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## THE DEVELOPMENT OF HOTS WORKSHEET FOR SIXTH-GRADE ELEMENTARY SCHOOL STUDENTS IN LEARNING ENGLISH

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### Abstrak

Penelitian ini bertujuan untuk mengembangkan lembar kerja siswa yang berbasis berpikir kritis tingkat tinggi menggunakan kurikulum tingkat satuan pendidikan pada siswa sekolah dasar kelas enam semester satu. Penelitian ini menggunakan metode D&D dengan ADDE model. Peneliti menggunakan observasi, analisis dokumen, kuisisioner, interview, dan penilaian ahli saat proses pengumpulan data. Guru dan siswa sekolah dasar adalah partisipan dalam penelitian ini. Temuan penelitian ini menunjukkan bahwa berpikir kritis tingkat tinggi masih kurang di aplikasi untuk kurikulum KTSP, lembar kerja yang dikembangkan oleh peneliti dinyatakan sangat baik dalam membantu siswa sekolah dasar dalam belajar bahasa Inggris.

### Abstract

*This research aimed to develop students' worksheets based on higher order thinking skills using the kurikulum tingkat satuan pendidikan on sixth-grade elementary students in the first semester. This research used the D & D method with ADDE model. The instrument that was used by the researcher namely observation, document analysis, questionnaire, interview and expert judgement in collecting the data. The participants were the teacher and students from the elementary school. The findings manifested that higher order thinking skills is less conducted through the kurikulum tingkat satuan pendidikan, the worksheet that is developed by the researcher to help the elementary students and it was considered excellent by the expert for teaching English.*

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## INTRODUCTION

Nowadays education is significant for everyone due to the increase of knowledge and the demand for quality of life. Education helps the people to obtain proper knowledge rather than the uneducated people. Formal and informal education will be received by the people who enrol it, formal education can be acquired through institutions like school, college or university. While informal education can be achieved through daily life or environment. As a student, formal and informal education is both important for the development of knowledge. Formal education is a structured system where all the aspects had been prepared by the organization like curriculum, laws, norms and contents. The students must present in a regular class and follow all the rules in order to get passed to the next stages as Shala, (2016) mentions. Regarding the situation of formal education, the primary education for elementary students is the most value to receive the first stages of being educated by the teacher before taking the next step. Doğan & Sezer (2010) during the primary school, students receive the basic knowledge like communication, organization process and problem solving. This can help the students with the real-life situation during the learning process.

Learning process in education could be done in many ways depending on the method or strategy that is used by the teacher. In Indonesia, some of the strategies that are utilized by the teacher are still conventional in teaching the elementary students like teacher centred learning. Teacher centred learning focuses on the teacher as the subject and students as the object, it gives the student less opportunity to be involved in the learning process. Antika (2014) states the teacher centred is no more appropriate with the current students' characteristic. Solving this problem can be done through changing the strategy into students centred learning. Students centred learning helps the students to be more active in the classroom, discuss with the teacher as the facilitator and use all the media like internet or worksheet as the learning sources. In line with the students centred learning, 21<sup>st</sup> century learning provides opportunity for the students to obtain the students centred learning.

21<sup>st</sup> century learning gives the students skills like critical thinking skills, creativity, communication and collaboration. Zubaidah (2016) states that critical thinking means the students can think critically, creativity refers to the students can think creatively that use the multiple intelligences during the learning process. Communication skills means the students can communicate with the other students while doing the learning process, and the collaboration allows students to work cooperatively with their peers in doing a project. It will assist the students to manage their responsibility among the other students. 21<sup>st</sup> century learning gives a wide range of activities for the students especially in developing the students' skills. Mubarok & Anggraini (2020) states besides creativity, critical thinking, collaboration and communication, the 21<sup>st</sup> century learning also has other skills namely literacy is the capability of using language in term of writing, reading and understanding. Numeration is defined as the ability to use numbers and symbols, science literacy that deals with scientific knowledge, digital literacy consists of the use of technology and financial literacy.

In developing the activities for elementary students, the teacher can use various media like a worksheet. Integrating the worksheet for learning process with 21<sup>st</sup> century learning the teacher can use higher order thinking skills material. Higher order thinking skills are the skills that require problem solving, creating decisions, evaluating, innovating and creating something as Nofrión & Wijayanto (2018) mentioned. Higher order thinking skills also proposed by (Anderson & Krathwohl, 2001) that categorize the cognitive process into C4 which is analyse, C5 evaluate and C6 create. Nachiappan et al., (2018) also states that higher order thinking skills trigger the creative thinking that uses the mind to produce or create new things. A worksheet with higher order thinking skills helps the students to improve their critical thinking skills including 21<sup>st</sup> century learning. There are few studies that discuss a worksheet consisting of higher order thinking skills for elementary students. Singh et al., (2018) conducted a study

regarding the development of modules for weak ESL learners in writing. The finding showed that higher order thinking skills modules provide a guideline for the teacher to apply the thinking skills in the process of teaching writing. Based on the HOTS module that was used by the teacher, the students enjoyed the strategy and commented that the worksheet helped them to write better. Using the HOTS module also encourages collaboration in terms of working in groups with other students. Yennita et al., (2018) found that students' scores used the HOTS worksheet rather than the students who used the HOTS worksheet. It indicated that higher order thinking skills worksheets raise the students' capability in the learning process. Nadhiroh & Latifah (2020) had conducted a research regarding the use of HOTS worksheet in thermodynamics material, the result of the study manifested that HOTS worksheet is feasible to use in delivering thermodynamics material with the average score of 89% which is categorized good. Other study is conducted by Mintre & Lie (2020) focuses on higher order thinking skills questions in teaching reading. The result of the study showed that students and teachers communicate very well during the lesson, the interactions between the teacher and students has obviously happened. Besides, the students' answer is in line with the thinking skills from the Bloom taxonomy in HOTS.

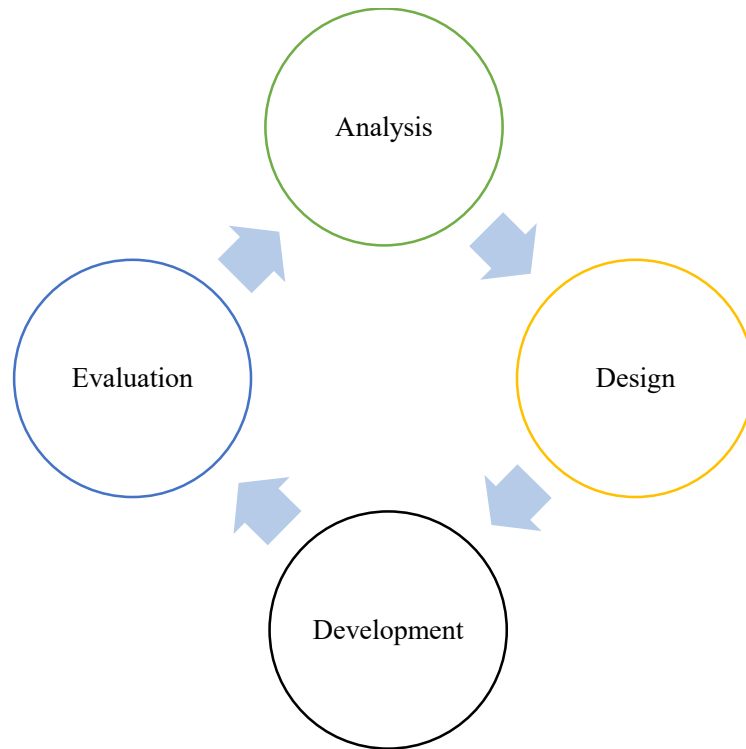
Regarding the previous study that has conducted research related with the development of higher order thinking skills material, one of the elementary schools in Buleleng has not applied the higher order thinking skills during the learning process. The teacher tries to implement the higher order thinking skills during the learning process but it is not easy, the sources of material are limited and the curriculum that is used is still Kurikulum Tingkat Satuan Pendidikan where the teacher is still the centred learning. Lack of material sources is one of the biggest challenges that is encountered by the teacher such as the higher order thinking skills' worksheet to teach the students. However, relating the current problem with previous research, the researcher has not found the study that discusses developing worksheets for

students' sixth-grade elementary students based on higher order thinking skills. Therefore, the aim of this study is to develop a higher order thinking skills' worksheet for sixth-grade elementary school students which used the KTSP curriculum. This research was conducted by the researcher due to the lack of material sources and activities from SDN 1 Banyuasri, in addition higher order thinking skills are significant for the development of students' knowledge. The worksheet that consisted of higher order thinking skills expects to enhance the creativity and critical thinking skills from the students.

## METHOD

This study develops the students' worksheet with higher order thinking skills based on KTSP curriculum for sixth-grade elementary school students. The research design that is used by the researcher is D&D with ADDE model. D&D is defined as design and development by (Richey & Klein, 2007). The D&D design focus on the process of analysis process, goals and outcomes and strategies that match with the goals. The phase that can be the guidance for the researcher is using ADDE. ADDE is defined for analysis, design, development and evaluation on conducting the research (Richey & Klein, 2007).

Random sampling was used to determine the respondents, random sampling was sampling that give equal chance to every individual in the defined population to be the sample. Random sampling is the best way to have representative sample as (Ary D. J., 2010) states it. The setting of this study took place in SDN 1 Banyuasri, Buleleng, Bali. There were 6 participants that consisted of one teacher and five students who enrolled in this research. The study also used expert judgement to determine the content and the quality of the worksheet. The observation sheet, questionnaire items, interview guide, document analysis and user review judgement were used to obtain the data from the participants and experts. During the process of data analysis, the researcher used two methods, quantitative and qualitative.



**Figure 1. The ADDE Model by Richey & Klein (2007)**

Quantitative data analysis was used to calculate the score that was obtained from the experts' judgement, quality judgement and user review on the final product which is the students' worksheet based higher order thinking skills. Ideal Mean (Mi) and Ideal Standard Deviation (SDi) were utilized to determine the criteria based on the result of quality judgement and user review that was proposed by Nurkancana & Sunartana (1992). The maximum score was 5 and the minimum score was 1. The table of Mi and SDi categorization were displayed in Table 1 and Tabel 2.

**Table 1. Criteria for Quality Product from the Experts from Nurkancana & Sunartana (1992)**

Formula	Score	Criteria
$X \geq Mi + 1.5Sdi$	$X \geq 144$	Excellent
$Mi + 0.5Sdi \leq X < Mi + 1.5Sdi$	$112 \leq X < 144$	Good
$Mi - 0.5Sdi \leq X < Mi + 0.5Sdi$	$80 \leq X < 112$	Average
$Mi - 1.5Sdi \leq X < Mi - 0.5Sdi$	$48 \leq X < 80$	Below Average
$X < Mi - 1.5Sdi$	$X < 48$	Poor

**Table 2. Criteria for Quality Product from the User Review**

Formula	Score	Criteria
$X \geq Mi + 1.5Sdi$	$X \geq 45$	Excellent
$Mi + 0.5Sdi \leq X < Mi + 1.5Sdi$	$35 \leq X < 45$	Good
$Mi - 0.5Sdi \leq X < Mi + 0.5Sdi$	$25 \leq X < 35$	Average
$Mi - 1.5Sdi \leq X < Mi - 0.5Sdi$	$15 \leq X < 25$	Below Average
$X < Mi - 1.5Sdi$	$X < 15$	Poor

There were thirty-two criteria on the quality judgement and above is the score guideline for the criteria. There were ten items for the questionnaire, both for teacher and students. Table above is the guidelines for user review criteria.

Furthermore, the qualitative data analysis used stages that was proposed by (Ary D. J., 2010) to interpret the result of observation sheet and interview guide descriptively. There were three steps in analysing the data namely familiarizing and organizing, coding and reducing, interpreting and representing. Moreover, the researcher used triangulation in term of data, theory, investigator and method to

convince the reader based on the result to validate the findings (Denzin, 2010).

## RESULT

The following analysis was done by the researcher in order to manifest the progress of developing the higher order thinking skills' worksheet for sixth-grade elementary school. Showing the progress of the development, the researcher revealed the process using the ADDE model. Moreover, the researcher also displayed the result of the expert judgement and user review result. From the quality judgement based on the experts, the worksheet indicated as an excellent worksheet. The result of users' review revealed that questionnaire items regarding the review of students' worksheets based on higher order thinking skills obtained excellent.

### **The result of observation and interview regarding the availability of higher order thinking material on KTSP curriculum at SDN 1 Banyuasri.**

Observation was conducted by the researcher in order to know the current material at SDN 1 Banyuasri. The result of observation displayed that the teacher had not integrated the learning process with the critical thinking skills, the teacher also provided a learning material that was a worksheet. However, the worksheet was not associated with the higher order thinking skills, it was more about the low order thinking skills activities. The activities were less attractive and could have bored the students during the learning process. On the other hand, the teacher is difficult to develop the learning material based on the syllabus due the limited sources factor. T1:..."*So for the source of material for teaching in SDN1 Banyuasri, we as the teacher still used books that were provided by the school and using the KTSP curriculum. I think we had not integrated the higher order thinking skills' book, we just used the usual book from the school...*" Moreover, the data from the interview supported the observation, the interview data obtained that the teacher tried to implement higher order thinking skills with hook questions during the learning process. T1 "*I tried using hook questions and ask the students*

*to respond to the question. So, applying higher order thinking skills for elementary school is quite challenging for me as the teacher".* In addition, the students' cognitive ability also influenced the application of higher order thinking skills. It can be seen that the teacher of SD N 1 Banyuasri had not linked higher order thinking skills with the learning process. So, the researcher develops higher order thinking materials based on worksheet students.

### **The process of developing the students' worksheet based on higher order thinking skills for sixth-grade elementary school.**

The researcher develops the students' worksheet based on higher order thinking follow the ADDE model, the steps of developing the worksheet as follows,

**Analysis**, in the process of analysis the researcher analyses the syllabus from the SDN 1 Banyuasri. The result of the analysis found that there are four main topics that are used by the teacher to create materials for the students. The topics were namely "asking and giving instructions", "asking and offering help", "describing people and things" and "greeting card". Unfortunately, the learning material for the students had not integrated yet with higher order thinking skills.

**Design**, after analyse the syllabus that consisted of four topics, the researcher began to design the blueprint draft for the worksheet. The design process determines the bloom taxonomy for the blueprint, the blueprint consists of word choice of kata kerja operasional. Each level of hots from analyses until creation consist of two kata kerja operasional. In blueprint of asking and giving instruction material, there were 12 operasional verbs, in the asking and offering help material there were 12 operasional verbs, in the describing people and things there were 12 operasional verbs and in the greeting cards material there were 12 kata kerja operasional. The total was 48 for the kata kerja operasional to design the students' worksheet based on higher order thinking skills.

**Development** deals with the researcher developing the blueprint draft into the worksheet. During the development process, the researcher prepared all media that is needed to

create a worksheet. Microsoft Word was the tool to develop the worksheet with an additional list of pictures. The size of the worksheet was A4 paper with a proper margin which was left 4 cm, top 3 cm, right 3 cm and bottom 3 cm. Each of the topics consisted of six activities and the total was 48 activities for the entire topics.

**Evaluation process** contained the evaluation from the expert's judgement, quality judgement and user review through the questionnaire. The experts were the lecturers who were experts in material development. First the expert judgement, the expert judgement showed that from all the items of expert judgement that consisted of 32 items, all the items were relevant to the material. The expert determines the items in the worksheet were relevant with the total score 1, the result is calculated using Gregory formula. It means that the material of students' worksheets based on higher order thinking skills for sixth-grade elementary school students are excellent. Then quality judgement from the experts, the expert for quality judgement also from the lecturers who were experts in material development. The total score for each expert was excellent and good. There were three lecturers who gave excellent scores and only one lecturer gave good criteria based on Nurkancana & Sunartana (1992) quality product. The first expert categorized the worksheet was excellent with the total score 155, the second expert consider the worksheet as excellent worksheet with total score of 145, the third lecturer decided the worksheet in good criteria with 138 as the total score, the fourth lecturer determined the worksheet in excellent criteria with 154 as the total score.

**Table 3. Result for Quality Product from the Experts from Nurkancana & Sunartana (1992)**

Score	Criteria
130	Good
129	Good
125	Good
154	Excellent

**Table 4. Result for Quality Product from the User Review**

Score	Criteria
44	Good
44	Good
43	Good
40	Good
44	Good
45	Excellent

Based on all the lecturers who were the experts, the students' worksheet based on higher order thinking skills for sixth-grade elementary school students was excellent. Therefore, the teacher can use this worksheet for teaching English based on higher order thinking of the students. On the other hand, the result of quality judgement from the users' review that was obtained from the questionnaire indicated an excellent category. The questionnaire contained 10 items for the teacher and 10 items for the students. The teacher that was involved as the participant claimed that the worksheet was excellent in teaching English for sixth-grade elementary school students with an average score of 49. Moreover, the result from the students manifested that the first student revealed 49 as the average score and it was categorized as an excellent worksheet. The second students obtained 47 as the average score and it belongs to an excellent worksheet. The third student gained 45 as the average score and it means excellent worksheet, the fourth students acquired 46 as the average student and belongs to excellent worksheet, the sixth students obtained 40 as the average score which means good worksheet. Based on the result of quality judgement from the teacher and students, the higher order thinking skills worksheet was excellent for teaching the materials namely "asking and giving instruction", "asking and offering help", "describing people and things", and "greeting card".

## DISCUSSION

Based on the results that were obtained by the researcher, it was discovered that the development of higher order thinking skills was

still low in SD N 1 Banyuasri. The teacher encountered challenges during teaching the students because of limited sources of material. Besides the learning material, the teacher only used hook questions to get the students' response. In addition, the teacher did not associate the higher order thinking skills in the activity. These challenges should be solved by the teacher using an interactive activity like various teaching strategies or a worksheet that consists of higher order thinking skills.

Design and developing the worksheet is brainstorming for the researcher due the appropriate activities that belong to higher order thinking skills. Integrating critical thinking skills with activities can result in a good outcome for the development of students' critical thinking. This in line with Vijayaratnam (2012) that describe with the right task or activity can help the students to construct knowledge, applying in real world and use it properly. By those activities, it assist the students to learning higher order thinking skills.

So that, the students' worksheet based on higher order thinking skills for sixth-grade elementary students that was designed by the researcher in excellent criteria based on the quality judgement and users' review. This in line with the previous researcher Kurniawati & Tasman (2021) also support by developing a worksheet that is consisted with higher order thinking skills it is feasible to use for increasing the higher order thinking skills.. Kwangmuang et al., (2021) also states that higher order thinking skills in the worksheet escalate the creation of knowledge, analytical thinking, problem solving and critical thinking skills. Putra et al., (2017) states that after testing the worksheet, the student's capability in mathematical problem increased

A higher order thinking skill gave the students to learn productively with other students and they can assess themselves by learning with other students as Ningsih et al., (2018) states that if a student have a higher order thinking skills, the students who has hots would influence other to have higher order thinking skills during the learning process in group. In the

students' worksheet that is based on higher order thinking skills, the researcher also develop the student to work in group collaboratively. By working collaboratively, the students can generate their ideas in the discussion session with the other students. Generating ideas is important for the students due to communication skills, a higher order thinking skill assist student to generate their ideas as Heong et al., (2012) illustrate that students have problem in generating ideas because of exercise in generating idea, specialized skill and lack of information. These problems can be solved by helping the students to learn higher order thinking skills through teaching, learning environment and self-directed learning.

Susanti et al., (2020) says that working in group through collaborative strategy that implement higher order thinking skills could increase the student's motivation, collaboration, thinking critically and social skills. It means that through the worksheet the students could learn those skills with the others. It is beneficial for the students that can train the critical thinking skills, positive attitude and problem solving. This in line with the findings from Ali (2018) states that collaborative learning that is integrated with higher order thinking skills also could improve low level proficiency of the students.

Besides learning with group, the students also could improve the self-learning from the students' worksheet based on higher order thinking skills. The students could be more independent during the learning process, Purnama et al., (2020) mention that by using higher order thinking skills, it encourages the students to be more independent and use the authentic material in daily life to learn. On the other hand Misrom et al., (2020) support that student think independently and also can discuss it with the other students. This happened because the students underwent the several stages like observing, forming the answer, analyse the process and provides conclusion. It means that by using higher order thinking skills in worksheet, the students are helped by those skills during the learning process.

Moreover, the use of higher thinking skills worksheet avoids the bored situation in the classroom. Boring situation decreased the students' interest in learning process, they did not pay attention to the teacher. Boring situation happened because there was no challenging for the students during the learning process, the students also has not use optimally by the teacher. Aisah et al., (2020) if the students' cognitive is limited to the learning activities such as remembering and understanding, the boredom situation. This in line with the statements from Turan-Özpolat (2020) states that boredom situation in the classroom due to the lack of participation in the class, less participation could come from less attractive activities from the learning process. By providing an attractive activity, the students would entertain and follow the lesson properly.

The implication of this study is developing the students' worksheet based on higher order thinking skills for sixth-grade elementary students in order to enhance their critical thinking skills, creative thinking, problem solving and working collaboratively. The teacher could improve the worksheet by adjusting the students' cognitive skills based on the material. Moreover, in developing the worksheet the teacher should determine the blueprint of the worksheet and design an attractive activity for the students. Considering the development of higher order thinking skills worksheets for sixth-grade elementary students is still limited for the teacher, the minister of education might create a program, workshop or internship for the teacher to increase the knowledge related to higher order thinking skills. This activity could escalate the application of higher order thinking skills for the students. Moreover, the teacher can create a community that focuses on developing higher order thinking materials for elementary students.

## CONCLUSION

Regarding the development of the students' worksheet based on higher order thinking skills, the researcher obtained that the worksheet was excellent in terms of the quality judgement and user review. Both of them mentioned that the worksheet could enhance the higher order

thinking skills in learning English for sixth-grade elementary students. By providing the higher order thinking skills worksheet, the students received various kinds of activities related to higher order thinking skills and they could practice it with the other students during the learning process. Besides, the activities are more attractive and the student could asses their critical thinking skills, creative thinking, problem solving and working collaboratively. This research was recently conducted by the researcher although there was similar research regarding the development of students' worksheets based on higher order thinking skills. The researcher has not implemented the worksheet yet for the whole first semester due the pandemic. The researcher has a suggestion for other researchers to develop and implement the worksheet based on higher order thinking skills for the whole first semester. All in all, this research is not perfect yet based on the weaknesses that influence the findings of this research, furthermore a similar research should be conducted in order to implement the worksheet.

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