



## LEARNING WHICH ORIENTED ON LOCAL WISDOM TO GROW A POSITIVE APPRECIATION OF BATIK JUMPUTAN (IKAT CELUP METHOD)

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DOI: 10.15294/jpii.v4i1.3501

Accepted: 8 January 2015. Approved: 4 April 2015. Published: April 2015

### ABSTRACT

This study aims to identify the elements of science in the process of batik jumputan as the local culture. By knowing the existence of the elements of science in batik jumputan, expected to foster a positive appreciation of batik jumputan as a local cultural heritage. Based on the results of questionnaire analysis, we know that the growing appreciation before and after learning of the profession WHO batik makers are at high criterion (0.70 g). The results of the observation science process skills while making batik we can conclude it to the average score of science process skills (60% KPS 80%) are located in the high category.

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**Keywords:** Local wisdom; appreciation; batik jumputan

### INTRODUCTION

Indonesia is known as a nation that has many local cultures. On each island and region in Indonesia has a diversity of ethnicity, race, language, customs and culture that flourished in the area. The island of Java as the most populous island in Indonesia has diverse and developing cultures and languages. One of many areas that is rich in local cultures is Special Region of Yogyakarta (DIY) or better known as Yogyakarta alone. In Yogyakarta is famous for a wide variety of things from many kinds of culinary, amazing nature for recreation, some beaches, shopping-centers, and there is also a tourist village that was developed by the local government. The tourist village present the special uniqueness of the local distinctive. Tourist villages in Yogyakarta are placed in Bantul, one of the local cultures which being presented is batik.

Technique in making batik developed in

this place is batik jumputan (ikatcelup method). Batik is one of the major commodities that are presented by several tourist villages in the district of Bantul. Batik which developed in Wijirejo area, PandakBantul is jumputanbatik as the main product of this area. Currently, from class A1 - 13 major of PGSD PGRI University of Yogyakarta there are 40% of students come from that area, but they lack of an understanding of making batik and have less positive appreciation of the batik. Based on the observations and interviews with the students, we get a data that schools in Bantul have included batik culture into the curriculum as a potential product. However, it already implemented in the curriculum, practically, not all learners acquire the knowledge and feel that batik activities is just an extracurricular activities without any understanding the value of technology, scientific knowledge (science) and the planting of local cultural values so those students do not understand and have the skills to make batik and have a low level of appreciation.

Based on the observation that which is necessary to identify the elements of science that is in the process of making batik jumputan. This iden-

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tification aims to determine what kind of science concepts contained in the process of making batik. After learning of science concepts contained in the batik making process, it will increase the knowledge and understanding of students, which is they simply assume that the process of making batik obtained from generation to generation and has nothing to do with science (science). These students do not understand the process of making batik is made by the majority of their parents due to the lack of understanding that in making batik has the elements of science. Lack of understanding of the process of making batik jumputan makes they have low esteems and less positive appreciations than among the students. When I was in college, students tend to prefer to wear clothing that is not batik, wearing jeans, or even wearing a collared shirt though college.

This kind of style is considered to be more stylish and youthful impressed when compared with batik clothes that are considered have the older and less stylish impression. And as we all know UNESCO has set batik as an Indonesian cultural heritage, then as a young generation students should be proud of batik. There are various types of batik, one of which can be made pretty easy is batik jumputan. Through this activity, students are expected to be able to identify the elements of science in the process of making batik jumputan. To be able to understand of course the student should make the process of making batik, then identify the elements of science contained there and then after that the students are required to use their batik to the campus. By using his batik, it is expected the students will have a positive appreciation of batik jumputan and various other types of batik in general, at the end the students will understand more and love batik as an Indonesian cultural heritage.

## METHOD

The subjects of this study were students of

class A1-13 majoring in PGSD PGRI University of Yogyakarta in some subjects of Natural Sciences 1 in odd semester of academic year 2014-2015. The research was conducted by observing some aspects of science process skills that are performed by students while practicing in making batik jumputan. Appreciation is known to provide a questionnaire before and after the appreciation of local wisdom-oriented learning. The types, techniques, and instruments of data collections can be seen in Table 1.

## RESULT AND DISCUSSION

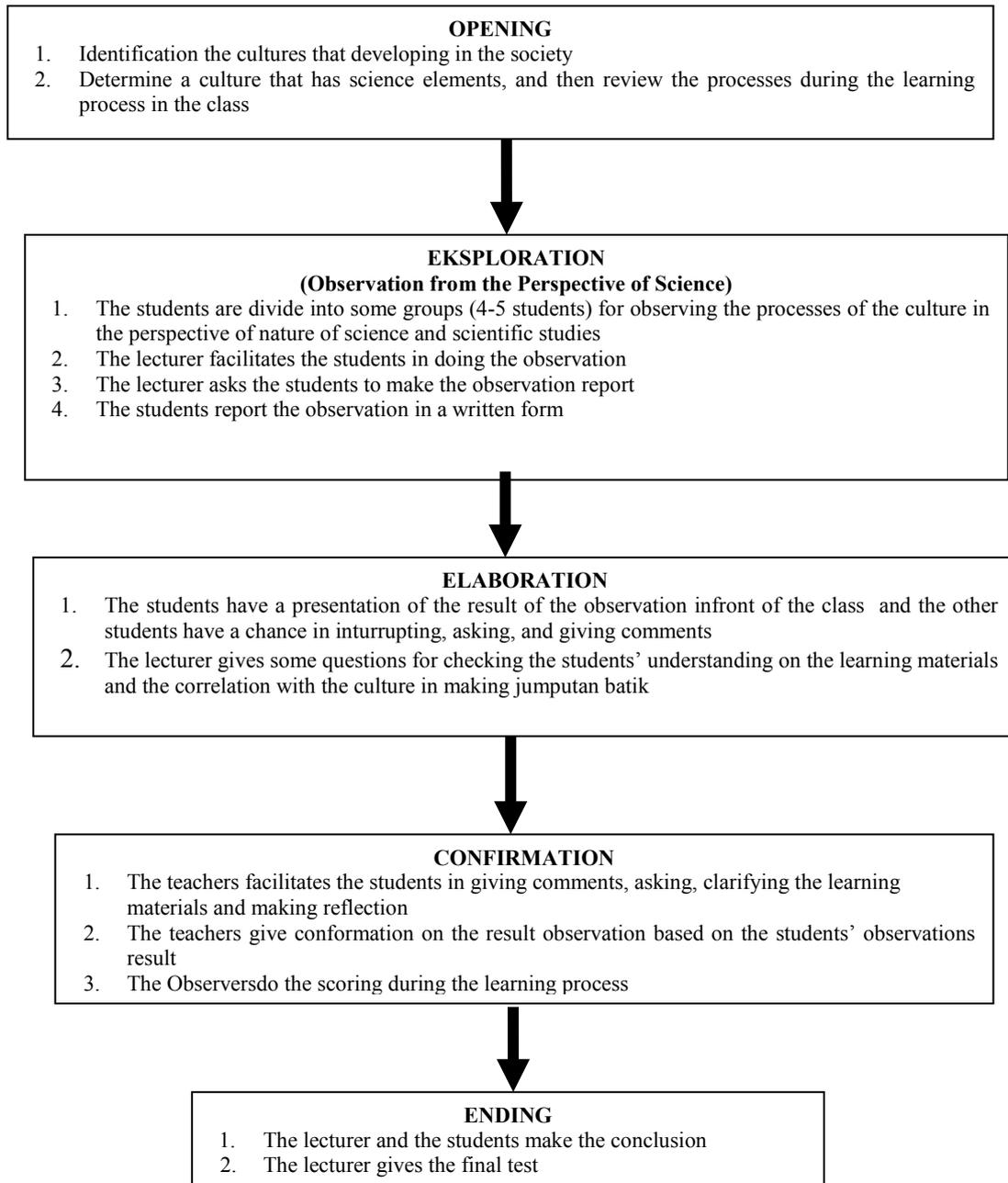
Local wisdom-oriented learning activities carried out through several stages. Steps being taken in local wisdom-oriented learning activities can be seen in Figure 1. In planning the lesson plan of learning of local wisdom learning oriented, use planning learning model as in figure 2. In learning activities oriented to identify the local wisdom regarding the processes that occur in making batik jumputan and science elements contained in the batik making process.

Based on Table 2 we can know that the elements of science in the process of making jumputan batik that can be used to explain the processes that occur in the process of making batik. The science elements can improve the knowledge during this batik maker (local content). People can explain the processes that occur in batik making scientifically (scientific science). Based on this fact, it is necessary to study oriented on the local wisdom so that the student can explain the process of batik making process scientifically using the scientific concepts derived from the college.

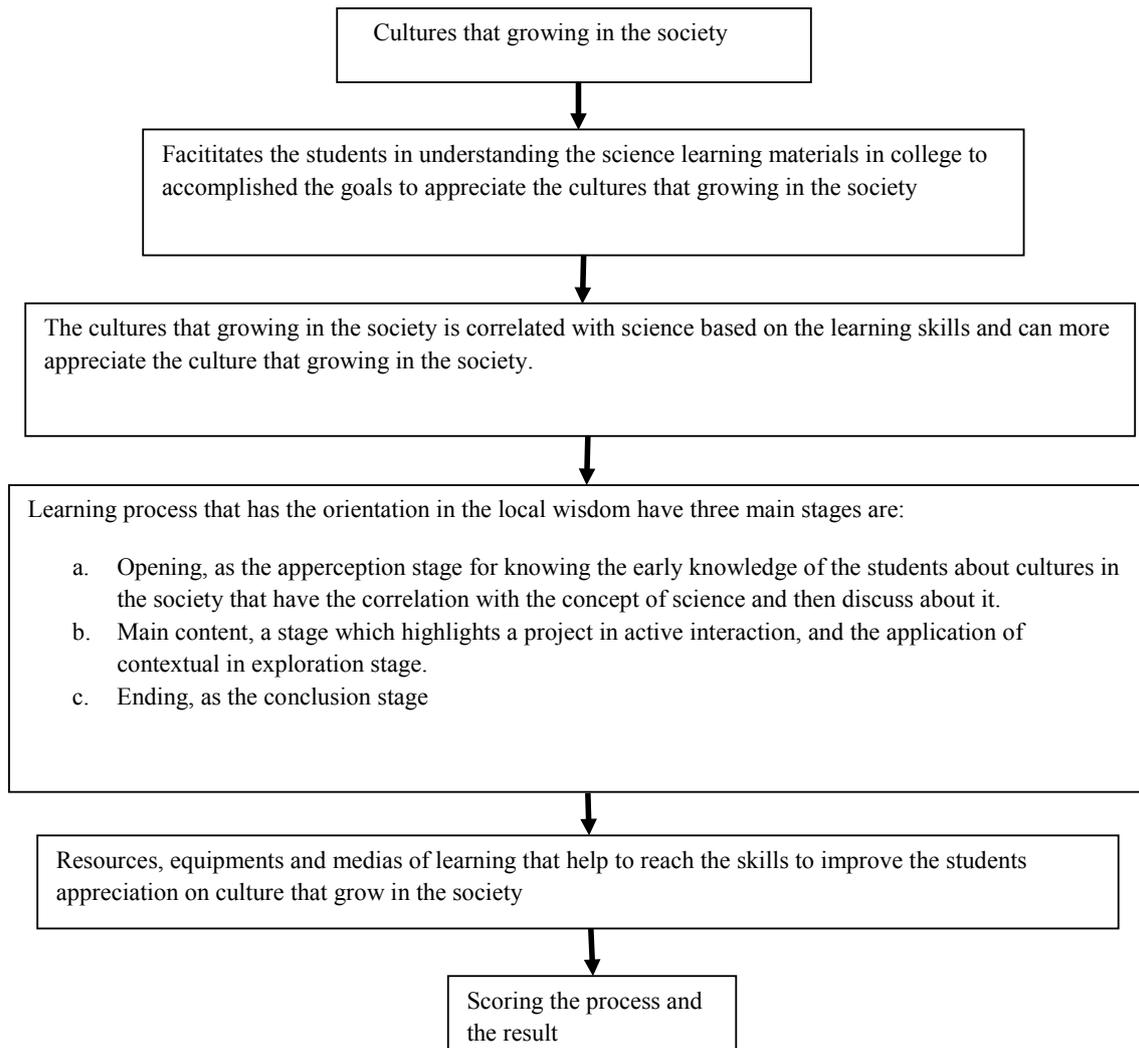
In the science-oriented activities of local wisdom the students' learning are expected to perform or have science process skills, because learning is packed through observation, discussion, presentation and practice. Science process skills of observation results are shown in the Table 3.

**Table 1.** Types, Techniques, and Data Collection Instruments

No	Types of Data	Data Collection Techniques	Data Collection Instruments	Data Techniques Analysis
1	Appreciation	Questionnaire	Questionnaire sheet of students' appreciation	<i>N-gain</i>
2	Skills in process science	Observation	Observation sheet	Percentage descriptive
3	Cognitive result test	Test	Question test sheets for students	<i>t-test samplerelatedto N-gain</i>



**Figure 1.** Stages of Learning Oriented on local wisdom



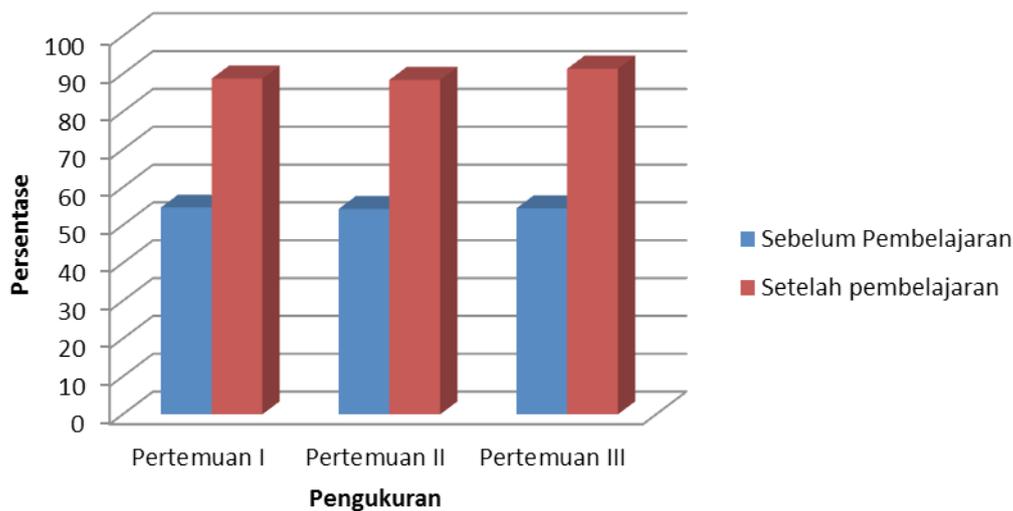
**Figure 2.** Design of Learning Model Oriented Local Wisdom

**Table 2.** Elements of Science in The Process of Making Batik Jumputan

Batik Jumputan Making Process	Elements of Science Related to Making of Batik
<p>Materials:</p> <ol style="list-style-type: none"> <li>1. Fabric manifold Blaco, Mori prima, Primiissima;</li> <li>2. Two tablespoons of salt and vinegar to taste;</li> <li>3. Two liters of bottled water for each one sachet of dye ;</li> <li>4. Dyes and amplifier in one package (WenterorWantex).</li> </ol> <p>Tools:</p> <ol style="list-style-type: none"> <li>1. Rubber bracelet;</li> <li>2. Marbles, coins, stone;</li> <li>3. Stove;</li> <li>4. Vessel (Pot);</li> <li>5. Wooden spoon as a mixer ;</li> <li>6. Bucket.</li> </ol> <p>Making process:</p> <ol style="list-style-type: none"> <li>1. Make sure the cloth in a clean condition;</li> <li>2. Make the shape/design motif to bind marbles, coins, or stone on some parts of the fabric used in tight rubber and varied;</li> <li>3. Boil water in a vessel(pot) to boil</li> <li>4. After boiling, mix the dye and the amplifier within a single package or wantexwenter;</li> <li>5. Add some salt and two tablespoons of vinegar to taste accompanied by stirring it until mixed properly</li> <li>6. Dampen a cloth that has been tied and made the motif with clean water;</li> <li>7. Dip the cloth in the liquid dye. If you want only one colour, dip the whole piece of cloth in boiling dye.</li> <li>8. Mix it around 20-30 minutes so that the colour can strongly stick to the cloth</li> <li>9. If you want more than one colour, do the step 6 (six) partially and dip a cloth that has not been exposed to the liquid dye colour.</li> <li>10. Dip several times according to the number of colours wanted;</li> <li>11. If the colour dyeing process is complete, the fabric is removed and rinsed with clean cold water;</li> <li>12. After that, all tied are remove, dry up the cloth</li> <li>13. When it is dry, trim with ironing.</li> </ol> <p>Notes:</p> <ol style="list-style-type: none"> <li>1. Rubber can be replaced with a rope, as long as it can make a strong bond;</li> <li>2. Salt and vinegar are used as an additional amplifier so that the colours do not easily fade;</li> <li>3. Use a container (container/pot) for a single colour;</li> <li>4. In this practice, the container should be used exclusively for the Jumputan or batik ikat celup method. However, if the container is used for other purposes, wipe it with a good vessel/pan that has been used as a colouring process container until it is completely clean.</li> <li>5. The result of the practice (Jumputan batik) is ready to use.</li> </ol>	<p>Classification of substances (elements and simple chemical formula)</p> <ul style="list-style-type: none"> <li>• Elements</li> <li>• Compounds</li> <li>• Mixed</li> </ul> <p>Form of substances and amendments</p> <p>The role of heat in the form of a state change and temperature of an object</p> <ul style="list-style-type: none"> <li>• States of a matter</li> <li>• Phase transition</li> <li>• Evaporation</li> <li>• Heat transfer</li> </ul> <p>Human roles in environmental management to cope with the pollution and environmental damage</p> <ul style="list-style-type: none"> <li>• Natural and artificial dyes</li> <li>• Waste management</li> </ul>

**Table 3.** Science Process Skills in Learning Oriented on Local Wisdom

No	Aspect of Science Process Skills	Measurement		
		Meeting I	Meeting II	Meeting III
1	Involving all the senses to look for information	31	34	34
2	Gather the facts that exist of observations	14	18	17
3	Finding some similarities and differences of the result of observations	17	20	22
4	Taking notes for every observations	31	34	34
5	Expressing opinions/assumptions of observations	16	18	20
6	Determine the tools materials and sources used	16	20	22
7	Determine the work procedures	14	19	20
8	Do the work procedures	29	33	34
9	Collecting the data	30	33	34
10	Displaying the data in the form of diagrams, tables, or graphs	9	10	16
11	Make a written report	28	33	34
12	Delivering the result orally	13	14	15

**Figure 3.** Graph of the Improvements of Students' Appreciation

Based on the calculation of the questionnaire is given and has been filled by students before and after the learning we know that there is an improvement of students' appreciation toward the culture as shown in Figure 3.

An analysis of the increase appreciation questionnaire scores calculated using the average normalized gain ( $N_{gain}$ ), the ratio of the actual average gain the maximum average gain (Hake, 2005). Figure 3 shows that there are several differences in the percentage of the increase of the appreciation before and after learning. The magnitude of the difference can be seen in the increase of the appreciation of the value of  $N_{gain}$  as we can see in Table 4.

The local-wisdom learning-oriented also impact on the students in improving learning outcomes that can be seen in Table 5.

The results shows the increase in science process skills this is due to science-oriented learning model of local wisdom to provide more flexibility to students to perform a variety of learning activities for example allowing them to train themselves draw the conclusions (Mungmachon, 2012). Giving information about the activities to be carried out also encourage students to conduct science process skills in learning. Akinbobola and Afolabi (2010) revealed a way to help a person in order to carry out aspects of science process skills well, one of them is to let them train themselves

**Table 4.** Students' Appreciation Improvements about Batik

Class	Before Learning	After Learning	Gain	N gain	Criteria
Meeting I	54.66	88.74	34.08	0.75	High
Meeting II	54.29	88.42	34.13	0.74	High
Meeting III	54.47	91.36	36.89	0.81	High

**Table 5.** Calculation Results in Students Improvement Outcomes

Class	Pre Test	Post Test	Gain	N gain	Criteria
Meeting I	50,23	70,02	49,77	0,39	Medium
Meeting II	52,56	71,74	47,44	0,40	Medium
Meeting III	54,76	74,03	45,24	0,43	Medium

draw the conclusions based on the solely on the instructions or indirect evidence.

The activity of the science students during the learning process of the local wisdom with the skills of the students, who show an increase on the learning outcomes. The types of science skills that can be done by the students as well as adults because their mindset equation (Akinbobola and Afolabi, 2010). Science process skills to be possessed by the student at least consist of: 1) Skills of observing, 2) Skills of interpreting the observations, 3) Make a hypothesis, 4) Designing experiments, 5) Conducting experiments, 6) Analyze the data, 7) Communicate the results. The seventh courses of the process using language skills and procedures as the university students.

In learning of science which oriented on the local wisdom has covered seven of the science process skills. In the learning process which oriented on the local wisdom, students learn by observing and doing practice the process of making batik, students can understand the concept of scientific concepts that exist in the process of making batik. By practicing students will work according to the steps contained in the lab manual has been prepared at the previous meeting. Observation of the activities, discussions, and presenting the results in the classroom after the student write a report on the observation aspect of science process skills which if executed entirely by students with good then after learning of students will have the science skills that are better than ever (Liston, 2013).

The lowest science process skills are the ability to deliver oral observations that are in the sufficient category. It means that the students do not have to have a good ability to communicate the results of observation in front of the class to explain the results of observations with his group. According Chabalengula, Mumba and Mbewe (2012) skills of presenting the results of

observations orally, need to be trained over and over again so that the students can submit the observations well, coherent and understandable by students and other groups.

Learning which oriented on the local wisdom also resulted in the increase of the students appreciation of batik. This increase is caused by local wisdom-oriented learning, where the science learning which oriented on the local wisdom to make batik make a relation between the growing community with science learning. Learning is done by giving assignments to students to observe the process of making batik, then discuss the processes that occur in batik making, use of the concept of scientific concepts through class discussions and present it in front of the class. Then the second meeting is to discuss the concept of science that deals with the process of making batik, after the students are asked to draw up practical instructions of making batik. At the third meeting the students do practical work with the instructions making batik practice that has been prepared by each group at a previous meeting. By following and conduct all activities in science learning which oriented on the local wisdom, the students will find out that in the process of batik making scientific concepts are concepts which have not ever known before.

In the practicum students making batik which mean the students have participated in the batik making process to improve the recognition and appreciation of students to the profession of the batik makers as a result of the work. Increased appreciation can occur when a person experiences, either directly or indirectly, in the works of art or culture (Alexon and Sukmadinata, 2010), which in this study works of art or culture is a profession of batik makers as a result of the work.

The results showed an increase of the student learning outcomes which oriented on the local wisdom, this is due to the local wisdom

student-oriented learning more interested and enthusiastic about learning because students are learning science more fun which oriented on the local wisdom than conventional learning. Besides, it is also on conventional teaching faculty holding a dominant role while students tend to be passive. The Improvements of the students' results is because of the involvement of students during the learning process, because one of the principles of learning is experiencing its own, it means that the students who perform with his own will obtain optimal learning results. Learning which oriented on the local wisdom, the students actively engaged in the learning process so that they have a better understanding. Students who are active in the learning activities will have more understanding with the materials and have a better learning outcomes than the students who only listened to the explanation and passive during the learning activities.

### CONCLUSION

Based on the discussion of the results of the research, there are some conclusions as follows; 1) has been identified that in the process of making batik jumputan there are elements of science, namely chemical elements on the appliance in the activity of making batik, heat, evaporation and changes in the states of matter as well as the environmental management efforts to address pollution caused by batik waste; 2) Increased ap-

preciation of students before and after learning of the profession batik makers are at high criterion (0.70 g); and 3) an average score of science process skills of students (60% KPS 80%) at the high category.

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