The Effectiveness of the Learning Model Oriented Towards the Dimensions of Knowledge and Cognitive Processes

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A B S T R A C T

The teachers in elementary schools have not conducted studies and developments as well as changes in the learning process oriented towards the latest student cognitive domains. The proof is that the teacher is only able to make items on the evaluation of learning outcomes that only ask students to utter memorization. This study aims to develop a learning model oriented to the dimensions of knowledge and cognitive processes. This type of research is a development with the Dick & Carey model. The subject of this research is a learning model oriented to the dimensions of knowledge and cognitive processes. Data collection methods used were interviews, documentation, questionnaires, and tests. The data analysis used is the t-test. The results showed that the learning model with the orientation of knowledge and cognitive processes (PSBDPPK) was valid, effective, and efficient to be applied in elementary schools, and the results of the t-test show that this model has a significant effect on student learning outcomes, this is indicated by the t-test, the value (Sig. (2-tailed)) is 0,000. So, it can be concluded that the learning model that crosses the dimensions of knowledge and cognitive processes (PSBDPPK) is valid, effective, and efficient to be applied in elementary schools.

1. Introduction

One of the principles of curriculum development in 2013 is learning centered on the potential, development, needs, and interests of students and their environment. Regulation of the Minister of Education and Culture Number 54 of 2013 concerning Graduate Competency Standards (SKL) contains 3 domains of learning outcomes, namely the cognitive domain, the affective domain, and the psychomotor domain (Aini, 2015; Anisah, 2018). In the written cognitive domain, students have factual, conceptual, procedural, and metacognitive knowledge in science, technology, arts, and culture with insights into humanity, nationality, statehood, and civilization regarding the causes and impacts of phenomena and events. This means that in 2013 curriculum learning, students must pay attention to the dimensions of knowledge and cognitive process dimensions that are owned by students following the new Bloom Taxonomy (Baidarus et al., 2019; Suhito, 2018).

Because of the importance of the cognitive domain that students have as output and the learning process, it is necessary to conduct a study on the development of learning, learning, and assessment oriented towards developing the cognitive domain of students based on the revised bloom taxonomic theory that can be used in learning in elementary schools. So that the direction of learning with the expected goals such as the demands of the 2013 Curriculum can be achieved. This study will bring a change from a passive view of learning to a cognitive and constructive view that emphasizes what students know (knowledge) and how they think (cognitive processes) about what they know in learning (Anderson & Krathwohl, 2010).

So far, teachers in elementary schools have not conducted studies and developments as well as changes in the learning process oriented towards the latest student cognitive domains. The proof is that the teacher is only able to make items on the evaluation of learning outcomes that only ask students to utter memorization. This memorization is the lowest level of thinking ability, and actually, there is another, higher level. If it is only this limited, the teacher in the learning process will only emphasize the subject matter to be achieved given to students, the teacher cannot make decisions about what needs to be taught in their class. It should be noted that students can and often do use the information available to

them to construct meanings that are incompatible with reality or widely accepted normative concepts. In fact, according to Law No. 14 of 2005 on Teachers and Lecturers, it has provided a quantitative basis for improving teacher quality, namely academic qualifications, teacher certificates, and four competencies: pedagogical, professional, social, and personality. Pedagogical competence is the ability to manage learning by creating a learning atmosphere and learning process so that students actively develop their potential. Increasing teacher professionalism should be marked by various activities to update teacher performance and methods.

Anderson & Krathwohl, (2010: 57) argue that, "Educators are tasked with guiding students to arrive at authentic and normative concepts following the best and most current knowledge and ways of thinking that are most accepted in various disciplines and subjects". Thus it can be said that students and teachers fully construct their meanings from learning activities and classroom events and that their constructions of subject matter can differ from normative and authentic concepts (Nurhasnawati, 2011; Sumiyati, 2017; Suparlan , 2019; Waseso, 2018). But accepting this cognitive and constructive view does not mean that there is no knowledge to learn or that all knowledge needs to be learned in the classroom. Teachers can and make decisions about what to teach in their classes. The four dimensions of knowledge based on the Revised Bloom's Taxonomy theory will help educators decide what to teach (Gunawan & Paluti, 2017). So by emphasizing these four dimensions of knowledge in students, educators will know a picture of how basic knowledge is possessed by students, and from this dimension of knowledge, the educator will be able to determine where the learning will take place and decide what needs to be taught to students.

Several research results have been researched that support this research, namely: 1) research conducted by Susanto and Sofiyah, (2012) with the title Development of Mathematics High Level Thinking Ability Test Package Based on Bloom's Taxonomy Revision in fifth grade elementary school students. This research is research that aims to describe the process of developing the test package and to obtain the results of the development of the higher order thinking mathematics test package based on the revision of Bloom's Taxonomy. This study used qualitative descriptive analysis, the test package was developed based on the revision of Bloom's Taxonomy and adjusted to high-level thinking, namely analyzing (C-4), evaluating (C-5), and creating (C-6). The results of this study are low-grade trials, the average item validity is very high, the overall reliability of the items is very high. The results of the analysis of the difficulty level of the test were 4 questions in the difficult category and 5 questions in the moderate category. Based on the results of large class trials, there are no questions in the test package that need to be revised because based on the analysis of the validity, reliability, and level of difficulty of the test package, the test package has met good test criteria. From the results of this study, it can be seen that fifth grade student already has high-order thinking skills based on the revision of Bloom's Taxonomy. Research conducted by Wulansari & Rosyadi, (2013), entitled Conceptual Knowledge Profiles of Junior High School Students at the Cognitive Process Level Analyzing Quadrilateral Material Based on Gender. This study aims to describe the conceptual knowledge profile in terms of the Revised Bloom Taxonomy theory. The results obtained are that there is no difference in conceptual knowledge of male and female subjects at the level of analysis. Both male and female subjects are less able to identify the properties of the rectangle correctly so that they cannot organize the relationships between the shapes based on their properties.

The purpose of this research is to develop a learning model oriented to the dimensions of knowledge and the dimensions of cognitive processes. The novelty of this research lies in the output that will be produced as an output about learning models and assessment forms that are oriented towards the dimensions of knowledge and dimensions of cognitive processes that have never been studied how to implement them in the 2013 curriculum. This research focuses on developing scientific learning activities that can develop dimensional elements. knowledge and cognitive processes in each student's tendency is different. Learning activity no longer only refers to understanding the content of the material (noun) but begins to be invited to experience it (verb) which is better known as the dominance of cognitive processes. Current research only focuses on developing learning activities and assessment of the 2013 curriculum with the old bloom taxonomy theory. So that the learning activities and assessment forms developed are difficult to apply to achieve the 2013 curriculum goals. So far teachers and students only have SKL guidelines and teaching materials to handle teachers and students. This manual does not yet explain how the operational learning and assessment activities that must be carried out by teachers in schools.

2. Methods

This type of research is a type of learning development and assessment based on the dimensions of knowledge and dimensions of cognitive processes in elementary schools referring to Dick & Carey. Broadly speaking, the development stages are divided into six stages, (1) Identifying the expected curriculum and learning process, (2) Needs analysis, (3) Developing a draft model, (4) Model testing stage 1, (5) class testing, and (6) comparative test, (Dick & Carey, 1990). This research will be carried out in primary schools in Buleleng Bali. Detailed descriptions of how the stages of achieving the final objectives of this study and the scope of the components carried out can be seen in Figure 1.
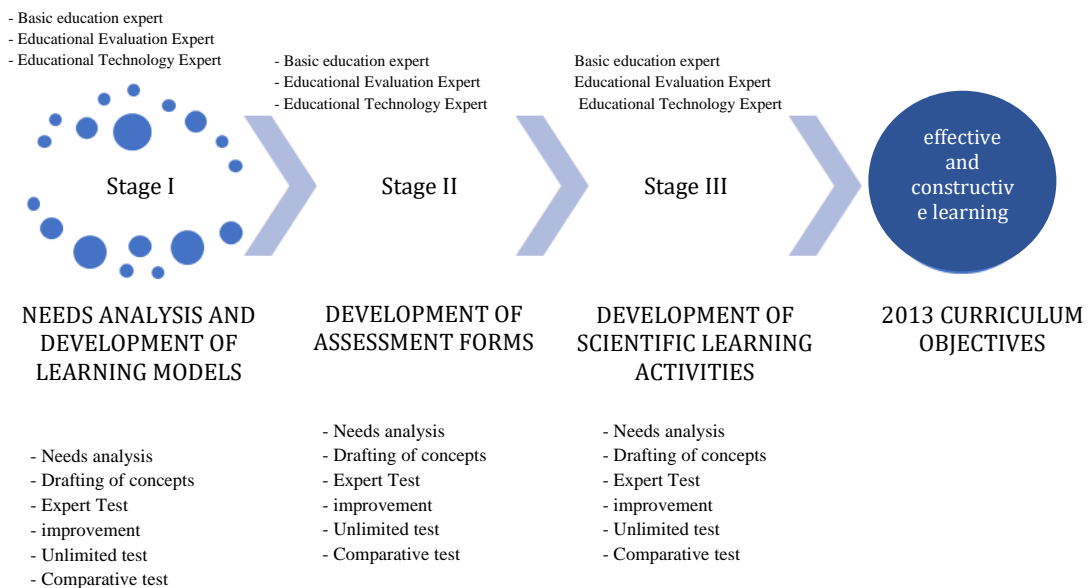

Figure 1. Flowchart of achieving the final research objectives

Based on Figure 1 above, shows that the skills needed to complete this research following the expertise of the research team consisting of experts in basic education, educational technology, and educational evaluation. Data collection methods used were interviews, documentation, observation, and tests. Each of the data collection methods is used at a different stage. At the stage of needs analysis, the type of data collection used was an interview instrument, observation documentation. During the expert test, a questionnaire was used to determine the level of validity and effectiveness of the model being developed. Meanwhile, when the comparative test is used, the learning outcome test is used to determine the ability of students in the learning process. The instruments used have been tested for validity, reliability before use so that research results are following the objectives.

The analysis used is descriptive analysis method and inferential analysis. Descriptive analysis will describe the data from observations, documentation, interviews, and questionnaires during the need's analysis test. Descriptive analysis sought is the average value. For inferential analysis performed with the t-test. The data were obtained at the comparative test stage. Before the inferential test is carried out, the prerequisite test is carried out, namely the normality test and the homogeneity test.

3. Result and Discussion

The development of learning and assessment based on the dimensions of knowledge and dimensions of cognitive processes in elementary schools refers to (Dick & Carey, 1990). Broadly speaking, the development stage is divided into six stages, (1) Identifying the expected curriculum and learning process, (2) Needs analysis, (3) Developing a draft model, (4) testing the first stage model, (5) class testing, and (6) comparative test.

Analyzing the curriculum

The K 13 curriculum has been applied at all levels of education including elementary school students and can face challenges both internally and externally. The internal challenges relate to the eight national standards of education, as well as the development of a productive Indonesian population. Meanwhile, external challenges are the rate of globalization and various issues related to environmental issues, advances in technology and information, the rise of creative and cultural industries, and the development of education at the international level. In addition to these two challenges, the curriculum must be able to face challenges in the era of 4.0 which requires educational output to have 4 abilities, namely critical thinking, collaboration, communication, and creativity. To achieve this ability, the learning process flows into the four knowledge, so that a teacher plays a very important role in the process of designing the learning process. Based on this description, the learning process that is expected is a learning process that can answer all the challenges described, namely internal challenges and external challenges, where the learning process can develop students' ability to think critically, be able to solve problems, and think creatively.

Need Analysis

This need analysis was carried out in May 2020 where this research conducted observations using questionnaires, tests, and interviews at several elementary schools in Buleleng, SD N 3 Panji, SD N 1 Panji, SD N 1 Tukadmungga, SDN 3 Panji Anom, SD N 5 Banjar Jawa, and SD N 4 Gitgit. The survey was conducted on teachers and students, 120 students and 20 teachers. The data of needs analysis based on questionnaires and tests obtained the following results.

First, critical thinking skills. Based on a survey conducted to determine students' critical thinking abilities and in the learning process that had been given, data were collected through essay tests. Data were obtained in the form of the majority of grade 4 students who were given the test not yet able to develop their critical thinking skills, around 89.00% were in the poor category and 11.00% were in the fairly good category, in other words, out of the 120 students who were given test questions the answer was not according to what is expected, that is, can develop or relate it to other concepts.

Second, students' creative abilities. Based on a survey conducted to determine students' creative thinking abilities and in the learning process that had been given, data were collected through essay tests. Data were obtained in the form of the majority of grade 4 students who were given the test not being able to develop their critical thinking skills, about 95% were in the poor category and 5.00% were in the fairly good category, in other words, of the 120 students who were given test questions the answer was no different from existing books and only based on what is taught by students.

Third, the ability to solve problems. Based on a survey conducted to determine students' ability to solve problems in the learning process that has been given, the data were collected through essay tests. Data were obtained in the form of most grade 4 students who were given tests that able to solve the problem but solving the problem was still very simple. With parental guidance. In other words, the 120 students who are given tests and answer questions in the form of problem-solving can be done according to the concept they get with parental guidance.

Fourth, the learning model. Based on the results of observations and interviews with teachers, it was found that the learning model used before the Covid 19 pandemic was an innovative learning model such as cooperative, 87% PBL, and 15% direct learning. Whereas the learning model used is more task-based because the learning process is carried out using WA, Email, Google Classroom (90%), and 10.00% of the learning process brings assignments to students who do not have assistive devices in the form of cellphones. Scenarios/learning syntax used in the implementation of learning the average teacher writes in general consisting of: introduction, core, and closing.

Fifth, assessment and student suggestions for learning. as many as 18.75% of students said the teacher sometimes gave examples, while 78.75% of students said the teacher often gave examples when the learning took place; (b) in the use of textbooks, as many as 5% of students said that the teacher never used student books, 57.5% of students said they used books sometimes, and 35% of students said they often used student books; (c) 96.25% of students said they needed to use a learning model based on knowledge and cognitive processes.

Sixth, the form of assessment. Based on the results of interviews and the results of distributing questionnaires, it can be said that the form of assessment given by the teacher is 100% that has been provided by the MGMP of each UPP which was given during summative tests, both UTS and UAS. Whereas for the formative assessment activities the teacher made it and was not in standard form, and did not comply with the requirements of making a good test instrument. As well as for the learning process the types of assessment used have been provided in the lesson plans made. In other words, the assessment process is still not following the students' cognitive level and the principles of making assessment

instruments. Therefore, we need an assessment that is following the level of students' knowledge and cognitive processes.

Seventh, the sourcebooks/teaching materials and lesson plans used in learning in fourth-grade elementary school. The sourcebooks used are the student bus and teacher books. RPP format consists of: RPP Kop, core competencies, basic competencies, indicators, learning objectives, learning materials, learning methods, learning steps, learning resources/media, and assessment. Based on the results of these observations, the results of the needs analysis on the need for learning are based on the dimensions of knowledge and dimensions of cognitive processes (PSBDPPK).

Draft Model

Draft learning models, assessment forms, and student cognitive tests that are oriented towards developing the dimensions of knowledge and cognitive process dimensions based on the revised bloom taxonomic theory, which is equipped with examples of learning tools, including lesson plans (RPP), student worksheets (LKS) and evaluation tools. The form of the learning model developed has five basic elements referring to (Bruce Joyce et al., 1986), namely: (a) syntax, are the steps or stages of implementing learning, (b) the social system, namely the atmosphere and norms that apply in learning, (c) the principle of reaction, describes how teachers should view, treat, and respond to students, (d) support systems, all means, materials, tools, or learning environments that support learning, (e) instructional output and nurturant effects, are external learning outcomes (impact) that are targeted. The draft PSBDPKK model is shown in table 1.

Table 1. Draft Learning Based on Knowledge and Cognitive Process

Activity	Teacher Activity	Student Activity
Clarify	The teacher submits a statement or shows the media or provides a problem that can stimulate students to remember and solve problems using the material or knowledge they have previously acquired.	Students classify the problems given by the teacher in the form of media/statements
Analyze	The teacher ensures that students choose a formula/hypothesis that matches the problem that must be solved	Students analyze the formulas/hypotheses following the problems previously described. (reasoning)
Remind	The teacher ensures that students begin to connect the formulations/hypotheses they make with the knowledge that students have mastered.	Students solve the problem by connecting with the material or previous knowledge.
Apply	The teacher ensures students can communicate the results of applying procedures in problem-solving.	1. Students begin to apply the procedures following the formula proposed to solve the problem 2. Students apply the strategies they have previously had to enrich problem-solving. 3. Students describe the results of solving problems made
Evaluate	The teacher provides the opportunity for students to check the implementation of the procedures made in solving a given problem.	Students provide feedback both suggestions and critically about answers to problem-solving proposed by their friends and solutions to problems they make

First stage model test

The first stage model test was carried out until the expert test. The model being tested is the draft learning model, assessment form, and student cognitive tests along with examples of learning devices. Expert tests include: (a) elementary school teacher tests in Bali conducted by 15 elementary school teachers, (b) learning technology expert tests conducted by 10 learning technology experts with doctoral

qualifications from Undiksha, and (c) content expert tests, conducted by 10 PGSD Department lecturers with doctoral qualifications.

The next process in this research is to evaluate and validate by experts and practitioners. The results of the evaluation and validation of learning development get a value of 100% from the validator based on a strong theory, and all validators (100% validators) state that the components of the model are interrelated. Therefore, the initial draft of the PPBKL model has met the criteria 1) and 2) regarding the validity of a model. Likewise for criteria 1) and 2) regarding the practicality of the model have also been fulfilled because more than 50% of the validators stated that this learning model could be applied in class, and the teacher stated that they could apply this learning model in class.

Small Group Trial

The draft model that has been validated and has been declared valid by the experts, is then revised based on the input provided by the experts. The revised results were then tried out in phase II evaluation (small group trials), to see the validity, practicality, and effectiveness of the prototype model. Small group trials were carried out on fourth-grade students at SD 2 Panji Anom and SD 1 Panji Anom through online chasing due to the COVID-19 pandemic, totaling 35 people.

To find out the validity of the PSBDPPK Learning, it can be seen from the results of observations or observations from observers made by teachers in small group trials. The validity of the PSBDPPK learning is seen from the relationship between the components of the PSBDPPK learning. The results of the validity of the PSBDPPK learning stated that all observers (100%) said that the learning components of the PSBDPPK were related to one another. Thus it can be said that the results of these trials indicate that the components of the PSBDPPK Learning are related to one another. By paying attention to the validity criteria of a model, then compared with the results of validation by the validator against the theory that underlies the model and the relationship between model components, as well as the results of trials to see the relationship between model components, the PSBDPPK learning can be said to have met the validity criteria of a model. Thus, the PSBDPPK learning can be declared valid.

Based on the results of observations on the emergence of descriptors of each indicator of the implementation of PSBDPPK Learning which was carried out for three observations in three meetings with different sub-subjects, the level of model implementation was (1) at the first meeting the level of model implementation was 92.3%, (2)) at the second meeting 92.3%, and (3) at the third meeting 96.7%. From the first meeting to the third meeting, the level of implementation of the model is in the very high category. Thus, overall in this small group trial, the mean of model implementation was 93.8%, which indicates that the level of model implementation was in the very high category.

The effectiveness of PSBDPPK learning in this small group trial can be seen from the activities of students in participating in learning, student learning outcomes, and student responses to the implementation of the PPBKL model. Therefore, based on the results of the student activity questionnaire, the mean percentage of student activity in participating in learning using the PPBKL model shows that the average student activity is 96.1. After being converted into a table for classifying student learning activities, 96.1 is classified in the very high / very active category. This means that as many as 96.1% of students have felt and carried out the learning activities expected in learning by applying PSBDPPK Learning.

Based on the student learning outcomes of the three materials, all competency aspects are above the criteria set in this study, namely at least 85% in good categories. Likewise, the minimum completeness criteria in every aspect of student competence are above the established criteria, namely at least meeting the KKM 85%. From these results, the overall KKM average was 93.3%. Based on this, the average student learning outcomes which include three aspects of assessment, namely: aspects of skills, aspects of knowledge, and aspects of behavior in this study have met the specified criteria. If the student learning outcomes are converted into a table of student learning outcomes categories, the average student learning outcomes are in the good category. Based on the results of a questionnaire about student responses distributed to 35 students during small group trials, it can be obtained (1) for question number 1 on the questionnaire up to number 10 except in statement number 3, all students (35 people or 100%), gave a positive response to the implementation of PSBDPPK Learning. While for question number 3 there were 10 students (28.6%), who gave negative responses, and 25 students (71.4%), gave positive responses. From the percentage of student responses to the implementation of learning with the PSBDPPK Learning, the overall student response is classified as positive. This means learning with the application of PSBDPPK Learning makes students learn more enthusiastic, less tense, very following the character of students, dares to ask questions and express opinions.

In addition to this, learning with the application of PSBDPPK Learning, students will find it easier to understand the subject matter, not boring or in other words, students feel happy, have more confidence, and can remember the subject matter longer. Based on the results of data processing about the effectiveness of PSBDPPK learning which can be seen from the activities of students participating in learning 96.1% are included in the very high / very active category, student learning outcomes seen from the average student learning outcomes are in good categories, and student responses to implementation Overall PSBDPPK learning is positive, so the PSBDPPK learning in this small group trial has met the requirements for effectiveness.

Comparative Advantage Test

The results of the draft revision in the class test were continued with the comparative advantage test, which was to compare the learning model developed with the existing learning models used by teachers in schools, which in this study were called conventional learning models. The comparative advantage test was carried out with a quasi-experimental research design Postest Non-equivalent Control Group Design. Data were collected using a written test equipped with an assessment rubric and analyzed using descriptive analysis techniques and t-test analysis.

The comparative advantage test will be carried out in 4 schools in Singaraja with an online learning process given the Covid 19 pandemic, so the learning design will be carried out by online learning either with WA or with the help of other media. This trial will be carried out according to the learning syntax. The results of the descriptive test of the application of the PSBDPPK model for fourth-grade students can be described in table 2 below.

Tabel 2. The results of the descriptive test of the application of the PSBDPPK model

| Variable | *Learning outcomes* | |
Statistic	experiment	Control
Mean	84,00	75,00
Median	84,00	75,00
Deviation standard	7,06	6,36
Minimum	65,00	55,00
Maximum score	97,00	85,00
N	**200**	**200**

Based on table 2 it can be seen that there are differences in student learning outcomes after being taught with PSBDPPK Learning. This can be seen from the average value of student learning outcomes where the average student learning outcomes taught by PSBDPPK learning are 84.00 greater than before being taught with PSBDPPK learning which is 75.00. Likewise, the median and standard deviation values in which the classes taught by the PSBDPPK learning were greater than before. Consecutively indicated by a value of 84.00 with a standard deviation of 7.06 while the class of 75.00 with a standard deviation of 6.36.

The data on the results of the application of the PSBDPPK learning are subjected to a prerequisite test before the hypothesis testing is done. The prerequisite test which is done is the normality test and the homogeneity test. The data normality test in this study used the Kolmogorov-Swirnov test (Candiasa, 2007) with the help of SPSS V.17 for Windows. Based on the results of the analysis using the Kolmogorov-Swirnov test statistic, the Kolmogorov-Smirnnov statistical value for learning outcomes in the experimental group and the control group is greater than 0.05. So, it can be concluded that the learning outcome data group, both the experimental group and the control group, are normally distributed so that further tests can be carried out.

The variance homogeneity test between groups was used to measure whether groups had the same variance between these groups. The homogeneity test of variance between groups used Levene's test which was carried out on two groups of data. Based on the results of the analysis, Leveve's statistical value shows a significant number of more than 0.05, so that the next test can be carried out. After the prerequisite test is carried out, the next test is the t-test. Based on the results of the t-test analysis, the value (Sig. (2-tailed)) was obtained of 0.000. Then the value is compared with 0.05. Which means 0.000 <0.05. Thus, it can be concluded that there are differences in the learning outcomes of students who take the PSBDPPK learning with those before the PSBDPPK learning.

Discussion

The development of PSBDPPK learning is one of the solutions that can be used in the current student-centered learning process. PSBDPPK learning is a collaborative model between the scientific approach with the knowledge and cognitive process dimensions. Where students learn actively with activities following the dimensions of cognitive processes. Activities carried out by students such as classifying the types of problems given, choosing the right formulas to solve the given problem, applying procedures according to the problems that have been clarified, in the previous stage, and remembering metacognitive strategies, activities to implement metacognitive strategies, activities to examine the implications of procedures and activities to communicate results and comment on the accuracy of the results of the solution. With these activities, students enjoy the learning process because learning activities are carried out through scientific methods.

The student-centered learning process will make students more active in discovering and building their knowledge which will have an impact on students' cognitive development. The learning model can help students to take an active role in learning activities, make it easier for students to understand the material, and encourage the enthusiasm for learning in the full interest of participating in learning (Ningsih & Gustimalasari, 2018; Sulistiyo, 2016). An interesting learning process will make students active in the learning process. This statement is in line with the opinion (Huda et al., 2019). The presentation of learning that is not attractive and does not support student activeness to be directly involved in the learning process can result in an ineffective and efficient learning atmosphere (Huda et al., 2019). So, using an appropriate learning model will improve children's cognitive processing abilities.

PSBDPPK learning will increase students' critical thinking skills because in this learning model students are required to carry out activities to solve problems and to map out strategies that are previously owned by children to produce a solution. The existence of an equilibration between the initial knowledge and the newly acquired knowledge of students will have an impact on the development of cognitive processes (Bujuri, 2018). Students who initially have simple cognitive abilities after being taught with the PSBDPPK Learning model, students' abilities are more complex. Students no longer only accept other people's opinions without testing the problem given. This kind of ability is known as students' critical thinking ability. Critical thinking is a cognitive activity that is related to the use of reason (solving problems, formulating conclusions, collecting various possibilities, and making decisions to get solutions) (Degita et al., 2019; Sartika, 2019). Critical thinking in learning aims to direct students to have a structured and intelligent way of thinking in organizing concepts to solve problems (Umam, 2018).

The development of students' critical thinking will encourage students to learn well to find solutions about the problem/material being studied. With encouragement (motivation) to learn, students will find it easier to follow the learning and understand the material provided (Mulyasih & Suryani, 2016; Sudikno & Aminah, 2014). Motivation within students can be influenced from within the student itself and from outside the student (Putri Ningrat et al., 2018). With the existence of student learning motivation, it will automatically have an impact on student learning outcomes. This statement is supported by the results of research conducted by Widiasih et al., (2018) which states that learning motivation has a significant effect on learning outcomes. Research conducted by Adriani, (2018) shows that motivation has a positive impact on learning outcomes. Research conducted by Ricardo & Meilani, (2017) shows that interest in learning and motivation to learn on student learning outcomes either simultaneously or partially. So it can be said that the existence of student motivation can increase their learning outcomes.

The novelty of this research lies in the research output, which is the output of learning models and assessment forms that are oriented towards the dimensions of knowledge and the dimensions of cognitive processes that have never been studied how to implement them in the 2013 curriculum. This research focuses on developing scientific learning activities that can develop elements of the dimension of knowledge. and cognitive processes that tend to be different in each student. Learning activity no longer only refers to understanding the content of the material (noun) but begins to be invited to experience it (verb) which is better known as the dominance of cognitive processes.

4. Conclusion

Based on the results of the research carried out, the PSBDPPK learning is effectively applied in elementary schools. Because this learning model is student-centered, the learning process is carried out to form knowledge of cognitive processes. Learning activity no longer only refers to understanding the content of the material (noun) but begins to be invited to experience it (verb) which is better known as the dominance of cognitive processes.

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