

GUIDEBOOK ON FOOD PROCESSING AS SUPPLEMENTAL INSTRUCTIONAL MATERIALS IN TEACHING T.L.E. 8

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ABSTRACT

This study sought to determine the effectiveness of the suggested guidebook as supplemental teaching resources for Technology and Livelihood Education in Food Processing at Pulong Sta. Cruz National High School in terms of student performance and learning engagement. It specifically sought after the following responses: the level of the guidebook as supplemental instructional materials in teaching Food Processing in terms of components as to objectives, contents, activities, and assessment, and its features as to usability, consistency, adaptability, and aesthetic value; the level of the student's engagement with regards to work behavior, cognitive, and affective, the level of the student's performance relative to practical test; lastly the guidebook components and features and its significant effect to the students learning engagement and performance of Grade 8 students.

A teacher-created questionnaire was used to collect data from 200 grade 8 students using a purposive random sampling method. Weighted mean and standard deviation were used to determine the effect of student learning engagement and its performance as to practical test.

The following were the findings of the study, the level of guidebook components in terms of objectives, contents, activities, and assessments, and its features with regards to usability, consistency, adaptability, and aesthetic value obtained an overall average mean of 4.27 with very high interpretation. It indicates that the respondents manifested the clarity of the objectives of the guidebook.

In terms of students learning engagement with regards to work behavior, and cognitive a mean of 4.28 and 4.21 interpreted "very high" while a "high" interpretation of 3.88 obtained for affective engagement. It indicates that the respondents manifested a clear understanding of the instructional materials objective.

The level of student's performance relative to practical test got a verbal interpretation of outstanding attained an overall average grade of 92.89, indicating that the respondent's performance was beyond excellent satisfactory level as evidenced by the practical test result.

In the guidebook components as to content, activities, assessment, and its features as to usability, consistency, adaptability, and aesthetic value in relation to the students' performance relative to practical test, it was found out that the p-values were all higher than (0.05) level of significance indicating no significant impact on students' performance.

However, the guidebook components in terms of objectives obtained a p-value (0.028) lower than (0.05) level of significance. The result shows a significant effect on the performance of grade 8 students. It further implies that the null hypothesis was rejected as evidence with the result.

Therefore, it is recommended that TLE teachers in other Technology and Livelihood Education courses in which the researcher is employed were encouraged to create instructional materials based on student preferences and to attend seminars and training workshops to acquire new skills on the creation of instructional materials.

Keywords: *Acceptability, activities, adaptability, aesthetic value. assessment, consistency, content, objectives, performance, usability*

INTRODUCTION

Technology and Livelihood Education as one of the subjects included in the K to 12 Basic Education and Food Processing is one of its learning competencies plays a vital part of it. The learners acquired knowledge and skills in this course will serve as foundation of being a future ready entrepreneur someday.

Supplemental educational materials, also known as learning resources, are intended to enhance students' knowledge, abilities, and skills as well as measure their informational growth and support their overall development and upbringing. Supplemental materials can help instructors address apparent gaps in the mandated educational materials and can give teachers new ways to simplify teaching tasks and encourage students. These can also assist educators in meeting the diverse requirements of all students. When using appropriate learning tools, students can build in-depth knowledge about a subject while also developing their specific learning strategies, values, attitudes, and generic abilities (NewPath Learning, 2023).

Supplemental materials in this research are in the form of extended material designed to provide sufficient exposure and opportunities for learners in Technology and Livelihood Education in Grade 8 taking up Food Processing. Supplemental materials are academic support linked to the regular materials used in the present curriculum.

The researcher goals are to develop and innovate a guidebook as supplemental instructional materials for grades 8 junior high school students particularly taking up Food Processing and wish to contribute new additional reference to be adapted to the needs of both teachers and learners.

This also sought to determine the level of the guidebook in terms of the following:

1. What is the level of guidebook as supplemental instructional materials in teaching Food Processing in terms of:
 - 1.1 Components as to:
 - 1.1.1 objectives
 - 1.1.2 contents
 - 1.1.3 activities; and
 - 1.1.4 assessment?
 - 1.2 Features as to:
 - 1.2.1 usability
 - 1.2.2 consistency
 - 1.2.3 adaptability; and
 - 1.2.4 aesthetic value?
2. What is the level of the student's engagement with regards to:
 - 2.1 work behavior
 - 2.2 cognitive
 - 2.3 affective?
3. What is the level of the students' performance relative to practical test?
4. Does the components and features of Guidebook in Food Processing have significant effect to the students learning engagement of Grade 8 students?
5. Does the components and features of Guidebook in Food Processing have significant effect to the students' performance of Grade 8 students?

REVIEW OF RELATED LITERATURE

To substantiate the components and features of the guidebook as supplemental instructional material which includes the student's learning engagement and performance, the testimonials below will prove that this instructional material to be a significant undertaking.

According to Bukoye (2019) Instructional materials are essential tools in learning every subject in the school curriculum. They allow the students to interact with words, symbols and ideas in ways that develop their abilities in reading, listening, solving, viewing, thinking, speaking, writing, using media and technology. It plays an important role in teaching and learning in a variety of subjects. It increases teachers' productivity and improve students' performance and make learning more interesting, practical, realistic, and attractive. It also enables both teachers and students to participate actively and effectively in lecture sessions (Olayinka, 2015).

As supported by Quisumbing et.al. (2018), the development of effective instructional materials designed to enriched student learning. Teachers should begin by analyzing what the learner should know at the end of the course and how learning will be demonstrated. They must also have more knowledge and understanding of the learning process, particularly individual learning. To effectively produce instructional materials from locally sources, the instructor must possess adequate basic skills, (George and Amadi, 2016). Teachers are encouraged to be creative to construct instructional materials that may appeal and contribute to students learning and help them be motivated. School administrators may encourage teachers of different specialization to create more teacher-made supplementary material, (Cruz, 2019). Instructional materials are essential tools for teaching and learning, as it helps increase teacher productivity and improve student performance. To generate self-made learners content, teachers must have a thorough understanding of the learning process, particularly individual learning. Teachers must create a plan to achieve goals, link objectives to topic standards, and agree on success criteria to increase student engagement.

According to Schettini C. (2019), learning objectives must be developed measurable considering the two main criteria: the utilization of observable actions and specific criteria of performance. Student Learning Objectives (SLOs) are substantial and meaty goals that students strive to reach throughout the course of a course. Learning objectives should focus on the purpose of the lesson that will give an outcome that is smaller and more digestible (Everette 2017). Instructional goals and learning objectives are the heart of the role as a learning facilitator. When written well, goals and objectives will assist educator in identifying course content, help structure the lecture, and allow to select activities and assessments that are relevant and meaningful for learning (Northern Illinois University Center for Innovative Teaching and Learning. (2020). Incorporating emphasized learning activities to reinforce learning can be used as a teaching strategy, with each activity having its own scenario. (Sim (2021).

Assessment should come after the activities to show whether learning occurred as it plays an important role in education and teaching process, helping to distinguish effects and review classroom-based issues between teachers and students. according to Tosuncuoglu, (2018). Choosing appropriate materials and activities helps teacher better manage the class and helps the students learn effectively and achieve the ultimate goals of the course. To assist students, acquire knowledge and skills. TLE teachers must carefully organize and plan lessons (Tonawanik and Donovanik 2019). Creative and enjoyable teaching strategies must be tailored to each learner's ability. Activity-based lessons are the primary focus of students (Lavin 2019).

METHODOLOGY

This chapter describes strategies and method used to offer responses to issues from the former examination. This procedure incorporates inquiries about outline, subject to the investigation, populace in examining strategies, explore methodology, look into instruments, and factual test utilized as a part of treatment of information.

The research design employed the descriptive method in gathering and treating the data for the foregoing areas of studies.

According to McCombes (2019) descriptive research aims to describe a population, situation, or phenomenon accurately and systematically. It can answer what, where when and how questions.

Quantitative research design was utilized in this study it aims to create a general understanding of behavior and other phenomena across different settings and populations. Quantitative studies are often fast, focused, scientific, and relatable. Data computing equipment makes it possible to process and analyze data quickly, even with large sample sizes. Therefore, these types of research designs were used to know the acceptability of the developed instructional materials.

The main focus of this study is the development and evaluation of supplemental instructional materials for food processing for junior high school, Grade 8 students were used thus no sampling techniques will be utilized. There were 200 Technology and Livelihood Education in High School students specifically Grade 8 taking up Food Processing. The researchers used is purposive sampling. The researcher also limited the study to Pulong Sta. Cruz National High School at the City of Santa Rosa, Laguna wherein the said school is conducting face to face classes this school year 2022-2023 up to the present.

The self-made survey questionnaire is the research instrument were used in this study as a research tool for data collection. The researcher will use the questionnaire accompanied by a five (5)-point Likert scale as the main tool in gathering data. The self-made questionnaire was checked and validated by the experts for its validity, grammar, and other corrections before administering it to the respondents.

RESULT AND DISCUSSION

Table 1. Level of Guidebook as supplemental instructional materials in teaching Food Processing in terms of Components as to Objectives

| STATEMENT | Mean | SD | Remarks |
|--|------------------|------|-----------------------|
| The objective of the developed guidebook as supplemental instructional material is... | | | |
| specific and detailed | 4.34 | 0.56 | Strongly Agree |
| attainable and measurable. | 4.18 | 0.59 | Agree |
| time bounded. | 4.00 | 0.59 | Agree |
| directed and relevant to the learning inputs of the guidebook. | 4.39 | 0.46 | Strongly Agree |
| in line with the most essential learning competencies. | 4.39 | 0.52 | Strongly Agree |
| Grand Mean | 4.26 | | Strongly Agree |
| Interpretation | Very High | | |

As showed above in Table 1 the level of guidebook as supplemental instructional materials in teaching food processing in terms of components as to objectives. Among the respondents above the objective of the developed guidebook as supplemental instructional material “directed and relevant to the

learning inputs of the guidebook” and “in line with the most essential learning competencies”, it both gained the highest ($M=4.39$, $SD=0.46$ and 0.52) and was remarked “*strongly agree*”. This is followed by the objective as “specific and detailed” with the mean score of ($M=4.34$, $SD=0.56$) However, respondents “*agree*” that the developed guidebook as supplemental instructional material is attainable and measurable and time bounded, which yielded the least ($M=4.18$, $SD=0.59$, $M=4.00$, $SD=0.59$).

Table 1 reveals that the level of guidebook as supplemental instructional materials in teaching food processing in terms of components as to objectives achieved the grand mean of 4.26 and was interpreted *Very High*. It indicates that the respondents highly manifested the clarity of the instructional materials objectives.

Table 2. Level of Guidebook as supplemental instructional materials in teaching Food Processing in terms of Components as to Content

| STATEMENT | Mean | SD | Remarks |
|---|------------------|------|-----------------------|
| The contents included in the guidebook as supplemental instructional material... | | | |
| are parallel to the curriculum. | 4.11 | 0.93 | Agree |
| provide enough information on the topic presented. | 4.41 | 0.90 | Strongly Agree |
| are fit, current and interesting to the learners. | 4.25 | 0.98 | Strongly Agree |
| are presented in correct sequence and processes. | 4.37 | 0.90 | Strongly Agree |
| contribute to obtain the ideas and understanding of the lesson | 4.35 | 0.90 | Strongly Agree |
| Grand Mean | 4.29 | | Strongly Agree |
| Interpretation | Very High | | |

As showed above in Table 1 the level of guidebook as supplemental instructional materials in teaching food processing in terms of components as to content. It can be perceived that the respondents “*strongly agree*” that the developed guidebook objective as supplemental instructional material to provide enough information on the topic acquired the highest ($M=4.41$, $SD=0.90$). This is followed with the objectives “are presented in correct sequence and processes” ($M=4.37$, $SD=0.90$), “contribute to obtain the ideas and understanding of the lesson” ($M=4.35$, $SD=0.90$, and “are fit, current and interesting to the learners” ($M=4.25$, $SD=0.98$) “. However, respondents *agree* that content of the developed guidebook as supplemental instructional material is parallel to the curriculum, it granted the least ($M=4.11$, $SD=0.93$).

Table 2 reveals that the level of guidebook as supplemental instructional materials in teaching food processing in terms of components as to content attained the grand mean of 4.29 and was interpreted “*Very High*”. It indicates that the respondents highly demonstrated the clarity of the objectives of the instructional materials.

Table 3. Level of Guidebook as supplemental instructional materials in teaching Food Processing in terms of Components as to Activities

| STATEMENT | Mean | SD | Remarks |
|---|------------------|------|-----------------------|
| The activities of the guidebook as supplemental instructional material for the students perform... | | | |
| the expected outcome of the lesson. | 4.28 | 0.87 | Strongly Agree |
| realistic and practical enhancement for real-life situation. | 4.26 | 0.92 | Strongly Agree |
| interactive performances among groups or peers. | 4.15 | 0.94 | Strongly Agree |
| with the objective of the lesson. | 4.32 | 1.00 | Strongly Agree |
| to acquire knowledge and skills. | 4.42 | 0.99 | Strongly Agree |
| Grand Mean | 4.28 | | Strongly Agree |
| Interpretation | Very High | | |

As shown above in Table 3 the level of guidebook as supplemental instructional materials in teaching food processing in terms of components as to activities. As can be shown, the respondents *strongly agree* that the activities of the developed guidebook as supplemental instructional material “to acquire knowledge and skills of the guidebook” gained the highest ($M=4.42$, $SD=0.99$). This is followed with the statement “the activities perform with the objective of the lesson” ($M=4.32$, $SD=1.00$), the activities perform the expected outcome of the lesson ($M=4.28$, $SD=0.87$), the activities perform realistic and practical enhancement for real-life situation ($M=4.26$, $SD=0.92$), and the activities perform interactive performances among groups or peers yielded the least ($M=4.15$, $SD=0.94$), but still gained a “strongly agree” remarks.

Table 3 reveals that the level of guidebook as supplemental instructional materials in teaching food processing in terms of components as to activities attained the grand mean of 4.8 and was interpreted “*Very High*”. It implies that the respondents highly manifested the clarity of the objectives of the instructional materials.

Table 4. Level of Guidebook as supplemental instructional materials in teaching Food Processing in terms of Components as to Assessment

| STATEMENT | Mean | SD | Remarks |
|--|------------------|------|-----------------------|
| The assessment of the guidebook as supplemental learning material... | | | |
| has pretest and post assessment. | 4.18 | 0.94 | Agree |
| serves as instruments to assess students' performance in every lesson. | 4.33 | 0.87 | Strongly Agree |
| provides assessment tools that accommodate learners' varied intelligence. | 4.27 | 0.90 | Strongly Agree |
| gives opportunities for self-assessment for a particular topic. | 4.15 | 0.89 | Agree |
| involves an appropriate list of questions that is aligned to the objectives. | 4.18 | 0.99 | Agree |
| Grand Mean | 4.22 | | Strongly Agree |
| Interpretation | Very High | | |

As shown above in Table 4 the level of guidebook as supplemental instructional materials in teaching food processing in terms of components as to assessment. It can be seen that the respondents “*strongly agree*” that the assessment of the developed guidebook as supplemental instructional material “serves as instruments to assess students' performance in every lesson” gained the highest ($M=4.33$, $SD=0.87$). This is followed with the statement “provides assessment tools that accommodate learners' varied intelligence” ($M=4.27$, $SD=0.90$). However, the respondents “Agree” that the assessment of the

guidebook as supplemental instructional material” involves an appropriate list of questions that is aligned to the objectives” yielded ($M=4.18$, $SD=0.99$) followed with the statement “has pretest and post assessment ($M=4.18$, $SD=0.94$) and gives opportunities for self-assessment for a particular topic yielded the least ($M=4.15$, $SD=0.89$).

Table 4 reveals that the level of guidebook as supplemental instructional materials in teaching food processing in terms of components as to assessment attained the grand mean of 42 and was interpreted “*Very High*”. It indicates that the respondents highly manifested the clarity of the instructional materials objectives.

Level of the Guidebook Features

The following indicates the findings on the features level of the guidebook on food processing as supplemental instructional in teaching TLE 8.

Table 5. Level of Guidebook as supplemental instructional materials in teaching Food Processing in terms of Features as to Usability

| STATEMENT | Mean | SD | Remarks |
|--|------------------|------|-----------------------|
| The guidebook as supplemental instructional material... | | | |
| can be used independently. | 4.12 | 1.05 | Strongly Agree |
| involves a variety of activities that are easy to do. | 4.20 | 0.89 | Strongly Agree |
| uses words or terms that are easy to understand. | 4.23 | 0.98 | Strongly Agree |
| can serve as a set of reference materials. | 4.15 | 0.94 | Strongly Agree |
| is used as a tool for learning development. | 4.38 | 0.93 | Strongly Agree |
| Grand Mean | 4.21 | | Strongly Agree |
| Interpretation | Very High | | |

As shown above in Table 5 the level of guidebook as supplemental instructional materials in teaching food processing in terms of features as to usability. It can be seen that the respondents *strongly agree* that the objective of the developed guidebook as supplemental instructional material is used as a tool for learning development gained the highest ($M=4.38$, $SD=0.93$). This is followed with the statement “uses words or terms that are easy to understand” ($M=4.23$, $SD=0.98$), “involves a variety of activities that are easy to do” ($M=4.20$, $SD=0.89$), “can serve as a set of reference materials” ($M=4.15$, $SD=0.94$). However, the statement “can be used independently”, yielded the least ($M=4.12$, $SD=1.05$) but still gained a “Strongly agree” remarks.

Table 5 reveals that the level of guidebook as supplemental instructional materials in teaching food processing in terms of features as to usability achieved the grand mean of 4.21 and was interpreted “*Very High*”. It indicates that the respondents highly demonstrated the clarity of the objectives of the instructional materials.

Table 6. Level of Guidebook as supplemental instructional materials in teaching Food Processing in terms of Features as to Consistency

| STATEMENT | Mean | SD | Remarks |
|---|------------------|------|-----------------------|
| The guidebook as supplemental instructional material ... | | | |
| focuses on the main objectives. | 4.30 | 0.89 | Strongly Agree |
| consists of topics that are logically relevant to the lessons. | 4.24 | 0.90 | Strongly Agree |
| achieves objectives for each lesson. | 4.22 | 0.96 | Strongly Agree |
| provides learning tasks that are parallel to each topics' objectives. | 4.24 | 0.92 | Strongly Agree |
| contains topics that are interesting about food processing. | 4.36 | 0.92 | Strongly Agree |
| Grand Mean | 4.27 | | Strongly Agree |
| Interpretation | Very High | | |

As shown above in Table 6 the level of guidebook as supplemental instructional materials in teaching food processing in terms of features as to consistency. It can be seen that the respondents *strongly agree* that the consistency of the developed guidebook as supplemental instructional material contains topics that are interesting about food processing, gained the highest (M=4.36, SD=0.92). This is followed with the statement "focuses on the main objectives" (M=4.30, SD=0.89), "provides learning tasks that are parallel to each topics' objectives" and "consists of topics that are logically relevant to the lessons", it both gained (M=4.24, SD=0.92 and SD=0.90). However, the statement "achieves objectives for each lesson", yielded the least (M=4.22, SD=0.96) but still gained a "Strongly agree" remarks.

Table 6 reveals that the level of guidebook as supplemental instructional materials in teaching food processing in terms of features as to consistency attained the grand mean of 4.27 and was interpreted "Very High". It indicates that the respondents highly demonstrated the clarity of the objectives of the instructional materials.

Table 7. Level of Guidebook as supplemental instructional materials in teaching Food Processing in terms of Features as to Adaptability

| STATEMENT | Mean | SD | Remarks |
|--|------------------|------|-----------------------|
| The guidebook as supplemental instructional material ... | | | |
| provides opportunity for self-study | 4.40 | 0.84 | Strongly Agree |
| is adaptable to use across curriculum | 4.10 | 0.85 | Agree |
| can be a manual or a book that is easy to understand | 4.28 | 0.90 | Strongly Agree |
| can be revised for some other purposes | 4.20 | 0.86 | Strongly Agree |
| provides different activities that is related to a specific lesson | 4.29 | 0.96 | Strongly Agree |
| Grand Mean | 4.25 | | Strongly Agree |
| Interpretation | Very High | | |

As shown above in Table 7 the level of guidebook as supplemental instructional materials in teaching food processing in terms of features as to consistency. It can be seen that the respondents *strongly agree* that the adaptability of the developed guidebook as supplemental instructional material "provides opportunity for self-study" gained the highest (M=4.40, SD=0.84). This is followed with the statement "provides different activities that is related to a specific lesson (M=4.29, SD=0.96), "can be a manual or a book that is easy to understand" (M=4.28, SD=0.90), "can be revised for some other purposes" (M=4.20, SD=0.86). However, the statement "is adaptable to use across curriculum" yielded the least (M=4.10, SD=0.85) acquired an "Agree" remark from the respondents.

Table 7 reveals that the level of guidebook as supplemental instructional materials in teaching food processing in terms of features as to consistency attained the grand mean of 4.25 and was interpreted “Very High”. It indicates that the respondents highly demonstrated the clarity of the objectives of the instructional materials.

Table 8. Level of Guidebook as supplemental instructional materials in teaching Food Processing in terms of Features as to Aesthetic Value

| STATEMENT | Mean | SD | Remarks |
|---|-------------|------|-----------------------|
| The guidebook as supplemental instructional material... | | | |
| uses suitable text design, font size and type. | 4.26 | 0.96 | Strongly Agree |
| uses appropriate illustrations/pictures that are related to the topic. | 4.23 | 0.95 | Strongly Agree |
| contains simple icons and visually clear images. | 4.22 | 1.02 | Strongly Agree |
| features colored pictures to catch readers attention and motivate them to complete the tasks or perform the activities. | 4.23 | 0.95 | Strongly Agree |
| has a clear and easy to understand graphics. | 4.33 | 0.89 | Strongly Agree |
| Grand Mean | 4.25 | | Strongly Agree |
| Interpretation | | | Very High |

As shown above in Table 8 the level of guidebook as supplemental instructional materials in teaching food processing in terms of features as to aesthetic value. It can be seen that the respondents strongly agree that the aesthetic value of the developed guidebook as supplemental instructional material “has a clear and easy to understand graphics” gained the highest ($M=4.33$, $SD=0.89$). This is followed with the statement “uses suitable text design, font size and type ($M=4.26$, $SD=0.96$), “uses appropriate illustrations/pictures that are related to the topic” and “features colored pictures to catch readers attention and motivate them to complete the tasks or perform the activities”, both gained ($M=4.23$, $SD=0.95$, and $SD=0.95$). However, the statement “contains simple icons and visually clear images”, yielded the least ($M=4.22$, $SD=1.02$) but still gained a “Strongly Agree” remarks from the respondents.

Table 8 reveals that the level of guidebook as supplemental instructional materials in teaching food processing in terms of components as to objectives attained the grand mean of 4.25 and was interpreted “Very High”. It indicates that the respondents highly manifested the clarity of the objectives of the instructional materials.

Level of Student’s Engagement

The following are the findings on the level of students engagement with regards to work behavior, cognitive, and affective.

Table 9. Level of Student’s Engagement with regards to Work Behavior

| STATEMENT | Mean | SD | Remarks |
|--|-------------|------|------------------|
| I work hard to learn. | 4.57 | 0.63 | Always |
| I kept focused on learning. | 4.38 | 0.72 | Always |
| I participate in class discussions. | 4.00 | 1.03 | Often |
| I complete my homework on time. | 4.13 | 0.88 | Often |
| I kept on trying even though it was quite difficult for me to finish the task on time. | 4.32 | 0.93 | Always |
| Grand Mean | 4.28 | | Always |
| Interpretation | | | Very High |

As shown above in Table 9 the level of Student's Engagement with regards to Work Behavior. It can be observed that the respondents "Always" work hard to learn, gained the highest ($M=4.57$, $SD=0.63$). Followed with the statement "keep focused on learning" which gained ($M=4.38$, $SD=0.72$), lastly the statement kept on trying even though it was quite difficult for them to finish the task on time ($M=4.32$, $SD=0.93$). However, respondents answered "Often" on the completion of homework on time ($M=4.13$, $SD=0.88$), and participate in class discussions, yielded the least ($M=4.00$, $SD=1.03$).

Table 9 reveals that the level of student's engagement with regards to work behavior attained the grand mean of 4.28 and was interpreted "Very High". It indicates that the respondents highly displayed the clarity of instructional materials objectives.

Table 10. Level of Student's Engagement with regards to Cognitive Engagement

| STATEMENT | Mean | SD | Remarks |
|--|------------------|------|---------------|
| I really work hard to learn the material. | 4.32 | 0.82 | Always |
| I know exactly what I wanted to accomplish in this class. | 4.31 | 0.86 | Always |
| I forced myself to finish the task, even if I don't want to. | 3.95 | 1.11 | Often |
| I find ways to make the course interesting to me. | 4.22 | 0.82 | Always |
| I try to connect what I am learning with my own experiences. | 4.28 | 0.86 | Always |
| Grand Mean | 4.21 | | Always |
| Interpretation | Very High | | |

As shown above in Table 10 the level of Student's Engagement with regards to cognitive engagement. It can be seen that the respondents answered "Always" on the statement "working hard to learn the material" which gained ($M=4.32$, $SD=0.82$), followed with the respondents statement "knowing exactly what they wanted to accomplish in this class" ($M=4.31$, $SD=0.86$), "try to connect what they are learning with their own experiences" ($M=4.28$, $SD=0.86$), lastly, "finding ways to make the course interesting", gained ($M=4.22$, $SD=0.82$). However, respondents answered "Often" on the statement "forced themselves to finish the task, even if they want to do it", yielded the least ($M=3.95$, $SD=1.11$).

Table 10 reveals that the level of student's engagement with regards to cognitive engagement attained the grand mean of 4.21 and was interpreted *Very High*. It indicates that the respondents highly displayed the clarity of instructional materials objectives.

Table 11. Level of Student's Engagement with regards to Affective Engagement

| STATEMENT | Mean | SD | Remarks |
|---|-------------|------|---------------|
| I am interested in the subject. | 4.45 | 0.75 | Always |
| I organize my study time well for this class. | 4.39 | 0.81 | Always |
| I enjoy learning new things about the subject. | 4.51 | 0.81 | Always |
| I worked with other students on projects during class. | 4.20 | 0.95 | Always |
| I just give up when I can't solve a problem right away. | 2.38 | 1.23 | Seldom |
| Grand Mean | 3.98 | | Always |
| Interpretation | High | | |

As shown above in Table 10 the level of Student's Engagement with regards to cognitive engagement. It can be seen that the respondents answered "Always" with the statement "enjoy learning new things about the subject" gained the highest ($M=4.51$, $SD=0.81$). This is followed with the statement "I am interested in the subject. ($M=4.45$, $SD=0.75$), "I organize my study time well for this class"

($M=4.39$, $SD=0.81$), “I worked with other students on projects during class” ($M=4.20$, $SD=0.95$). However, respondents answered “*Seldom*” on the statement “I just give up when they can’t solve a problem right away”, yielded the least ($M=2.38$, $SD=1.23$).

Table 11 reveals that the level of student’s engagement with regards to cognitive engagement attained the grand mean of 3.98 and was interpreted “*Very High*”. It indicates that the respondents highly displayed the clarity of instructional materials objectives.

Level of Students’ Performance

Students performances teach them how to perform and complete each task given to them step by step. It will be used by teachers to evaluate the progress of their students’ learning in the classroom.

The following are the findings on the level of students performance in relation to practical test.

Table 12. Level of Students Performance relative to Practical Test

| Grading Scale | Frequency | Percentage | Descriptors |
|---------------|--------------|-----------------------|---------------------------|
| 90 – 100 | 182 | 91% | Outstanding |
| 85 – 89 | 18 | 9% | Very Satisfactory |
| 80 – 84 | 0 | 0 | Satisfactory |
| 75 - 79 | 0 | 0 | Fairly Satisfactory |
| Below 74 | 0 | 0 | Did Not Meet Expectations |
| Mean | 92.89 | Interpretation | Outstanding |

As shown above in Table 12 the level of students’ performance relative to their practical test. It is evident that 182 or 91% of the respondents showed an “Outstanding” performance as they attained an equivalent grade ranging from “90 to 100”. While 18 or 9% of them performed “very satisfactory” as they obtained grades ranging from “85 to 89”

Table 12 reveals that the mean grade of 92.89 with verbal interpretation of “Outstanding” indicates that the respondents’ performance was beyond excellent satisfactory level as evidenced by their practical test result.

Table 13. Significant Effect of the Components and Features of Guidebook in Food Processing on Students’ Engagement

| Variables | | t-value | p-value | Analysis |
|-------------|----------------------|---------|---------|-----------------|
| Objectives | Work Behavior | 0.34 | 0.733 | Not Significant |
| Contents | | 0.01 | 0.996 | Not Significant |
| Activities | | 0.57 | 0.567 | Not Significant |
| Assessments | | 0.55 | 0.581 | Not Significant |
| Objectives | Cognitive Engagement | -0.54 | 0.587 | Not Significant |
| Contents | | -1.14 | 0.255 | Not Significant |
| Activities | | 0.62 | 0.538 | Not Significant |
| Assessments | | -0.06 | 0.955 | Not Significant |

| | | | | |
|-----------------|----------------------|-------|-------|-----------------|
| Objectives | | 0.86 | 0.391 | Not Significant |
| Contents | Affective Engagement | -1.48 | 0.139 | Not Significant |
| Activities | | -0.70 | 0.487 | Not Significant |
| Assessments | | -0.26 | 0.798 | Not Significant |
| Usability | Work Behavior | 0.40 | 0.686 | Not Significant |
| Consistency | | 0.53 | 0.594 | Not Significant |
| Adaptability | | -1.18 | 0.238 | Not Significant |
| Aesthetic Value | | -1.06 | 0.289 | Not Significant |
| Usability | Cognitive Engagement | 0.21 | 0.836 | Not Significant |
| Consistency | | 0.11 | 0.911 | Not Significant |
| Adaptability | | -0.92 | 0.360 | Not Significant |
| Aesthetic Value | | -0.82 | 0.412 | Not Significant |
| Usability | Affective Engagement | -0.03 | 0.974 | Not Significant |
| Consistency | | -0.30 | 0.766 | Not Significant |
| Adaptability | | -0.80 | 0.422 | Not Significant |
| Aesthetic Value | | -1.20 | 0.230 | Not Significant |

**significant at .05 level of significance*

As shown above in Table 13 the effect of components as to objectives, contents, activities, and assessments and features as to usability, consistency, adaptability, and aesthetic value of guidebook in food processing on students' engagement in terms of work behavior, cognitive and affective engagement. Table 13 reveals that a not significant analysis was achieved on the effect of the components and features of the guidebook on students' engagement. The analysis is supported by the derived p-values, which were all more than (0.05) level of significance.

Table 13 further indicates that the respondents evaluation on the guidebook components and features displayed no implication on how engage they are in terms of their work behavior as well as on the cognitive and affective aspects.

Table 14. Significant Effect of the Components and Features of Guidebook in Food Processing on Students' Performance

| Variables | | t-value | p-value | Analysis |
|-----------------|----------------|---------|---------|-----------------|
| Objectives | Practical Test | -2.21 | 0.028 | Significant |
| Contents | | -1.62 | 0.106 | Not Significant |
| Activities | | 0.86 | 0.393 | Not Significant |
| Assessments | | 1.49 | 0.138 | Not Significant |
| Usability | Practical Test | -1.15 | 0.252 | Not Significant |
| Consistency | | 1.07 | 0.287 | Not Significant |
| Adaptability | | -0.53 | 0.597 | Not Significant |
| Aesthetic Value | | -1.57 | 0.118 | Not Significant |

**significant at .05 level of significance*

As shown above in Table 14 the effect of components of guidebook as to objectives, contents, activities, and assessments and its features as to usability, consistency, adaptability, and aesthetic value on students' performance relative to practical test.

Table 14 reveals that the guidebook components as to contents, activities, and assessment as well as the guidebook features as to usability, consistency, adaptability, and aesthetic value gleaned a not significant effect relative to the students' performance in relation to the practical test. The analysis was supported by the fact that all p-values obtained were more than the (0.05) level of significance.

However, the guidebook component as to objectives obtained a p-value ($p = 0.028$) which is below (0.05) significant level. It simply indicates that the guidebook components as to objectives has a significant effect on the performance of the students as to practical test. Therefore, the guidebook components as to objective in relation to students' performance as to practical test null hypothesis was rejected. The analysis was supported by the fact that the p-values obtained were below (0.05) level of significance.

CONCLUSION

Based on the data gathered, the following conclusions were inferred:

1. There is no significant effect between the components and features of the Guidebook as supplemental instructional material in Food Processing and the student's learning engagement of Grade 8 students in PSCNHS on the results of validating the developed guidebook in Food Processing as supported by the hypothesis.
2. There is no significant effect on the components of the Guidebook as supplemental instructional material in Food Processing as to contents, activities, and assessments and its features to the performance of Grade 8 students' as to practical test as supported by the hypothesis. However, the guidebook components in terms of objectives obtained a p-value (0.028) lower than the significance level (0.05), indicating a significant effect on the performance of grade 8 students.

RECOMMENDATIONS

1. The developed and validated Guidebook in Food Processing may be used particularly by the TLE Junior High School teachers as supplementary learning material or back up with the existing centralized DepEd modules.
2. The TLE teachers of different specialization are encouraged to create more supplementary instructional learning materials based on the needs, interests, abilities, and experiences of the students enrolled in different Technology and Livelihood Education courses.
3. Future researchers can further corroborate the Guidebook in Food Processing to assess and measure the effectiveness of the supplemental instructional learning material. They may also develop more comprehensive research with the same field of specialization that is valid, reliable, and adaptable to the needs, interests, abilities, and experiences of the learners in the school where they are employed.

ACKNOWLEDGEMENTS

The researcher would like to express her gratitude to the individuals who supported and enabled her to undertake this work successfully. To her adviser, Dr. Henly F. Martirez, who endure a generous support and significant contribution to the completion of this study. Her school principal Dr. Alvin B. Sta. Maria, for his permission to carry out the study with PSCNHS students and TLE Teachers for the valuable cooperation of this study.

Moreover, to her ever-supportive Husband and Children for their endless understanding, patience support, and encouragement. Above all, to Almighty GOD, the source of all knowledge, strength, and inspiration, generous mercy, and grace.

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