

Improving Understanding and Focus of Students with Special Needs on The Subject of Science, Social and Environmental by using Preservation Checkpoint Method

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Abstract: This action research was conducted to help improve special needs students learning difficulties for the topic of Food Preservation contained in KSSM Special Education Syllabus for Science, Social and the Environmental subject through Preservation Checkpoint Method. A total of 6 students with special needs from 'Utariid' class which are form 2 students from Special Education Integration Program (PPKI) at SMK Subang Bestari consisting of students with autism, hyperactive, and slow learner was chosen as respondents. The instrument of this study consists of observation and checklist which given to these students. The preliminary finding showed that the students had trouble on understanding and answering questions for topic that has been learned. Students with special needs also have difficulty on focusing and concentrating in an ordinary teaching and learning strategy. This Preservation Checkpoint method was implemented based on special need students interest as well as material and student centered. The finding shows that the technique used has improve the level of students knowledge, where the students can understand and answer questions of the Food Preservation topic that has been learned. Students are also more focused and enthusiast to continue the learning process. The effectiveness of this method impacts on students with special needs towards high working skills and able to live independently.

Keywords: Preservation Checkpoint, Student with Special Needs

INTRODUCTION

Special Education Program in Malaysia is an ongoing effort to encourage optimum development of a special need as a skilled person, focused, able to work, faithful, independent, able to plan, manageable and realize their potential as individuals and members of society in accordance with the National Education Philosophy. Under the Education Act 1996, Regulations of Education (Special Education 2013) stated that students with special education consists of students who have multiple disabilities including hearing disabilities, visual disabilities, physical disabilities, speech disabilities and learning difficulties. Teaching and learning process will be more effective with appropriate teaching methods to meet the needs of student with learning disabilities in Special Education Integration Program in accordance with the Regulations of Education (Special Education) Act 1997, which states "Teachers can modify methods or techniques of teaching and learning, time and structure of activities, subjects and teaching aids in order to achieve the objectives and goals of Special Education".

BACKGROUND

Special Education Standard Based Curriculum for Secondary Schools (KSSM) has been introduced by the Ministry of Education Malaysia (KPM) to provide students with special needs opportunities in pursue quality education. With various level of ability, they might face difficulty in mastering a subject in their learning process with common method of learning. Therefore, this study was conducted to help students with special needs to participate and understand their learning. This Checkpoint Method of Preservation is a strategy of teaching and learning that is equipped with effective teaching aids through playing while learning as students

are more likely to engage in casual learning. This study is an alternative to existing methods of improving students' focus and mastery of Science, Social and Environmental subject.

PROBLEM STATEMENT

Students with learning disabilities facing difficulties to understand the content of topic learned and to pay attention during the process of teaching and learning. Typical learning process often takes long time to attract and guide each student. Thus, different techniques and methods is essential to overcome the lack of concentration and understanding of students. The use of this Preservation Checkpoint method is an effort to improve understanding of students, then overcome problems of lack of concentration during ordinary teaching and learning process.

RESEARCH OBJECTIVE

The objective of this study is to find and determine how Preservation Checkpoint Method can help in improve understanding of students with special needs for the Food Preservation topic. It also aims to solve the problem of lack of concentration as well as to suit this method in 21st Century Learning or 'Pembelajaran Abad ke 21' (PAK 21). The study will be able to achieve following objectives:

- a. Improve understanding of Food Preservation topic.
- b. To enhance students interest in teaching and learning process.
- c. Application of PAK 21 in the classroom.

RESEARCH QUESTIONS

Based on the purpose of the study, the researchers have built a research question as following:

- a. Does this method can improve students' understanding of Food Preservation topic in subjects of Science, Social, and Environmental?
- b. Are student and material centered learning applied in the method will attract students to focus on the process of teaching and learning?
- c. Is the method of Preservation Checkpoint will apply PAK 21 in teaching and learning process?

LITERATURE REVIEW

Studies on playing while learning methods have been widely practiced in many countries. Moyles (2005) found that playing in learning can provide a great experience where children gain real experience during their learning. Brophy (1998), says that the learning process is enjoyable if teacher's planning for the activity is in line with students' needs and interest. According to Hamdan's (2010) study, he emphasized that teachers should be wise in selecting teaching methods that are most appropriate for their students as it helps teachers in providing suitable teaching aids and develops students' talents and potential. Atan Long (1978), states that an effective teaching approach will stimulate pupils to focus in their learning process, as well as improving student's achievement. In the study of Levin and Nolan (2014) it has been stated that teachers' ability to maximize student engagement in learning process should promise a student success.

However, the research that is currently implemented is yet to be elaborated. Thus, the researcher will consider at the implementation of checkpoint learning method that are capable of attracting special needs student's with variety of disabilities. The Preservation Checkpoint Method is implemented based on students' abilities, as well as enhancing their focus and level of understanding in learning.

METHODOLOGY

Research design

According to some kind of action research model identified, researcher have chosen Lewin (1946) Action Research as a guide. According to Lewin, action research shows a spiral of steps. This cycle consists of four steps, which are Planning, Acting, Observing and Reflecting.

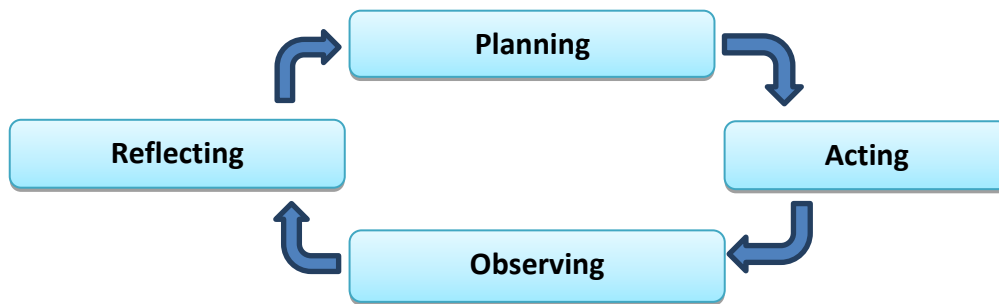


Figure 1. Lewin's Model (1946)

Sampling

The study sample consisted of 6 students with learning disabilities from Form 2 'Utarid' Class of Special Education Integration Program SMK Subang Bestari. They consist of 2 students with autism, 1 hyperactive, and 3 slow learner students.

Research Instrument

The instrument used are checklist as a pre-test and post-test to collect data of the study. Results of the observations are recorded and compared to assess the effectiveness of the method applied. Table below shows the instrument used during the study.

Table 1. Checklist used as the pre-testing and post-testing

Standard content	Skills Tested	Score					Notes
		1	2	3	4	5	
4.1 Preservation	To state the meaning of food preservation						
	Mentioned at least 4 types of food preservation methods						
	Understanding the importance of food preservation						
	Mentioned characteristics of spoiled food						
	To state 4 types of food that can be preserved						
	To name suitable food with appropriate preservation methods						
	Identify the expiry date of food and its importance						

Standard content	Skills Tested	Score					Notes
		1	2	3	4	5	
	Identify the date of food manufacture						
Total							Percentage

Table 2. Checklist of students characteristics during teaching and learning process

Students Characteristics	1	2	3
Students sleepy and loss of concentration during the process of teaching and learning			
Students are talking while the teacher is teaching			
Students cannot repeat what the teacher taught			
Students are not able to communicate confidently			
Students mumbling and daydream			
Students interrupting classmates			
Students are passive during learning process			

Study Procedure

Step 1: Planning

Identifying Problems

In identifying the issue, researcher have made checklists and observation to test the level of respondents' understanding on the topic learned. Data collection and preliminary information were retrieved from the checklist given to the respondent. Some of the problems identified are:

1. Students are not able to state the meaning of food preservation correctly.
2. Students are not able to state the type of food that suitable with preservation method.
3. Students do not understand the importance of food preservation
4. Students do not know about the characteristic of spoiled food.
5. Students not able to differentiate between expiry date and manufacture date of food on food packaging.

The researcher also found that students with learning disabilities difficult to concentrate during the teaching and learning conducted. Therefore, researcher have observed the respondents during the process. Here are some problems faced by students:

1. Students do not concentrate or focus and passive during the process of teaching and learning.
2. Students talk each other and interrupting classmates while teaching process.
3. Students not able to repeat what the teacher taught.
4. Students are not able to communicate confidently.
5. Students mumbling and daydream during learning process.

Problem Analysis

The problem identified most probably because of special needs students in the class are from various problems which are autism, hyperactive and slow learner. Teaching and learning process becomes a challenge where normal students will concentrate and adapt the process, while students with learning disabilities face difficulty to follow. In the context of education, any delinquent behavior can be referred as behavior that interfere with the effectiveness of teaching and learning, particularly in the classroom. This problematic behavior will impact negatively on the process of teaching and learning in classroom (Nurul Amani, 2014).

Preservation Checkpoint Method was designed with effective teaching materials through process of learning while playing. This method is implemented as an option to the special education teaching and learning process so that students with special needs able to learn through experience. It focused on active student participation and encourage teamwork. In addition, it also practiced the 21st Century Learning which focus on student collaborative learning, ICT use, thinking maps and 'Gallery Walk' strategy.

Step 2: Acting

Preservation Checkpoint Method implemented emphasizes on learning through playing for children with special needs which are autism, hyperactive and slow learner students. Teaching and learning are conducted with 3 stations or checkpoint. For induction stage, the students watched a video of Food Preservation. Then, the students will be divided into two groups using the technique of playing color cards. At checkpoint 1, students rotate Preservation Wheel to select food preservation methods. Student will state two methods of food preservation obtained from the wheel rotation.

Student then move to Checkpoint 2 and build a mind map of food that suitable with the method of preservation obtained. Students will present their work in team in front of the class. Then, last activity called 'Gallery Walk' where members of the group will explain another group about the outcome of each presentation. At the Checkpoint 3, student has a session of discussion about the presentation that has been done. Students were asked to identify the expiry date and the date of manufacture of the food provided. Students are then given a sticker to be affixed to 'Token Chart' as a reward for having participated in learning process very well.

At the end of this process, students will be able to understand the meaning of food preservation and also methods of food preservation. Students can also interact more actively with the use of various learning materials. Process of teaching and learning will be more fun with activities where students will be able to create a sense of teamwork, solving problems according to the situation and encourage students to socialize and interact with each other.

Step 3: Observing

FINDINGS

The researcher analyzed on pre-test and post-test data that was conducted on 6 subjects in the study. The table below shows the respondents' scores before and after the study.

Table 3. Percentage of PreTest and Post Test Scores

Number	Student	Pre Test	Post Test
1	M1	25%	87.5%
2	M2	28%	92.5%
3	M3	40%	100%
4	M4	35%	100%
5	M5	30%	97.5%
6	M6	25%	75%

Based on these scores, the researcher construct a graph of a comparison of the percentage of understanding on Food Preservation topic more clearly.

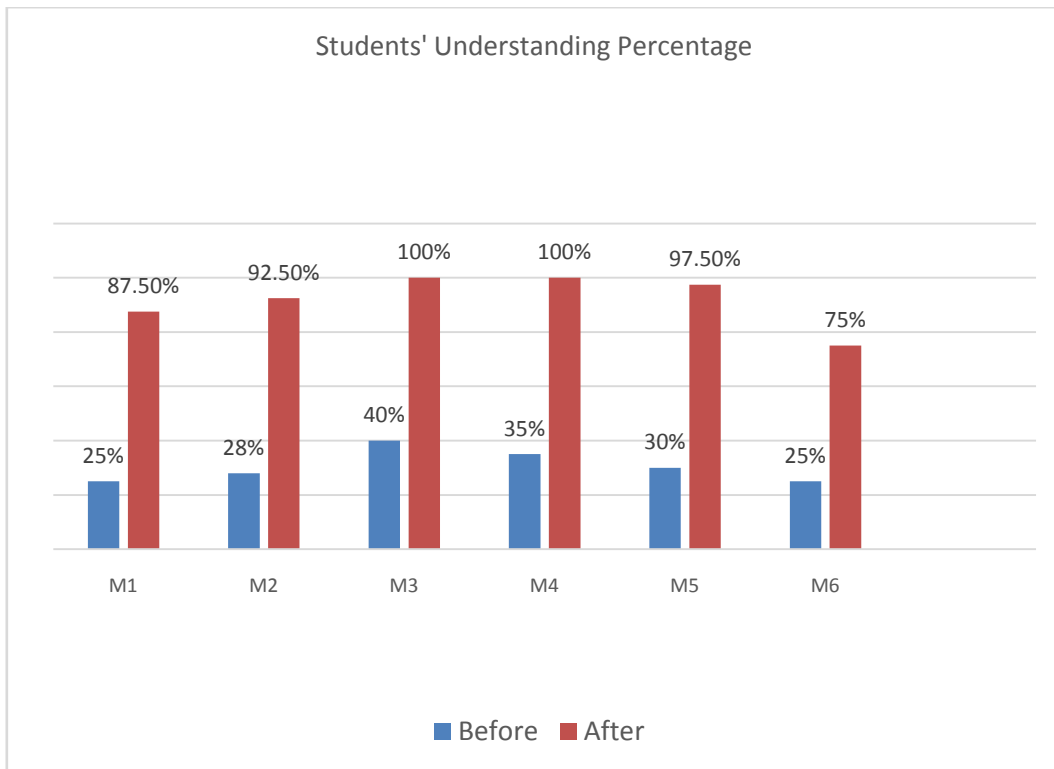


Figure 2. Students' Understanding Percentage Graph

Before the study conducted, the percentage of student understanding is below 40%. Through tests conducted after the next 2 months, the percentage of understanding for each respondent has increased. 2 respondents have achieved 100% understanding. The lowest percentage is 25% which are autism and slow learner student. Based on the percentage, mean of understanding increased are calculated.

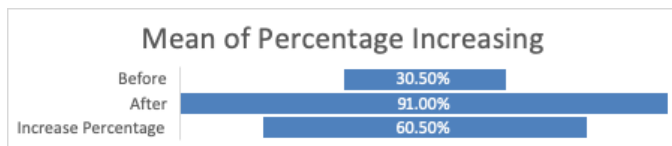


Figure 3. Mean of Students' Understanding Graph

Mean of understanding after the study was 91% versus 30.5% previously. This shows an average increase understanding of respondents after the survey was 60.5%. From the findings, the researcher concluded that this method can help students master the understanding of this topic. Besides students level of understanding, characteristics of the students during teaching and learning process were also observed. Comparison of respondents score is shown in the table 4 below.

Table 4: Frequency and percentage of students observed during ordinary and Checkpoint Method

Students Characteristics	Ordinary Teaching and Learning Process		Checkpoint Method Teaching and Learning Process	
	Frequency	Percent	Frequency	Percent
	Students sleepy and loss of concentration during the process of teaching and learning	9	43%	7
Students are talking while the teacher is teaching	11	53%	7	33%
Students cannot repeat what the teacher taught	16	76%	7	33%
Students are not able to communicate confidently	16	76%	8	38%
Students mumbling and daydream	10	48%	6	29%
Students interruptingclassmates	10	48%	6	29%
Students are passiveduring learning process	14	67%	8	38%

Based on the frequency and percentage that has been available before and during the study, the researchers have built a graph of the characteristics of the respondents.

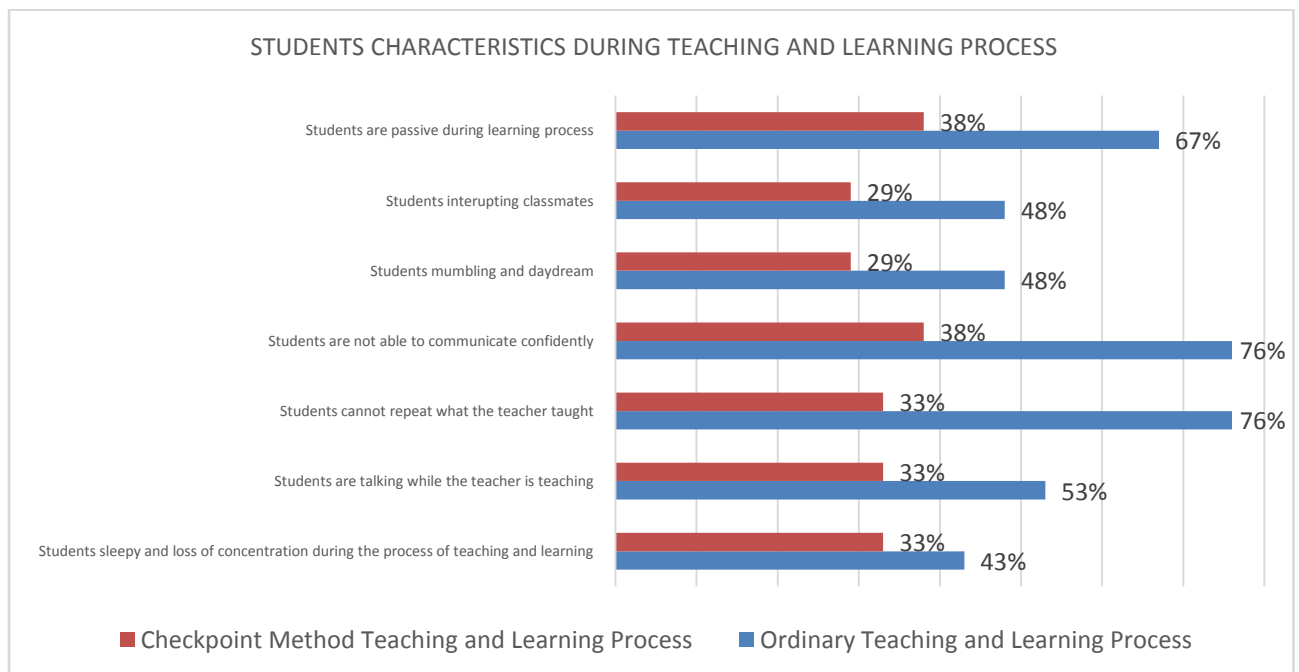


Figure 4. Characteristics of Students during Ordinary and Preservative Checkpoint Method Teaching and Learning Process

The graph shows the percentage on lack of concentration decreases when students participating in Preservation Checkpoint Method in classroom. The percentage of students who are unable to communicate confidently decreased the most, by 43%. This can be seen during the process, students actively engage and discuss with the teacher. During the presentations and 'gallery walk' activity, and all the stations, students are able to communicate and convey their opinions very well.

Activities using ICT and 'Gallery Walk' which is materials and studentcentered fully supports PAK 21. The next diagram shows how the process is executed. Respondents showed enthusiasm and ability to communicate well. Even slow learner students which are always silent show interest to present their outcomes in front of the class.



Figure 5. Applications of PAK 21 when the study was conducted

This strategy which are material and studentcentered learning applied are interesting and encouraging respondent to focus on the learning process. Based on the observations made, these respondents are active and focus during the teaching and learning process.

Step 4: Reflecting

In this last step, the researcher reflect on the research conducted. The study was conducted for two months starting from March to April. Before using this method, researcher facing problems in improving understanding of students with various disabilities which are autism, hyperactive and slow learner for topic Food Preservation. The use of this method that emphasizes learning while playing provide opportunities for students to be actively involved in the activities. It can simultaneously increase students interest in learning as well as understanding of the teaching. This method is also flexible as it can be conducted as a special program such as post examination program, skills program and so on. Checkpoint stations provided during this study was found to be easily understood. Students undergo process of teaching and learning, where the teacher acts as a facilitator who guides students at the minimum level. The method implemented effectively within the timeframe, as well as understand the content of food preservation topic.

The diagram below shows the process of teaching and learning process of Checkpoint Method conducted according to specified stations. Students were active and fully involved during the activities.



Figure 6. Activities carried out according to checkpoint.

DISCUSSION

As a special education teacher, researcher strives the best to deliver the outstanding teaching method. Early preparation, planning and teaching aids used in teaching methods which is ideal for students with learning disabilities are very important. Researcher also diversify teaching techniques so that the teaching process is not too flat and will attract students into learning process. The researcher found that there were some advantages of this method which contributing to the mastery of Food Preservation topic. Preservation wheels used can attract students to play while turning the wheel. Through rotation of the wheel, the students were able to identify several methods of food preservation as well as remember it. According to Moyles (2005) playing is the best teaching and learning experience especially in early childhood education. Through playing activities, students can learn about the environment and understand the issues that are going around in a special way. In effect, student focus on the things will be improved. PAK 21 applications in the study provides an opportunity for

students to communicate in front of the class confidently. Students can also understand the topic well with the explanation of group members regarding food preservation. Brophy (2006) supports this statement by stating that all teachers should devise teaching and interacting with students as a group.

The use of actual material as a teaching aid helps students to apply in everyday life where they can identify foods that are damaged and expired when shopping at the supermarket. Teaching and learning process that use concrete material really give a positive impact on students. Mohd Yasin (2013) considers the use of teaching aid is one way to improve achievement and success of students because without teaching aid, the process of learning will be less effective and then affect the quality and academic achievement. Reward stickers given has attracting students to participate in class more actively. Students are excited and always try to add more sticker collection for the promised reward. According to Mok (2011), positive reinforcement is the stimuli that can increase the probability of a behavior while negative reinforcement is also stimuli that eliminated in order to increase positive behavior so that positive behavior will continue. During this study, researcher found that informal learning while playing attract student to learn. The learning environment that provided by the station checkpoint encourage curiosity, cooperation, competition and student recognition.

CONCLUSION

Based on the findings, the researcher concludes that by using this Checkpoint method, it was able to improve the level of student understanding and add interest students to learn. Although students with learning disabilities are not so impressed academically, but they also have their own interests as other ordinary students. Based on the results of studies, researcher found that the use of methods, teaching aids, and teachers' skills plays an important role in teaching special education students. Special education teachers must be sensitive to the problems faced by the students and take proactive steps to resolve it immediately so that students do not fall behind in his studies. Hence strategies and teaching skills should be designed accordingly to attract students so that they can concentrate and succeed in their studies. Despite this successful action research in improving understanding of students for Food Preservation topic, this best practices learning can be improved to make its applicable together topic and subjects in learning disabilities. The variety of teaching materials should be more attractive and efficient yet flexible so that it will increase the effectiveness of this method. There are only minor problems encountered during the study, that is one student with autism who tend to be controlled by the hyperactive student. The hyperactive always trying to conquer all activities and disrupt other classmates. Researcher need to control and explain in detail to the respondents so that the situation becomes calmer and activities can be carried out more effectively.

The action research conducted has create awareness to the researcher regarding the problems of students not master a topic learned. The fact is, there must be a certain effort and methods for teachers to solve the problem. This can be proven by studies of Hamdan et. al. (2004) states that every teacher must have the proper preparation of strategy prior to the teaching and learning process is carried out. Through this study, the researcher able to overcome the shortcomings of students in the best way. This method can produce students who are confident and able to give an opinion. It also can identify students with potential to represent the school in various skills.

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