PROCESSING SKILLS IN SCIENCE INSTRUCTION AS A MEANS TO INCREASE ELEMENTARY SCHOOL STUDENTS’ MENTAL, PHYSICAL AND SOCIAL BASIC SKILLS

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Abstract

This paper aims to explain the definition of processing skills in science instruction in elementary school, the importance of processing skills, the theme on applying processing skills, the skills that usually used in science instruction (observing skills, classifying, communicating, measuring, predicting, and making conclusion) and the steps in applying processing skills. The approach of processing skills is a learning approach that aims to improve basic skills such as mental, physical and social skills to inquire fact and concept or improving behavior and norm through learning activities that able to improve students’ skills. The mean of the final test on cycle I is 69. After learning improvisation in cycle II students’ score increase. The mean of the test on first meeting in cycle II is 79 and on the second meeting is 85.

Keywords: Processing Skills, Science concept, Social, Mental, Physical

1 INTRODUCTION

The problems that exist in the world of formal education increase from year to year. One of the main problems faced by Indonesia is the low quality of formal education at every level of education. Efforts have been made to improve this through various training and teacher competence improvement; procurement of books and instructional tools; improvement of education facilities and infrastructure as well as improvement of school management quality. However, various indicators of education quality have not shown significant improvement. Many people have question about what is wrong in the organization of our education? From various observations and data analysis, there are many factors that cause the quality of education has not increased significantly, one of them is the approach used in the classroom has not been able to create optimal conditions for learning.

All this time, the approach used is the input-output analysis, which is assumes that if educational inputs such as teacher training, procurement of books and learning tools, improvement of other educational facilities and infrastructure are met then the quality of education will automatically occur. In fact, the expected quality of education does not occur because the approach is too focused on educational input and less attention to the educational process whereas this largely determines the output of education. The process of education can not be separated from the teaching and learning activities in the classroom. Those are determined by the cooperation between teachers and students. Teachers are required to be able to present the subject matter with optimum. Therefore, new creativity and ideas are needed to develop ways of presenting the subject matter in school.

Creativity is teacher ability to choose the appropriate methods, approaches and media in the presentation of subject matter. The fact shows that there are still many teachers who use traditional approach in science learning so that students have not been directed to understand their own science concepts being studied. The traditional approach has not been able to develop cognitive (reasoning), affective (attitude), and psychomotor (skills) abilities as outlined in the GBPP. Thus, the students only tend to memorize the science concepts that they learn without understanding them properly. As a result, mastery of students’ IPA concepts becomes very less. In addition, teachers as informants tend to dominate learning activities in the classroom so...
there is no mutual relationship between teachers and
students that have implications for the quality of
learning in teaching and learning process of science.
From the above description, then one of the efforts
considered to solve the problem is to use the process
skills approach as a strategy that is expected to
involve students actively in science learning.

2 DISCUSSION

2.1 Definition of Process Skills Approach

Approach of process skill is teaching and
learning approach that leads to the development of
basic ability in the form of physical and social
mental to find facts and concepts. In other words, it
means that development of attitudes and values
through teaching and learning process that has
enabled students so as to grow a certain number of
skills in the students themselves. In the guidance of
the implementation of teaching and learning process,
it is also explained that what is meant by process
skill. It is the student's skill to manage the learning
gain obtained through teaching and learning process
which gives wider opportunity to the students to
observe, classify, predict, apply, plan, and
communicate.

Basically, the physical and mental skills as well
as the development of process skills have been
owned by the child even in the form of potential or
ability that is still low, the ability that still needs to
be realized. According to Suryo Subroto (1995: 75),
"By developing the skills of processing in the
learning approach, the pupil will be able to discover
and develop the attitudes and values required
throughout the rhythm of motion or action in a true
teaching-learning process creating conditions for
active student learning."

According to Azhar in Ade Sanjaya (1993: 7),
"Process skill is students' ability to manage (obtain)
what is they learn in teaching and learning activities
(KBM) that provide the widest opportunity for
students to observe, classify, interpret, forecast,
apply, plan research, communicate the results."

Thus, through the process skills approach is
applied attention to enable students to learn
something in realizing an interest that ultimately
leads to an engagement based on a sense of
responsibility in the face and solve problems in
learning. The process of teaching and learning
always should include students actively in order to
develop students' abilities such as the ability to
observe, interpret, predict, apply concepts, plan and
conduct research, and communicate the findings.

In accordance with the objectives of the process
skill approach are:
A) Provide motivation for students to learn because
in the process skills of student are encouraged to
always participate actively in learning.
B) To understand more the concept of definition and
facts learned by students as essentially the
students themselves who seek and find the
concept.
C) To develop knowledge or theory with the reality
of life in society so that between the theory and
reality of life will be harmonious.
D) As preparation and practice in facing life of
society because students have been trained to
think logically in solving problems.
E) Develop a confident, responsible and social
solidarity attitude in the face of various
problems.

Basically this process skill is implemented by
emphasizing on how students learn and process the
problem so that it becomes meaningful. What is
meant by the acquisition is the result of student
learning obtained from experience and observation
of the processed environment into a concept
acquired by actively learning through process skills.

2.2 The Importance of the Process Skills
Approach

There are several reasons underlying the need to
apply a process skill approach (PKP) in teaching and
learning activities, namely the development of
science progresses faster so that teachers can not
teach all the facts and concepts to students.

Psychologists generally argue that young people
understand complicated and abstract concepts when
it is accompanied by examples of congestion. The
discovery of science is not relatively one hundred
percent true, and the development of concepts is not
released from the development of attitudes and
values of students in the process of teaching and
learning. According to Dimiyati (2002: 137),
"Approach of process skills (PKP) needs to be
applied in teaching and learning activities based on
the following reasons: the acceleration of science
and technology changes, emotional and physical
intellectual experience is needed to obtain optimal
learning outcomes, and the value of this perpetual
quest of righteousness"

2.3 Pattern of Implementation of Process
Skill Approach

In implementing the process skill approach, it is
necessary to pay attention to some things. They are a
learning which must be appropriate with the
curricular objectives; must hold on the rationale that all students have the ability (potential) according to their nature; should provide opportunities; awards and motivation for student to argue, think, and express their feelings and thoughts. The guidance for student must be based on the student's learning experience. It is necessary to make the coach lead to the student's ability to process his findings and must adhere to the principle of "Tut Wuri Handayani".

To implement the process skill approach in science learning, it must observe the fundamental skills of both mental, physical and social.

The meaning of basic skills are:

A) Observation
Activities of observation can be done by students through learning activities, noticing, listening, feeling, tasting and collecting information. Observing activities is the lowest level in the development of basic skills of learners, because it is only on the vision with the five senses. Basically observing and seeing are two different things, although at first glance it contains the same meaning. Seeing is not necessarily observed, because every day students may see a variety of plants, animals, other objects around it, but just see without observing how exactly the plant, the animal is growing.

B) Classifying
Classifying is a process skill for selecting various objects of events based on particular properties. Therefore, it is obtained a group or similar groups of objects in question. Classifying can be done by finding equations with equating, combining, classifying and grouping

C) Communicating
Communicate is not only through speaking but with pictures, writing and appearance. According to Djamarah in Ade Sanjaya (2000: 16), communicating activities can develop well in learners themselves if they perform activities such as: discussing, reciting, dramatizing, asking, composing, demonstrating, expressing and reporting in the form of oral, written, drawing and appearance

D) Measuring
Measurable means comparing measured with specified certain size units. Developing measuring skills can be applied by way of developing something, since basically a measure is comparing, for example, students compare their experimental IPA results.

E) Predicting
Predicting is the anticipation or prediction of something that will happen in the future, based on a pattern of certain tendencies, or the relationship between facts and concepts in science. students can develop predicting skills through anticipatory learning activities based on patterns/trends. The relationship between data and the relationship of information. It is similar with predicting the time of sunrise.

F) Summing
It is a skill to decide the state of an object or event based on known facts, concepts and principles. An example of the concluding activity is that based on observations it is known that the wax dies when placed on a bottle or glass in a closed state, then learners conclude that the wax will live or light up if there is oxygen.

2.4 The Steps on the Implementation of Process Skill Approach

There are some steps taken in the approach of process skills in science learning. Firstly, introduction preliminary activities are intended to direct students on the subject matter so that they are ready to follow teaching and learning activities, both mentally, emotionally and physically. This preliminary activity is carried out by the repetition of materials or materials that have been experienced by learners who have relevance or relationship with the material or materials to be taught. Next, by arousing and directing the attention of learners by asking questions, opinions and suggestions, showing images related to the material.

The next step, focus on core activity is to explain the subject matter followed by demonstrations, pictures and capital. The purpose of this activity is to develop the ability to observe quickly, carefully and precisely. Activities classified in the learning process steps or core areas characterized by process skills include: formulating observations by detailing; classifying subject matter absorbed from observation activities; interpreting grouping results by showing the nature; things and events or the symptoms contained in each group, forecasting the cause of events or other that may occur at other times or receive a different treatment, applying the attitude skills knowledge gained from previous activities on new or different events, planning research, and communicating results of activities on others with discussions, lectures and others.

The teacher initiates the activity by raising the process skill problem. If the student's material knowledge is not sufficient to answer the problem, then the teacher guides the student towards the correct answer or explains the material that the student has not understood. Teachers give assignment to students around. Then the teacher gives follow-up questions and encourages students to draw conclusions from various answers, to the correct conclusions. Teachers always monitor students' learning, to find out whether the desired
material is understood, students are given the opportunity to ask questions and ask for teacher explanation. Lastly, in the closing activity can be done by reviewing teaching and learning activities that have been implemented and conclude the results that have been obtained. Moreover, it also conduct a final test to find out how deeply the students capture the delivered material as well as give tasks such as PR.

3 CONCLUSIONS

The approach of process skill is the teaching-learning approach that leads to the development of basic physical and social skills to find facts and concepts. In other words, it means that development of attitudes and values through the teaching-learning process that has enabled the students to be able to grow a certain number of skills in the learners. To implement the process skill approach in science learning, it must observe the fundamental skills of: observation, classifying, communicating, measuring, predicting and concluding. There are some steps taken in this approach such as introduction to direct students on the subject matter so that they are ready to follow teaching and learning activities, both mentally, emotionally and physically. Then, the core activities describes the subject matter followed by demonstrations, demonstrations, pictures, capital. Lastly, the closure activities review teaching and learning activities that have been implemented and conclude the results that have been obtained.

4 REFERENCES