Illustrated Hands-on Information Sheet: Intervention in Improving the Practical Skills Knowledge of Grade 8 Technology and Livelihood Education Students

Agnes Marian F. Alolor
agnes.alolor@deped.gov,ph
orcid.org/0000-0002-9689-9027
Tagum City National Comprehensive High School, Division of Tagum City, Region XI
Philippines

ABSTRACT

With the spread of the Covid-19 virus, new challenges are posed in delivering practical instructions in teaching students' hands-on skills in Technology and Livelihood Education. This study aims to determine the significance of an illustrated hands-on material composed of illustrations and actual pictures in improving students' practical skills and knowledge. Simple random sampling was utilized to choose 160 students to participate in the study that uses a descriptive research design. A pre-test and post-test were given to the participants that will be analyzed using a quantitative descriptive approach to find the difference of the test results and will be statistically treated using the mean, standard deviation, and t-test of significant difference. Based on the results, students manifested a low level of pre-test results before using the Illustrated Hands-on Information Sheet, which shows that they have a poor understanding of the practical concepts in Technology and Livelihood Education. After using the intervention material, students demonstrated a very high level of post-test results, which means that the participants have a clear understanding and mastery of the practical concepts in the subject. This shows that the participants better understood the processes and steps to consider in performing hands-on tasks. This implies that the intervention material has a significant effect in improving the practical skills knowledge of the students in remote learning.

Keywords: *hands-on, intervention, illustrated, information sheet, practical skills, action research*

INTRODUCTION

Education and its quality are among the most important facets of human resource development in a nation or community. Learners play a vital role in shaping society generation after generation. As the COVID-19 pandemic continues, the education field is producing a growing body of valuable resources to support student learning and well-being during the absence of face-to-face classes. With distance learning, schools and teachers face a whole new set of challenges as they aim to make learning equitable and seek alternative and additional resources to meet the needs of students. One of the unforeseen after-effects of modular distance learning in junior high school students in Technology Livelihood Education is the absence of actual hands-on learning and practical skills acquisition due to the prohibition of face-to-face classes as part of the health protocols during the health crisis. According to Hamilton et al. (2020), based on their study, there is a need to develop approaches to motivate and engage students in learning to counteract the loss of hands-on learning opportunities. Furthermore, Kasradze & Gulua (2021) concluded, based on the findings of their study, that the cessation of the students face to face classes in schools has compromised the development of the student's practical skills that will eventually be useful for them in further learning and employment.

It is essential that teachers need to be conversant, creative, and innovative with the type of instructional materials to use in a learning situation to give students a complete learning experience on distance learning. Hamilton et al. (2020) stated that teachers highlighted the need to develop approaches to motivate and engage students in hands-on learning to counteract the loss of learning opportunities. Educators need resources

and strategies to guide students in providing practical skills learning opportunities while learning remotely. Majumdar et al. (2020) even proposed several actions to respond to the pandemic in learning technical skills. That includes providing students with learner-centered self-autonomous tools to learn independently at home.

Intervention material is needed to help students improve practical skills in Technology and Livelihood Education. This will address the loss of their hands-on learning and give equal opportunity to students without connectivity and gadgets to learn practical skills on a strategically designed paper-based material. In designing and creating a print-based illustration as a strategy for teaching practical skills to learners, it is necessary to consider the suggestion of UNICEF (2020) that emphasizes the importance of carefully designing a paper-based learning material that is highly visual and must benefit those learners with little parental support and learners that are non-readers or readers with low literacy levels. Dangle & Sumaoang (2020) recommended that teachers consider making materials with the instructions in every exercise clear enough for the learners to understand while remotely learning at home. The printed pictures that support their understanding and comprehension should also be clear. This study sought to determine the practical skills knowledge of students through distance learning modality through the level of pre-test and post-test results before and after using the intervention materials. Furthermore, find out its significant effect in improving the students' basic practical skills and knowledge.

METHODS

Research Design

The action research used a descriptive research design that aims to describe a population, situation, or phenomenon of one or more variables accurately and systematically. According to Johnson (2012), this type of research design provides teachers with the technical skills and specialized knowledge required to effect positive change within classrooms, schools, and even in communities since its theory is based on knowledge in action and the emphasis is on change through action (McNiff, 2016). The design will help the researcher gather essential data to gain understanding and knowledge on the relevance of using an Illustrated Hands-On Information Sheet as an intervention to help Grade 8 students improve their ability on practical skills in Technology and Livelihood Education during the pandemic.

Participants of the Study

The participants of the study are 160 Grade 8 students of Tagum City Division who were randomly selected from a huge population through a simple random sampling method. According to Turner & Hao (2020), it is useful when researchers are interested in the associations that apply to the whole population. All elements could have an equal probability or chance of being selected. The sample size based on the population was computed using Slovin's Formula.

Data Gathering Methods

The researcher asked permission from the SDS and school head through a formal letter and, after the approval, proceeded to the conduct of the research by asking parent/guardian consent and the administration of the validated pre-test to the selected students who were participants of the study. Results were checked, and the least learned skills were identified as the basis of the topics to be included in crafting the intervention material. After developing and validating the material, it was distributed to the participants for their consumption, followed by the administration and checking of the post-test, after gathering all the information to determine if the material affects the sample population, analysis, and validation of the data using descriptive parameters for pre-test and post-test and statistical tools.

Statistical Tools

Data from the action research will be analyzed using a quantitative descriptive approach to find the difference of pre-test and post-test results, which will be statistically treated using the mean to

get the average of each test, standard deviation to measure the spread of the data and t-test. A parameter scale table below will be used to determine the descriptive level of the pre-test and post-test mean results.

Table 1
Descriptive Parameter Scale for Pre-test Mean and Post-test Mean

Mean Range	Description	Interpretation
16. 01 - 20.00	Very High	This means that the students' practical knowledge is outstanding.
12.01- 16.00	High	This means that the students' practical knowledge is high.
8.01 - 12.00	Moderate	This means that the students' practical knowledge is moderate.
4.01 - 8.00	Low	This means that the students' practical knowledge is low.
0.00 - 4.00	Very Low	This means that the students' practical knowledge is very low.

Ethical Considerations

The cornerstone of the research is based on the rethinking of the Belmont Report (1978) by Friesen et al. (2017). Its primary purpose is to protect the research participants based on the three fundamental principles: beneficence, justice, and respect for persons. The researcher ensures that research participants are treated with respect, courtesy, and dignity and that informed consent are valued.

RESULTS

Level of Pre-test Result of Students Before Using the Illustrated Hands-on Information Sheet

Table 1 presents the level of pre-test results of students before using the Illustrated Hands-on Information Sheet. The result shows that the level of pre-test results of students before using the Illustrated Hands-on Information Sheet has a mean average of 7.40 with a descriptive rating of Low.

Table 2
Level of Pre-test Result of Students Before Using the Illustrated Hands-on Information Sheet

Test	Mean	SD	Description
Pre-test	7.40	2.97	The students' practical knowledge is low.

Level of Post-test Result of Students After Using the Illustrated Hands-on Information Sheet

Table 2 presents the level of post-test results of students after using the Illustrated Hands-on Information Sheet. The results show that the level of post-test results of students after using the Illustrated Hands-on Information Sheet has a mean average of 18.55 with a descriptive rating of Outstanding based on the Descriptive Parameter Scale for Pre-test Mean and Post-test Mean.

Table 3
Level of Post-test Result of Students Before Using the Illustrated Hands-on Information Sheet

Test	Mean	SD	Description
Post-test	18.55	2.45	The students' practical knowledge is outstanding.

Significant Effect of Illustrated Hands-on Information Sheet on Students' Practical skills Knowledge in Technology and Livelihood Education

Table 3 presents the significant effect of the Illustrated Hands-on Information Sheet on students' Practical skills Knowledge in Technology and Livelihood Education. The results show that the value of t is 76.0905. It also shows that the p-value < α, so the H0 is rejected.

Table 4

Significant Effect of Illustrated Hands-on Information Sheet on Students' Practical skills Knowledge in Technology and Livelihood Education

Test	Mean	SD	T value	p-value	Decision @α= 0.05
Pre-test	7.40	2.97	76.090	0.000	Rejected
Post-test	18.55	2.45			

DISCUSSION

Level of Pre-test Result of Students Before Using the Illustrated Hands-on Information Sheet

Students manifested a low level of pre-test results before using the Illustrated Hands-on Information Sheet. This only means that the participants have a poor understanding of the hands-on or practical skills knowledge in technology and implies that students are not aware of the essentials and processes in performing a task. With the new normal in learning, facing remote learning problems in technology and livelihood education is already anticipated since Dangle &, Sumaoang (2020) concluded that the students/respondent in their study struggle with self-studying and parents' lack of knowledge to guide them on the conduct of distance modular learning academically.

Level of Post-test Result of Students After Using the Illustrated Hands-on Information Sheet

Students manifested a very high level of post-test results after using the Illustrated Hands-on Information Sheet as an intervention material in improving the practical skill and knowledge in Technology and Livelihood education. The participants have clearly understood the practical concepts in performing a hands-on task. According to Herrera & Soriano (2016), based on the results of their study, the utilization of an intervention material improved the students' competence. It made a significant difference to the result of their post-test. It only shows that using intervention material to bridge the gap in students' learning is important to improve the least learned competencies and practical concepts in TLE.

Significant Effect of Illustrated Hands-on Information Sheet on Students' Practical skills Knowledge in TLE

The result of the study showed that students' basic or practical skills and knowledge in Technology and Livelihood. Students manifested an evident hands-on knowledge of the processes and steps to perform a practical task in technology. It only means that the intervention material is crucial and relevant in the remote learning of the students at home. Simui et al. (2017) concluded in his study that adding illustrations in a printed-based material used in distance learning makes it user-friendly for the learners that help them understand the concepts with ease, and this may benefit students whose abilities to read and understand pure text have not yet been fully developed, students who have difficulties with the words to make them remember information for more extraordinary lengths of time than text-based information.

Conclusion

Learning practical skills in the new normal is quite challenging since it deprives the students of shadowing how a skill is performed during face-to-face classes. Students learning in the distance mode manifested a poor understanding of hands-on skills but improved and became evident

after using the Illustrated Hands-on Information sheet as an intervention material. This concludes that the material is significant in improving the practical knowledge and skills of the Grade 8 Technology and Livelihood Education students. Thus, there is a remarkable impact on using such intervention in the remote learning of the students at home.

Reflection

With the above knowledge generated, it is recommended that school heads are recommended to support and assist the teacher-developer in the development of the intervention materials that may vary based on the exploratory courses in TLE. Also, the school head is recommended to accommodate the needs on the duplication of the material for students' consumption. It is also suggested that all TLE teachers should be capacitated with the strategies in making such intervention material and develop the same on the exploratory courses they are teaching. Make and upload soft copies of such material for digitization and students' consumption who opt to use the material online.

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