The Effectiveness of Horticulture Guiding Book for Improving Vocational Skills of Hearing Impairment Childen in SMALB

Dinda Ayu Maulida, Abdul Huda

Universitas Negeri Malang
Email: dindayu15@gmail.com

Abstrack: Effectiveness of the Horticulture Cultivation Handbook to Improve Vocational Skills of Hearing Impairment Children at SMALB. This study aims to determine the effectiveness of horticulture cultivation guidebooks to improve vocational skills of hearing impairment children. This research design uses development research. Data were analyzed by the design of one group pretest and posttest, and descriptive. The results showed that the horticulture cultivation manual was effective for improving vocational skills of hearing impairment children.
Keywords: Horticulture Cultivation, Handbook, Vocational Skills, Hearing Impairment.

INTRODUCTION

Vocational education is education that maximizes the potential of hearing impairment students, so that, their development can increase and work professionally. Jaya (2017) argues that vocational education at the SMALB level is emphasized on vocational skills in order to to develop a variety of potential students according to their talents and interests.

In 2016, the President issued instructions on Revitalizing Vocational Education, the basis for the issuance of the Inpres because the vocational education curriculum at the Vocational School level at that time was not yet stable. Citing news from an online site owned by Jakarta Newspaper stated that the theory still dominates learning activities in SMK compared to practical activities, consequently in 2018 SMK graduates dominate the number of unemployed people in Indonesia. In addition, the lack of alignment from the school with the needs in the field in the area, such as the statement of the Minister of Economy; Uly and Darmin (2018) in online news-okezone.com news that the vocational education curriculum should be adapted to the potential of each region.

In line with the statement above, the preliminary study conducted by the researcher found that in the YP2 Kedungkandang Malang SMALB there were known vocational skills learning activities that were in accordance with the conditions of the school in the area, namely the implementation of horticulture cultivation learning activities. Because the environmental conditions of schools and regions in Malang support the implementation of vegetable cultivation. However, in practice there is no theoretical application of learning vocational cultivation of horticulture.

According to curriculum vice head master of YP2 Kedungkandang SMALB, the lack of learning in horticulture cultivation in theory is because the existing curriculum is still raw, not officially approved by the government. However, KI and KD have been disseminated since 2016. In addition, there is no specific teaching material used in learning these skills. So far the teaching materials used are in the form of modules, and these modules are not intended for students, only for teachers. Students are only provided with practical skills, and not in theory, even though the basis of the practice comes from theory.

Kementerian Pendidikan dan Kebudayaan (2016) explains that the proportion of vocational education is divided into 40% academic and 60% practices. The Ministry of Education and Culture in the Vocational Education Revitalization book citing also describes some vocational skills and life independence for ABK, one of which is horticulture cultivation that can be attended by hearing impairment and intellectual disability students because its implementation is quite easy to do. In this article, the researcher focuses more on hearing impairment students, because the obstacles in obtaining information that are still minimal and the students' patience during the learning of horticulture cultivation are still lacking.

Hearing impairment students has an obstacle to hear, so that, in absorbing information they tend to use visuals. Their vision senses cover up the deficiencies in the hearing senses (Sadja'ah, 2013). In contrast to intellectual disability students in the school, hearing impairment students are waiting for instructions from the teacher in the activities of vocational skills in horticultural cultivation. They did not pay attention to the teacher's explanation as a whole, so that when the activity took place, they just waited from the teacher's instructions. Learning for them tends to maximize their visual senses. The use of teaching materials in the learning process can maximize students' understanding of the material, and can arouse interest and enthusiasm for learning such as the results of a study from Indrawati (2014) which states that an organic vegetable packaging handbook is effective for intellectual disability students.

Table 1. Scores of post-test trial results

No.	Students' Name	Final Score for each Item			Total
		Performance	Multiple Choice	Short Description	Final Score
1	KY	90	86,6	96	90,8%
2	HR	81,6	60	84	75,2%
3	SV	86,6	66,6	100	84,4%
				Sum	250,4%
				Average	83,4%

The Big Bahasa Indonesia Dictionary (Kamus Besar Bahasa Indonesia / KBBI) states that the guidebook is a book that is used as a reference or instruction in doing something. The guidebook referred to in this study is a manual for horticulture cultivation. The material included by the researcher adjusted the learning of horticulture cultivation in schools, which cultivated more types of vegetables, namely: 1) Pokcay (mustard meat), 2) Caisin (leaf mustard), 3) Green spinach, 4) Red spinach, and 5) Kale. Similarly, the contents of the guidebook used contains simple text that is easily understood by hearing impairment children along with images on each item and steps that must be done in cultivating vegetables that will facilitate the use of books.

Horticulture cultivation is the cultivation of vegetables, fruits, flowers, or ornamental plants (Zulkarnain, 2010). Material about horticulture cultivation skills in the curriculum can be found in grades X and XI in Horticulture Cultivation subjects. There are 12 basic competencies in class X, 18 basic competencies in class XI and 16 basic competencies in class XII.

This study aims to determine the effectiveness of horticulture cultivation guidebooks to improve vocational skills of hearing impairment children at SMALB. The effectiveness of the horticulture cultivation manual is seen from the results of the student's pre-test and post-test.

METHODS

Research "The effectiveness of the Horticulture Cultivation Handbook for Improving the Vocational Skills of Hearing Impairment Children at SMALB" refers to the Borg and Gall research approach which consisted of 10 stages, with a one group pre-test post-test design. However, each researcher can determine which stage would be in accordance with his research and remain in existing procedures. Researchers in this study adopted 7 stages of research including: (1) initial information collection, (2) planning, (3) initial product design development, (4) initial product validation, (5) initial product revision, (6) field trial, (7) final product revisions.

The research subjects used in this study were hearing impairment class X SMALB students who took part in learning horticulture cultivation skills. Subjects were selected based on the levels of KI and KD, from the lowest KI and KD with a sample of four students. The trial was carried out through two stages, the individual stage with the number of subjects a hearing impairment student and a group with a subject number of three hearing impairment students. The research instruments used were performance and knowledge tests. Performance tests are used to determine the level of ability of students in horticultural cultivation activities and including the realm of practice, while the knowledge test is used to determine scores on the realm of knowledge or theory about horticulture cultivation.

Data collection was carried out through three stages, namely: a) pre-test conducted once in each test, b) Treatment was done twice, c) post-tests were carried out once in each test. Data analysis used quantitative and qualitative techniques. Quantitative techniques are used to calculate knowledge test scores, along with the formulas used adopted from Akbar (2013).

$$P = \frac{\Sigma x}{\Sigma xi} \times 100\%$$

Then the results of these values are combined into the following formula:

$$x = \frac{Value1 + Value2}{3} x100\%$$

While qualitative technical data analysis is used to describe the results of performance tests according to the indicators that have been made.

FINDINGS AND DISCUSSION

Findings

The results of quantitative data analysis on individual pre-test trials showed 45.7%, if described according to the table of effectiveness criteria from Akbar (2013) the criteria were less effective. While the results of qualitative data analysis on individual pre-test trials show that students in working on each stage of their knowledge, such as in post-harvest aspects,

indicators of such aspects, for example washing the crops. Students only wash dirty parts of the roots while the leaves are not washed.

The quantitative data analysis of the results of the group pre-test trials received an average number of 54.4%, if according to the table of effectiveness criteria from Akbar (2013) then the criteria were less effective. Furthermore, the results of quantitative data analysis of the trial post-test group are detailed in the table 1.

There are three aspects assessed in each trial, namely knowledge tests and practical tests. In the knowledge test, there are 15 multiple choice questions and 5 short description questions, then in the practice test there are 6 aspects, from these aspects are translated into 20 indicators.

If the results of the above trials are described according to the table criteria for the effectiveness criteria of Akbar (2013) then they are categorized as very effective. Furthermore, the analysis of the data from the qualitative trials found that students had better understood the stages of horticulture cultivation, seen in aspects of caring for plants. In the guidebook it has been explained that in the aspect of caring for plants, the activities that must be done are to remove weeds and pests that disturb the plants. weeds and what are called plant pests, after being guided by guidebooks and mentoring from teachers, students become aware of which grasses need to be cleaned of plants and any pests that can interfere with plant.

Discussion

Based on the research that has been carried out, there are several findings during the research, during the pre-test performance aspects including students able to prepare planting media independently, only not all planting media equipment is brought, besides in the stage of planting seeds, students make the origin planting hole and number of mustard seeds planted in one hole. Furthermore, at the stage of maintaining and weeding the plants, students water the plants with excessive amounts of water, so that, the seeds are planted floating on water in a polybag. In theory from Sunarjono (2006), plants with excess water cannot absorb food from the soil due to poor aeration.

At the stage of removing plants, the research findings are almost the same as the stage of planting seeds, because planting holes in new media should match the planting holes in the old planting media while students only make one hole for one mustard seedling in one polybag. As explained by Supriati and Herliana (2015) in moving the plants carefully and carefully. Then at the harvesting stage the students have worked according to the stages taught by the teacher and are in accordance with the theory carefully, but when washing the crops, students only clean the dirty parts of the roots, students also do not clean the yellowing leaves and damaged leaves. The postharvest stage is good, but students are confused with the solid scale.

Then there are some findings during conducting research, at the time of the post-test performance aspects of which students are able to prepare planting media independently, although there are still some planting equipment that is missed. At the stage of planting seeds, students can compare the distance that must be made from one hole to another, besides that students can also calculate how many seeds should be planted in one hole, which is 30 seeds per 5 planting holes. In line with the elaboration of training from Irawati (2017) that the comparison used for the number of planting holes with plant seeds is 1 in 6. Furthermore, at the stage of watering and maintaining the seeds, students can determine the appropriate water dose, keeping the seeds clean by cleaning environment around plants, like pulling weeds.

Then at the stage of removing plants, students are more careful with the plants to be moved, also understand how many planting holes should be made on the new planting media. In the harvesting stage students are good and careful in removing all plants with their roots, according to the theoretical basis of Supriati and Herliana (2015) which explains that in addition to being careful in removing plants (replanting), harvesting by removing plants must also be done carefully, so that, the plant is not damaged. In the postharvest stage students clean the plants as a whole, not only are the roots dirty, but also the leaves. For the solid doses of the scales, students know which solid doses weighing 2 ounces to weigh mustard are ready to pack.

Based on the research that has been done, there are several findings during conducting research, during the pre-test performance aspects of which students are collaborating with each other when preparing planting media. At the seed planting stage it is almost the same as the results of the individual pre-test performance which only originates from giving mustard seeds to each hole. The stage of watering and maintaining student plants watering with a large amount of water, giving rise to floating mustard seeds. Overall the performance pre-test in the group tended to be the same as the pre-test for individuals, who differentiated in the pre-test group the students imitated their practice friends, so the assessment tended to be the same for all students.

The findings of the research on the post-test aspects of performance include students who independently prepare planting media equipment. Students have been able to compare how many holes and how many seeds should be planted in one polybag at the stage of planting mustard seeds, as explained in the book "Planting Organic Vegetables in Gardens, Pots and Polybags" from Pracaya (2006) that the distance between holes in planting media can range of

1-3 cm, depending on the type of media used. At the stage of maintaining and weeding mustard seedlings are already good, because the amount of water to water the seeds is appropriate. When moving the mustard seedlings to the new planting media the students have done it carefully, the distance from one hole to another is also appropriate.

Harvesting is done by carefully removing the whole plant with its roots. Clean the yellowing roots and leaves before washing with running clean water. Then weighed and packed using plastic that had been perforated by students, some students still imitated the work of their friends. Overall the results of the group performance at the post-test were almost the same as the results of individual work at the post-test. In harmony

From the results of the validation the experts have a validity level of 90.1% which means it is very feasible, can be used without revision (see page 35), while the results of the trial get 83.4% and are included in the high or effective category (see page 36).

According to Kementerian Pendidikan dan Kebudayaan (2016) material on horticulture cultivation skills in the curriculum there are 12 basic competencies in class X, 18 basic competencies in class XI and 16 basic competencies in class XII. In line with the basic competencies above, the scope of the material in this guidebook covers aspects (1) of recognizing horticulture cultivation, (2) getting to know the tools and materials needed for horticulture cultivation, (3) recognizing plant pests, (4) making planting media, (5) nursery of horticulture plants, (6) maintenance of horticulture plant nurseries, (7) harvest and postharvest of horticulture plants.

CONCLUSION

This horticulture cultivation guidebook was developed with the aim of providing understanding to hearing impairment children in horticulture cultivation, so that, vocational skills in the field can be increased. In addition, this horticulture cultivation guidebook also makes it easier for students to remember every stage of horticulture cultivation. This makes this guidebook an important element for achieving learning objectives according to the applicable competencies. According to Kementerian Pendidikan dan Kebudayaan (2016) material on horticulture cultivation skills in the curriculum there are 12 basic competencies in class X, 18 basic competencies in class XI and 16 basic competencies in class XII

In line with the basic competencies above, the scope of the material in this guidebook covers aspects of (1) recognizing horticulture cultivation, (2) getting to know the tools and materials needed for horticulture cultivation, (3) recognizing plant pests, (4) making planting media , (5) nursery of horticulture plants, (6) maintenance of horticulture plant nurseries,

(7) harvest and postharvest of horticulture plants. Horticulture vegetable cultivation is one of the skills activities that are part of vocational skills in special education. According to Kementerian Pendidikan dan Kebudayaan (2016) that vegetable horticulture can be followed by SMALB students with two types of disabilities such as intellectual disability and hearing impairment . However, in this development study, the research subjects were hearing impairment students because they were more skilled than hearing impairment students in learning horticultural vegetable farming activities.

The development of this horticulture cultivation guidebook refers to a paper by Indrawati (2014) which states that an effective organic vegetable packaging handbook is used in the learning process. The difference between this guidebook and Indrawati's guidebook is in teaching material, this guidebook reviews the procedures for horticultural vegetable cultivation from the manufacture of planting media to the post-harvest stage, while the Indrawati guidebook focuses on the vegetable packaging stage.

SUGGESTIONS

Suggestions proposed by researchers in terms of utilization are expected to be used as a teaching material for teachers in the learning guide for horticulture cultivation in learning horticulture cultivation.

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