Research Design

This study will utilize the descriptive-correlational research design. According to John W. Creswell, descriptive-correlational research is appropriate when the researcher seeks to determine the degree and direction of relationship between two or more variables without manipulating them.

The descriptive component of the study will be used to determine the level of availability of Food and Services tools and equipment and the level of instructional effectiveness of TLE teachers in rural schools. The correlational component will be employed to examine whether a significant relationship exists between the availability of Food and Services tools and equipment and the instructional effectiveness of TLE teachers.

This design is deemed appropriate because the study aims to investigate the association between the independent variable, which is the availability of Food and Services tools and equipment, and the dependent variable, which is the instructional effectiveness of TLE teachers, without introducing any experimental treatment.

B. Locale and Population of the Study

The study will be conducted in the rural secondary and integrated schools of SanVilLar Cluster District offering Technology and Livelihood Education (TLE) subjects within the Schools Division of Abra.

The respondents of the study will be TLE teachers handling Food and Services subjects during the School Year 2026-2027. These teachers are considered the most appropriate respondents because they directly utilize Food and Services tools and equipment in the delivery of instruction.

The population of the study shall consist of all TLE teachers in the SanVilLar Cluster District schools. If the number of respondents is manageable, total enumeration will be employed. However, if the population is large, a sampling technique such as purposive sampling or stratified random sampling may be utilized to ensure adequate representation.

➤ Inclusion Criteria

The respondents must:

- Be currently teaching TLE subjects.
- Be assigned to Food and Services-related competencies.
- Have at least one year of teaching experience in the school.
- Be willing to participate in the study.

➤ Exclusion Criteria

The following shall not be included:

- Teachers not handling TLE subjects.
- Newly hired teachers with less than one year of service.
- Teachers on leave during the conduct of the study.

C. Research Instrument

The primary instrument for the data collection will be a research-made questionnaire adapted from existing studies related to instructional resources and teaching effectiveness.

The questionnaire shall consist of three parts:

➤ Part I. Respondent Profile

This section will gather information regarding:

- Age
- Sex
- Educational attainment
- Length of teaching experience
- Relevant trainings attended

➤ Part II. Availability of Food and Services Tools and Equipment

This section will assess the availability of tools and equipment in terms of:

- Adequacy
- Accessibility

- Functionality
- Maintenance

➤ Part III. Instructional Effectiveness of TLE Teachers

This section will measure instructional effectiveness in terms of:

- Lesson preparation
- Classroom management
- Demonstration of skills
- Learner engagement
- Assessment practices

The questionnaire shall be subjected to content validation by experts in educational research and TLE instruction. A pilot test shall also be conducted to establish reliability using Cronbach's Alpha, where a reliability coefficient of 0.70 percent or higher shall be considered acceptable.

➤ Rating Scale

The study shall utilize a five-point Likert scale.

Table 1 Availability of Food and Services Tools and Equipment

Scale	Range	Description
5	4.21 – 5.00	Very High
4	3.41 – 4.20	High
3	2.61 – 3.40	Moderate
2	1.81 – 2.60	Low
1	1.00 – 1.80	Very Low

Table 2 Instructional Effectiveness

Scale	Range	Description
5	4.21 – 5.00	Very Effective
4	3.41 – 4.20	Effective
3	2.61 – 3.40	Moderately Effective
2	1.81 – 2.60	Less Effective
1	1.00 – 1.80	Not Effective

D. Data Gathering Procedures

The following procedures will be observed in gathering the necessary data:

➤ Step 1: Preparation of Research Instrument

The researcher will prepare the questionnaire based on the objectives of the study and relevant literature.

➤ Step 2: Validation of Instrument

The questionnaire will be submitted to research experts, TLE supervisors, and experienced teachers for content validation.

➤ Step 3: Securing Permission

A letter requesting permission to conduct the study will be submitted to the Schools Division Superintendent, school principals, and other concerned authorities.

➤ Step 4: Administration of Questionnaire

Upon approval, the researcher will personally distribute the questionnaires to the respondents and explain the purpose of the study.

➤ Step 5: Retrieval of Questionnaires

The completed questionnaires will be collected, checked for completeness, and organized for data processing.

➤ Step 6: Data Analysis

The gathered data will be encoded, tabulated, analyzed, and interpreted using appropriate statistical tools.

E. Statistical Treatment

The following statistical tools will be utilized in analyzing the data:

➤ *Research Question 1*

- Weighted Mean. This will be used to determine the level of availability of Food and Services tools and equipment.

Formula:

$$\bar{x} = \sum \frac{fX}{N}$$

Where:

- $\bar{x}$ = Weighted Mean
- f = Frequency
- X = Scale Value
- N = Total Number of Responses

➤ *Research Question 2*

- Weighted Mean. This will be used to determine the level of instructional effectiveness of TLE teachers.

➤ *Research Question 3*

- Pearson Product-Moment Correlation Coefficient (r). This statistical tool will be used to determine whether a significant relationship exists between the availability of Food and services tools and equipment and instructional effectiveness.

Formula:

$$r = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{[N \sum X^2 - (\sum X)^2][N \sum Y^2 - (\sum Y)^2]}}$$

➤ *Research Question 4*

- Multiple Linear Regression Analysis. This statistical method will be employed determine which dimension of tool and equipment availability best predicts instructional effectiveness.

All hypotheses shall be tested at the 0.05 level of significance.

F. Data Categorization

Table 3 Availability of Food and Services Tools and Equipment

Mean Range	Interpretation
4.21 – 5.00	Very High Availability
3.41 – 4.20	High Availability
2.61 – 3.40	Moderate Availability
1.81 – 2.60	Low Availability
1.00 – 1.80	Very Low Availability

Table 4 Instructional Effectiveness

Mean Range	Interpretation
4.21 – 5.00	Very Effective
3.41 – 4.20	Effective
2.61 – 3.40	Moderately Effective
1.81 – 2.60	Less Effective
1.00 – 1.80	Not Effective

Table 5 Correlation Coefficient Interpretation

r Value	Interpretation
$\pm 0.00 - \pm 0.19$	Very Weak
$\pm 0.20 - \pm 0.39$	Weak
$\pm 0.40 - \pm 0.59$	Moderate
$\pm 0.60 - \pm 0.79$	Strong
$\pm 0.80 - \pm 1.00$	Very Strong

IV. ETHICAL CONSIDERATIONS

The researcher will observe ethical standards throughout the conduct of the study.

- Informed Consent. Participants will be informed about the objectives, procedures, benefits, and voluntary nature of their participation before data collection.
- Voluntary Participation. Participation in the study shall be entirely voluntary. Respondents may withdraw from the study at any time without penalty.

- Confidentiality and Anonymity. The identities of the respondents shall be kept confidential. Names and personal information shall not appear in any report or publication resulting from the study.
- Data Privacy. All collected data shall be used solely for academic purposes and will be handled in accordance with the provisions of the Data Privacy Act of 2012.
- Beneficence. The study will not expose participants to any physical, psychological, or social harm. The findings are expected to contribute to the improvement of TLE

instruction in rural schools specifically in SanVilLar Cluster District's schools.

- Integrity and Honesty. The researcher shall ensure accuracy in data collection, analysis, interpretation, and reporting of findings while avoiding fabrication, falsification, and plagiarism.

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