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## Increasing Learning Outcomes of Students with Hearing Impairment Using Powerpoint as Teaching Media in Explaining the Concept of Animal Life Cycle

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### ABSTRACT

The purpose of this study was to determine the improvement of science learning outcomes on the subject of animal life cycles through the use of Powerpoint media for students with hearing impairment. the method used is classroom action research using demonstration learning methods, giving assignments, and asking questions. The subjects of this study were 4 students with hearing impairment at the Sekolah Luar Biasa Negeri Bekasi Jaya, Indonesia. The results showed that student learning outcomes have increased so that it exceeds the Minimum Completeness Criteria that have been set, namely 80. This happens because the Powerpoint media used is easily understood by students. This study demonstrates that the use of Powerpoint media is easy to understand and attracts students' attention, thereby accelerating students' understanding, especially deaf students, about the life cycle of animals. In addition, Powerpoint media will also make it easier for teachers to guide students, especially for students with hearing impairment.

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## 1. INTRODUCTION

Natural Science is one of the subjects that require real experience. In this subject, students are expected to be able to know themselves and their natural surroundings, as well as prospects for further development in applying them in daily life. [Nurdyansyah \(2016\)](#) argues that Science (IPA) is a systematic collection of theories, its application is generally limited to natural phenomena, born and developed through scientific methods such as observation and experimentation, and demands a scientific attitude such as curiosity, openness, honesty, and so on. One of the subjects in the subject of Natural Sciences is the life cycle of animals. The life cycle is a process experienced by living things starting from the first time the organism lived on earth and then growing and developing into an adult organism or living thing and multiplying to maintain the continuity of its type. The life cycle of an animal begins at birth from the mother's stomach or hatches from an egg. Animals get bigger as they grow and develop into adults. The animal's life cycle ends in death. The process of the animal's life cycle is a cycle because it will return to its starting point. The animal's life cycle ends when the animal dies and starts again from the beginning, namely birth, and then grows and develops until it finally dies.

Children with hearing impairment experience obstacles in their hearing, so their language development is limited and affects being a limitation on their abstraction power so that children are somewhat less able to use their thoughts on the abstract concepts. [Hernawati \(2007\)](#) suggests that auditive data is more memorable because it is rhythmic. Data that can be sung or read rhythmically, rhythmically emphasized on certain parts, can support memory. Children with hearing impairment will perform lower (showing lower memory) than normal children for material that can be verbalized (spoken) by normal children or hearing children such as memory for numbers, pictures, and so on. For materials that are less verbalized by children listening, their achievements will be balanced, such as memory for a series of movements, and so on. Children with hearing impairment are often referred to as children who have a visual learning style because the sense of sight plays the most important and bigger role.

Microsoft Powerpoint media is one of the alternative media that can be used in learning, this is based on the assumption that the visual aspect is more able to provide clear information than just words. Microsoft Powerpoint media is one of the alternative media that can be used in learning, this is based on the assumption that the visual aspect is more able to provide clear information than just words. Microsoft Powerpoint is one of the programs that are part of the service of Microsoft Office, and this program in learning has many benefits. [Damayanti and Qohar \(2019\)](#) mentioned that PowerPoint can make students more focused and avoid distractions so that students can learn better. [\(Damayanti and Qohar \(2019\)\)](#) stated that students' interest and involvement in learning increased when using PowerPoint.

Currently, many studies discussed science learning results using the subject of animal life cycles. Among them, the improvement of science learning outcomes of animal life cycle materials using circle carton media in fourth-grade students of elementary school Sempol 04 Pagak, Malang, Indonesia [\(Yulina, 2013\)](#), the effect of the picture and picture learning models aided by the wheel of fortune media on activities and learning outcomes in the concept of animal life cycles for class IV students [\(Shafira et al. 2019\)](#), improving students' science learning results for animal life cycle materials using picture media in class IV elementary school 012 Simangambat, Siabu, Mandailing Natal, Indonesia [\(Wilis, 2017\)](#), using audio-visual media to improve the ability to describe animal life cycles. [Khaerunnisa et al. \(2018\)](#). The Influence of the use of PowerPoint media on interest in learning history of class X students of senior high school 1 Bumiayu. But, until now, no one has discussed the efforts to improve

science learning results of animal life cycle subjects in students with hearing impairment through PowerPoint media. This research has aims to determine the improvement of science learning Results on the subject of animal life cycles by using Powerpoint media for students with hearing impairment. In this research, the method used is classroom action research using demonstration learning methods, giving assignments, and asking questions. This research has 4 students with hearing impairment as subjects at the Sekolah Luar Biasa Negeri Bekasi Jaya, Bekasi, West Java, Indonesia. The results obtained in this study are student learning outcomes have increased so that they can exceed the minimum completeness criteria that have been set, namely 80. This happens because the learning media used, namely, Powerpoint media is easy to understand by students with hearing impairment. This research demonstrates the steps in using Powerpoint media made students with hearing impairment easy to understand because it contains has interesting pictures, according to the characteristics of the student with hearing impairment who have a visual learning style, so that students with hearing impairment can accelerate their understanding of the animal life cycle. In addition, Powerpoint media will also make it easier for teachers to guide students, especially for students with hearing impairment. The Novelty of this study is (i) the use of Powerpoint media, (ii) the concept of animal life cycle materials, and (iii) students with hearing impairment as the subjects.

## **2. METHODS**

### **2.1. Subjects and location research**

This research involved 4 students with hearing impairment at the Sekolah Luar Biasa Negeri Bekasi Jaya, Bekasi, West Java, Indonesia. This school is a special school for students with special needs.

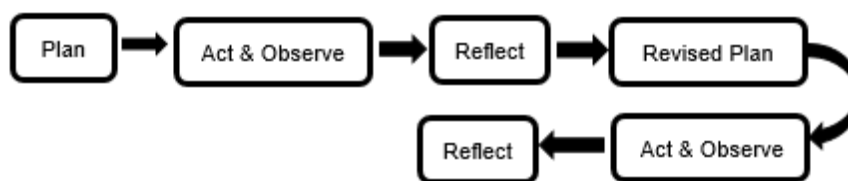
### **2.2. Research procedure**

This research focuses on the case of efforts to improve science learning results on the subject of animal life cycles by using Powerpoint media on students with hearing. The flow of research carried out includes: (i) Plan, (ii) Act and Observe, (iii) Reflect, (iv) Revised Plan, (v) Act and Observe, (vi) Reflect.

**Figure 1** describes the procedure for the flow of classroom action research which consists of several stages.

### **2.3. Procedure of activities**

The classroom action research procedure consists of the stages of planning, implementing, observing, and reflecting. In planning activities by designing teaching materials and steps of the learning process, determining indicators of achievement of student learning outcomes, compiling instruments and Learning Implementation Plans (RPP) and learning scenarios. In the implementation of this action stage, this study carried out learning procedures based on the stages of solving questions about the stages of the animal life cycle. At the observation stage, observations were made on the implementation of actions that were in accordance with the research objectives, namely increasing science learning outcomes on the subject of animal life cycles using Powerpoint media. Reflection is done to understand the processes, problems, and constraints experienced during classroom action research.



**Figure 1.** Classroom action research design .

## 2.4. Research instrument

This research activity collects data by observing and testing activities. The research instrument is in the form of test questions. As for the questions in the form of a written test, the form of the questions used, namely essay questions, totaling 5 questions. To get a score that will be used as data in the study, the research instrument will be assessed with the following criteria: if students can answer correctly and completely they are given a score of 20, students who answer incompletely are given a score of 10, and if students answer incorrectly are given a score of 0 (zero). The maximum score for the number of questions 5 is 100. By calculation, the number of correct answers: the number of questions x 100 = final score.

In the developmental aspect, this study gave an assessment score for students' abilities with scores of 0 (not good), 1 (poor), 2 (good enough), 3 (good), 4 (very good).

## 3. RESULTS AND DISCUSSION

### 3.1. Student demographics

**Figure 2** describes the demographics of students consisting of motor skills, language, writing skills, and academics. The subjects in this study were deaf students. Deaf students are students with special needs who cannot hear. [Herawati \(2007\)](#) revealed that in general the intelligence of deaf children is potentially the same as normal children, but functionally its development is influenced by the level of language skills, limited information, and presumably the child's abstraction power. As a result, his deafness hinders the process of achieving wider knowledge. Thus the development of intelligence is functionally hampered. The cognitive development of deaf children is strongly influenced by language development so that barriers in deaf children hinder their intellectual development.

Student A can read the reading text fluently, can pronounce some vocabulary clearly, and can write neatly. To explain abstract phenomena, it is still constrained by the vocabulary they have. Student A has very good motor skills. Student A has good numeracy skills. Student A has an average IQ, it is shown from the results of psychological tests. Student A's academic ability is good. Student F can read simple reading texts fluently. Student F can pronounce some vocabulary clearly, and students' ability in writing is still not neat and sometimes there are some letters in the word that are missed. To explain abstract things is still constrained by the vocabulary they have. Student F has good numeracy skills. Student F has very good motor skills. Student F has an average IQ, it is shown from the results of psychological tests. Student F's academic ability is good.

Student N can read the reading text fluently, can pronounce some vocabulary clearly, and students can write neatly. Student N's ability to explain abstract things is still constrained by their vocabulary. Student N has good numeracy skills. Student N has very good motor skills. Student N has an average IQ, it is shown from the results of psychological tests. N students' academic ability is good.

Student S can read simple reading texts even though the pronunciation is still unclear, the vocabulary is not clear, communicate with sign language, and can write neatly. To explain abstract concepts, it is still constrained by the vocabulary they have. Student S has good numeracy skills. Student S has excellent motor skills. Student S has an IQ below the average, it is shown from the results of psychological tests. The academic ability of S students is quite good.

### 3.2. Learning Process Activities

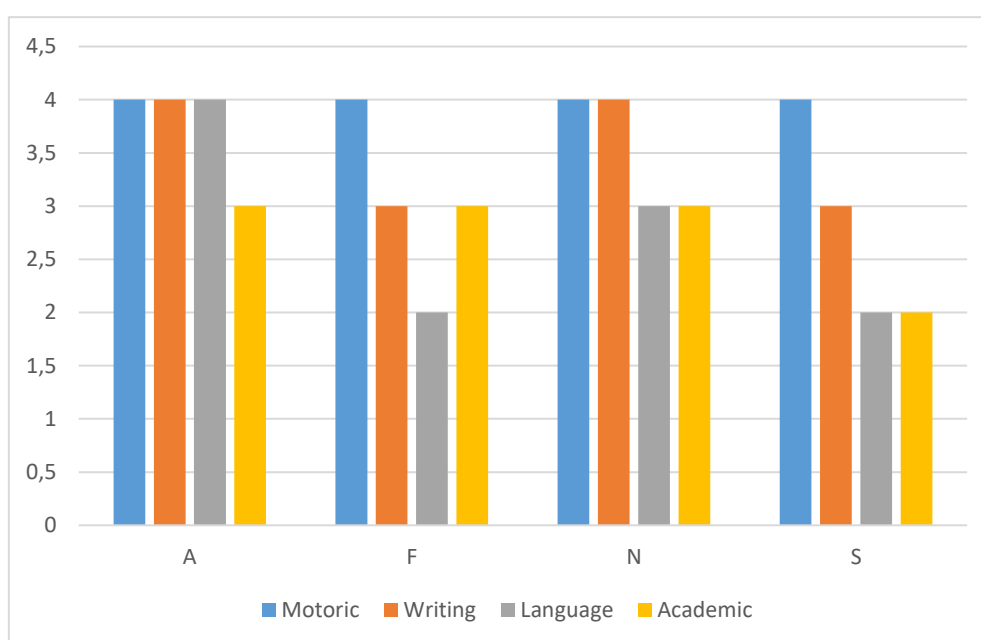
Learning activities began with initial activities, namely, starting learning by praying, taking attendance of students, motivating students into learning situations, asking questions about how to breed some animals.

At the core activity stage, before using the media, this study gave the task to students to fill out a pre-test question sheet explaining the stages of the animal life cycle. This study assessed the pre-test so that the students' knowledge of explaining the stages of the animal life cycle was known. This study demonstrated the use of Powerpoint media which showed pictures of the stages of the animal life cycle. Students observe pictures of animal life cycle stages using Powerpoint media. Students do question and answer with the teacher about the material that has not been understood. Students one by one explain orally the stages of the animal's life cycle according to the picture using Powerpoint media. Students who can fully explain the stages of the animal life cycle will get a reward. For students who are still incomplete in explaining the animal life cycle, the teacher motivates them to be even more enthusiastic.

At the end of the activity, the results of the learning were concluded. Students work on written questions (essays) individually as a means of measuring the level of understanding and the level of student learning success.

### 3.3. Results of cycles I and II

**Table 1** describes the score acquisition of students with hearing impairment in answering test questions about the animal life cycle in cycle I. These results illustrate that they are not maximal and are still far below the minimum completeness criteria.



**Figure 2.** Student ability condition.

**Table 2** describes the score acquisition of students with hearing impairment in answering test questions about the animal life cycle in cycle II. These results illustrate that maximum results have been achieved and exceed the minimum completeness criteria. Which have been specified.

**Figure 3** shows the science learning outcomes test for the subject of the animal life cycle of students with hearing impairment showing an average score of 85. The criteria for learning completeness are 80. This proves that students have completely achieved the expected competencies.

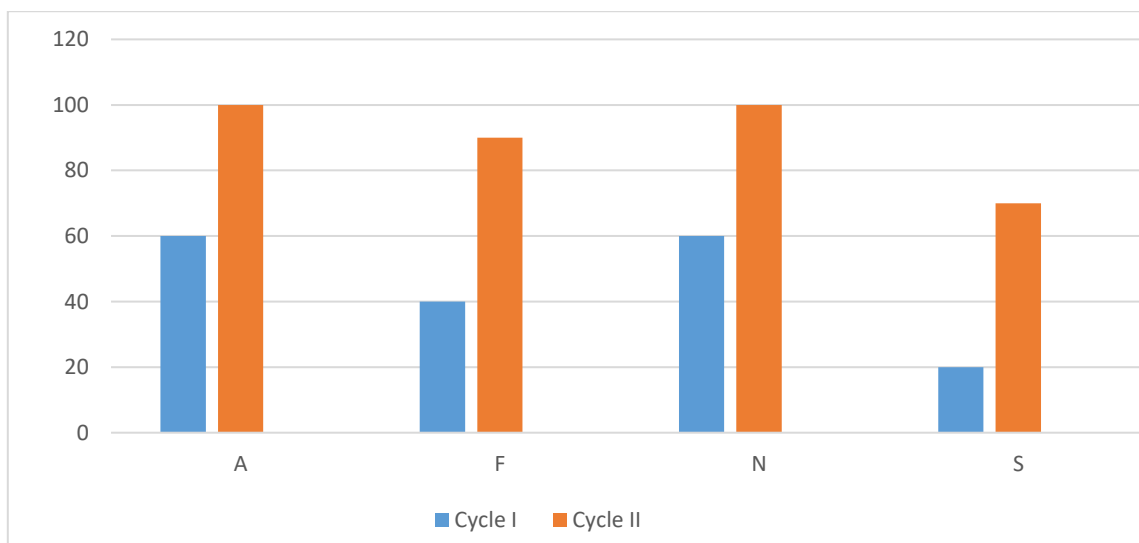
From the results that have been described, it will be seen that Powerpoint media can improve learning outcomes of science learning subjects of animal life cycles in deaf students. This happens because the Powerpoint media used displays many interesting pictures about the stages of the animal life cycle so that it is easily understood by deaf students who have difficulty understanding learning materials that are only used verbally.

**Table 1.** List of student values (Cycle i).

Number	Name of Student	The correct answer in Cycle I	Value obtained	Description (%)
1.	A	3	60	60
2.	F	2	40	40
3.	N	3	60	60
4.	S	1	20	20

**Table 2.** List of student values (Cycle ii).

Number	Name of Student	The correct answer in Cycle II	Value obtained	Description (%)
1.	A	5.0	100	100
2.	F	4.5	90	90
3.	N	5.0	100	100
4.	S	4.0	80	80



**Figure 3.** Comparison of Cycle I and Cycle II values.

#### **4. CONCLUSION**

Natural Sciences is one of the subjects that require real experience, in this subject students are expected to be able to know themselves and the natural surroundings, as well as prospects for further development in their application in everyday life. However, in reality, even though it is related to everyday life, Science is difficult to learn because there are many abstract subjects. One of the subjects of the animal life cycle is that students with hearing impairment learn. This study aims to determine the improvement of science learning outcomes on the subject of animal life cycles through the use of Powerpoint media for deaf students. Deaf children are often referred to as children who have a visual learning style because the sense of sight plays the most important and bigger role. Microsoft Powerpoint media is one of the alternative media that can be used in learning, this is based on the assumption that the visual aspect is more able to provide clear information than just words. The classroom action research method used is the demonstration learning method, assignment, and question and answer. This study has 4 students with hearing impairment as subjects at the Sekolah Luar Biasa Negeri Bekasi Jaya, Bekasi, West Java. The results obtained in this study are student learning outcomes have increased so that they can exceed the Minimum Completeness Criteria that have been set, namely 80. This happens because the learning media used, namely, Powerpoint media is easily understood by students with hearing impairment. With the use of Powerpoint media, the teaching and learning process will make it easier for students to learn so that they can improve their learning outcomes. In addition, the use of Powerpoint media will reduce verbalism, according to the characteristics of the students with hearing impairment who have a visual learning style so that the material delivered is clearer, and teaching will increasingly attract the attention of students, especially students with hearing impairment so that it can lead to student learning motivation. This research is expected to be a consideration for teachers to use in the science learning process, especially animal life cycle materials for children with hearing impairment, and can be developed for learning other materials.

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#### **6. AUTHOR NOTE**

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

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