

DEVELOPMENT OF TEACHING MATERIAL FOR HIGH ORDER THINKING SKILLS IN READING COMPREHENSION AT STUDENTS MAN 2 MODEL MEDAN

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RINGKASAN- This study aims to determine the development, validity and effectiveness of development of Higher Order Thinking Skills (HOTS) teaching materials in reading comprehension. This research is a research and development (R&D) using the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation). The instrument used is a questionnaire for expert lecturers and students, interviews with teachers, and the results of the last test given to students. The test results from the validator through media design as a whole get very feasible criteria (88.33%) so that teaching materials can be used as teaching materials for students in the learning process. The results of the assessment of English Teaching Materials by experts on the substance of the material as a whole from the aspects that are considered to have received appropriate criteria (90%) so that the Teaching Materials can be used in the learning process.

Keyword: Teaching Materials, High Order Thinking Skills, Development, Reading Comprehension.

INTRODUCTION

In this globalisation era, it is possible for all parties to obtain abundant, fast, and easy to get information from various sources and from various parts of the world. That is why, humans are required to have the ability to obtain, select, manage, and follow up information to be used in a dynamic, challenging and competitive life, all of which requires everyone to have the ability to think critically, creatively, logically, and systematically. This can be developed through English learning activities.

The higher order thinking skills are needed not only in academic matters but also in every part of our lives. In addition, the emphasis in our lives is on higher levels of thinking for the assessment of ideas and information. As a result, higher order thinking skills play an important role during the learning process, because they can improve students' ability to evaluate information.

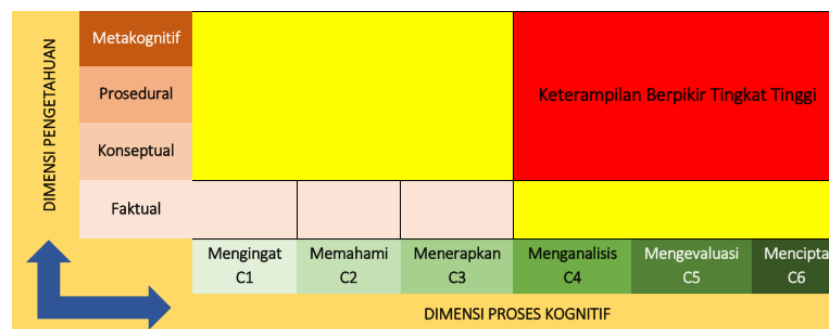
The use of higher order thinking in secondary schools is also considered in the 2013 Curriculum. It is said that upper level reasoning ability is understood as a means for more creativity in learning. In the 2013 Curriculum guidelines for SMA, it is said that the means of higher-order thinking are information analysis, evaluation and creation of something.

The Aim Of This Research Want to know the development, validity and effectiveness of teaching materials of Higher Order Thinking Skills (HOTS) in reading comprehension at SMA students of MAN 2 MODEL MEDAN.

THEORY

Ade, H.K, Dadan. D, Dadang .K. (2016) states that reading is an activity of seeing written readings and the process of understanding the contents of the text aloud or silent. and we also know how important reading is, Allah says in the Qur'an in Surah Al-Alaq verses 1-5: "Read, In the name of your Lord, Who has created (all that exist). Has created man from a clot (a piece of thick coagulated blood), read and your Lord is the most Generous, who has thought (the writing) by the pen (the first person to write was prophet Idress (Enoch). Has taught man that which he knows not.

FIGURE 1: Combination of Knowledge Dimensions and Cognitive Process Dimensions



Utaminingsih, S (2019:62) explains that between knowledge dimensions factual, conceptual, procedural and metacognitive have levels in the dimensions of the thinking process consisting of knowledge, understanding, application, analysis, evaluation and creative or creating, as can be seen in Table 2.1 below.

Table 2.1 Cognitive Process Dimensions and Knowledge Category Dimensions

Category Knowledge	Dimensions of Thinking Process					
	Remember	Understand	Apply	Analyze	evaluate	Create
factual	List	Summarize	Classify	Order	Rank	Combine
Conceptual	Describe	Interpret	Experiment	Explain	Assess	Plan
Procedural	Tabulate	Predict	Calculate	Differentiate	Include	Compose
Metacognitive	Appropriate	Execute	Construct	Achieve	Action	Update

Source: Anderson's et al. (2001) Cognitive Revised Domain in Utaminingsih, S. (2019)

Higher order thinking in reading comprehension, the writer argues that in reading exercises, the questions that are included in the higher order thinking level are usually essay questions that contain analyzing, evaluating, and creating skills. The questions mostly contain words such as distinguishing, determining, connecting, solving, etc., which require students' critical thinking in answering these questions.

RESEARCH METHODS

The type of research used is research and development (R&D) research methods. The model used is the ADDIE Model. The ADDIE model stands for the five stages of the development process, namely Analysis, Design, Develop, Implement, and Evaluate.

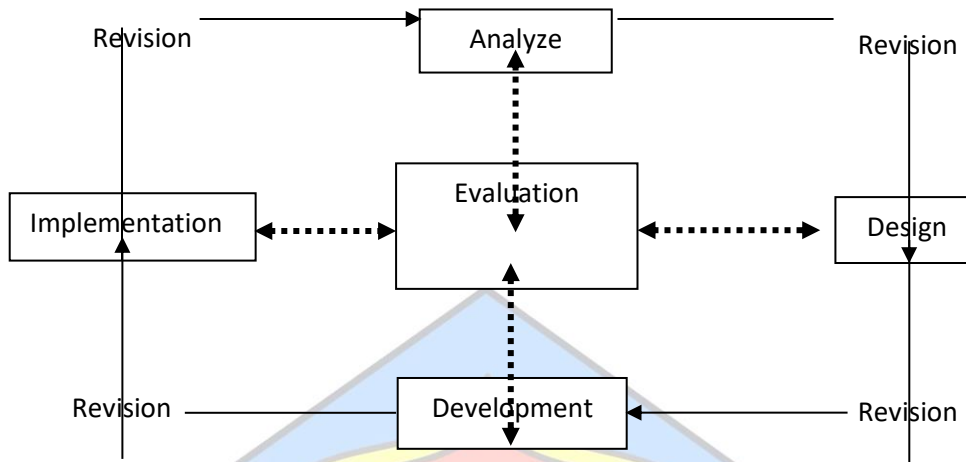


Figure 3: ADDIE Model

The subjects in this Research and Development includes two subjects. The first subject is the validator, which consist of two expert lecturers materials and media to assess product results made by researchers. The second subjects is students of grade 11 science 6 which consists of 34 students but i only used 17 students as research subjects to limited time to carry out learning using HOTS-based learning materials . The research time starts from May 9 to May 28, 2022. And the object of research and development in MAN 2 MODEL MEDAN.

The research procedure for developing HOTS-based learning media in English subjects adapts the ADDIE model, in the form of stages to produce products consisting of: Analyze, Design, Development, Implementation, and Evaluation. In detail, it consists of five stages, namely:

1. Analysis Stage

At the analysis stage, the researcher made observations to the teacher about the teaching materials given to students. The goal is to experience and how this can be utilized in the learning process. In the analysis phase, it is carried out by observing learning activities in class.

2. Design stage

In this research design. Researchers use media to carry out the data collection process. And the data needs include material that has been determined

at the analysis stage, practice questions according to the material, and scenarios. The scenario will affect the course of the research story.

In the Design of Learning Materials (RPP) the students in this study were Learning Materials (RPP) based on Higher Order Thinking Skills, paying attention to design principles in order to attract the attention of students.

3. Development stage

At the development stage, the researcher made the preparation of HOTS-based teaching materials, made questions, and the revision (instrument) stage. The development stage is carried out through several steps, namely:

- a. Design creation.
- b. Creating a HOTS-based learning design.
- c. Assessment from the validator about teaching materials and media.

4. Implementation Stage

Implementation phase aims to test the product through assessment

- a. Test the resulting product to students and ask for feedback.
- b. Analyze the results of the assessment.

5. Evaluation Stage

At this final stage, it was carried out to measure the HOTS ability of MAN 2 MODEL MEDAN students, in English subjects by conducting a final test on them.

The instruments in this study used interviews, test methods, documentation methods and questionnaire methods. The data collection instrument were analyzed using analytical techniques and percentages according to a predetermined formula:

Calculate the average score of each aspect assessed by the equation

$$\bar{x} = \frac{\sum x}{N}$$

Information:

\bar{x} = Average score of expert assessment

$\sum x$ = Total score obtained by the expert

N = Number of questions

Furthermore, to analyze the feasibility and validity of the media and teaching materials, the researchers used the formula to determine

the percentage of the feasibility and validity results with the following formula:

$$p = \frac{\sum x}{\sum xi}$$

Information :

P = eligibility percentage

x = total score obtained by validator

xi = number of ideal scores

So that the material and media assessment categories are obtained to be used for HOTS-based English learners as shown in the following table.

Table 3.1 Quality Criteria for Learning Materials used for Students

No.	Score	Criteria	Decision
1.	0% - 20%	Invalid	Needs a total revision
2.	21% - 40%	Not valid	Need to be revised
3.	41% - 60%	Quite Valid	Need to be revised
4.	61% - 80%	Valid	Need a little revision
5.	81% - 100%	Very Valid	No need to revise

6. Analysis of Student Responses

Student response data was obtained from the results of filling out the student response questionnaire sheet. The assessment scores used are: (1) disagree, (2) disagree, (3) undecided, (4) agree and (5) strongly agree. Furthermore, the data obtained with the data collection instrument were analyzed using analytical techniques and percentages according to a predetermined formula:

The formula for processing the overall data

$$p = \frac{\text{jumlah skor hasil penelitian}}{\text{score maximal}} \times 100\%$$

Table 3.2 Student Response Criteria

Percentage	Criteria
81% - 100%	Very effective

61% - 80%	effective
41% - 60%	Ineffective
21% - 40%	effective enough
0% - 20%	Very ineffective

(Inspired by Riduwan's assessment, 2013:18)

7. Student test results

The effectiveness of the media and learning materials will be seen from the scores of students' test results formulated by the formula:

$$p = \frac{n}{N} \times 100\%$$

Notes:

n = score obtained by students

N = number of maximum scores

P = percentage rate

The data can be analyzed with criteria

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RESULTS AND DISCUSSION

The Implementation of this research was carried out at MAN 2 MODEL MEDAN on May 9, 2022 to June 6, 2022. Before carrying out the research, the researchers first made direct observations to schools to see the situation and condition of the school and consulted with teachers in the field of English studies. The stages of this development research consist of Analysis, Design, Develop, Implementation and Evaluation.

1. Analysis Stage

In the analysis phase, this research was conducted based on observations and interviews with teachers. This research includes observations on students' teaching and learning activities, interviews with teachers of English subjects. It was found that in MAN 2 MODEL MEDAN, information was obtained that teachers had used textbooks and teaching materials that were based on HOTS. Teachers have developed their own HOTS-based teaching materials. Based on the results of the research analysis, the researchers have made teaching materials with material they have not studied so that students are more accustomed to solving a problem and thinking logically.

2. Design Stage

After doing the analysis, the next step is to design. This design stage includes two parts, namely compiling research instruments, making questions and compiling attached teaching materials.

3. Development Stage

The third stage is the development of teaching materials, as a follow-up to the design that has been carried out. The learning tools developed in this research are HOTS-based teaching materials. Teaching materials developed at this stage will be evaluated by expert lecturers. The structure or framework chosen in the development of teaching materials should be simple and appropriate to the needs. After everything is finished, to get a valid and good teaching material, the researcher gives teaching materials to experts so that they are validated. The purpose of the development stage is to produce a product that has been revised based on input from the validator.

Validation test The validation by a team of experts is as follows:

a. Media Expert Validation

Table 4.1. Data on the Results of Assessment of English Teaching Materials by Media Design Experts

No	Assessment Aspect	Per Aspect	Average	Eligibility Percentage	Criteria

1.	Teaching Material Size	17	4.25	85%	Very worth it
2.	Cover Design	35	4.37	88%	Very worth it
3.	Teaching Materials Content Design	54	4.5	85%	Very worth it
Total Average of All Scores		106	13.5	88.33%	Very worth it

The results of the assessment of English Teaching Materials by village experts in the media as a whole get very decent criteria (88.33%)

b. Material Substance Expert Assessment

Table 4.2. Data on the Results of Assessment of English Teaching Materials by Material Substance Experts

No	Assessment Aspect	Per Aspect	Average	Eligibility Percentage	Criteria
1.	Content Feasibility Aspect	72	4.5	90%	Very worth it
2.	Aspects of Presentation Feasibility	64	4.6	91%	Very worth it
3.	Language Aspect	62	4.5	90%	Very worth it
Total Average of All Scores		198	13.6	90%	Very worth it

The results of the assessment of English Teaching Materials by experts on the substance of the material as a whole from the aspects that are considered to have received appropriate criteria (90%) so that the Teaching Materials can be used in the learning process.

4. Implementation Phase (Implementation)

This implementation phase was carried out on Thursday 11 May 2022 in class XI MIA 2 MAN 2 MODEL MEDAN. The class was chosen because the researcher told the English subject teacher that the sample of this teaching

material was those who had never studied historical stories in reading comprehension. This stage is carried out in 3 meetings.

The first stage of the activity is that the subject teacher introduces the researcher to the students of XI IPA 6, the researcher introduces the purpose of the teaching materials to the students, then the researcher carries out learning with teaching materials that have been validated by the validator, at first they felt unfamiliar with this story because they had never learned about the material that the researcher brought.

Then at the second meeting the researcher explained the material then the students responded quite well, then the researcher distributed several groups to do the tasks that the researcher gave to the students to test their cohesiveness.

The third stage, after students understand the purpose of this teaching material, the researcher distributes a questionnaire and gives time for students to fill out the questionnaire. Student response questionnaire Assessment of student questionnaire responses aims to determine the quality of HOTS-based English teaching materials from the students' perspective.

Table 4.3 Student Response Questionnaire Results Data

No	Respondent	Evaluation														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	AI	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
2	F	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
3	ALF	5	4	5	3	5	5	5	5	5	5	4	5	5	5	5
4	AN	4	4	4	4	4	4	4	4	3	3	3	4	4	4	4
5	L	4	4	4	4	4	4	4	3	3	3	4	4	4	4	4
6	K	4	4	4	4	4	4	4	4	2	2	2	4	4	4	4

7	A	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
8	JLL	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
9	MDA	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
10	AFSD	5	4	5	3	5	5	5	5	5	5	4	5	5	5	5
11	ASPS	4	4	4	4	4	4	4	3	3	3	4	4	4	4	4
12	ATH	4	4	4	4	4	4	3	3	3	4	4	4	4	4	4
13	DAA	4	4	4	4	4	4	4	2	2	2	4	4	4	4	4
14	FAR	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
15	FLS	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
16	FDD	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
17	KNS	5	4	5	3	5	5	5	5	5	5	4	5	5	5	5
Total score		77	74	77	71	77	77	75	69	69	71	74	77	7	7	7
Average		74.6														
Percentage Amount Average		87.76%														
Category		Very interested														

Based on the table above, it shows that the average number of student responses received an average of 87.76% which was included in the very interested category. It can be said that students are very interested in learning to use HOTS-based teaching materials. In addition, this teaching material has received a very good response and has met the criteria for being very worthy to be given to students in learning.

4. Evaluation Stage (Evaluation)

The last stage in ADDIE is the evaluation stage. The evaluation stage is a stage to measure the HOTS ability of students in MAN 2 MODEL MEDAN, in English subjects. The researcher assessed this ability by following the results of the assessment test which was distributed to the students getting a good assessment with the overall average of the students' tests showing the categories.

Discussion

1. Feasibility of Teaching Materials

Assessment of teaching materials is carried out by two lecturers. Media design experts assess the development of teaching materials in three points, namely the size of the teaching materials, the cover design, and the design of the content of the teaching materials. For material substance experts assess the development of teaching materials in three aspects, namely aspects of content feasibility, aspects of presentation feasibility, and linguistic aspects. The data from the assessment of Teaching Materials includes data in the form of scores and then converted into four categories, namely very feasible (SL), feasible (L), less feasible (KL), and not feasible (TK). The scores obtained are also processed into percentages for the eligibility criteria.

2. Media Expert Assessment

The results of the assessment by media design experts on English teaching materials in each aspect can be seen in the following graph:

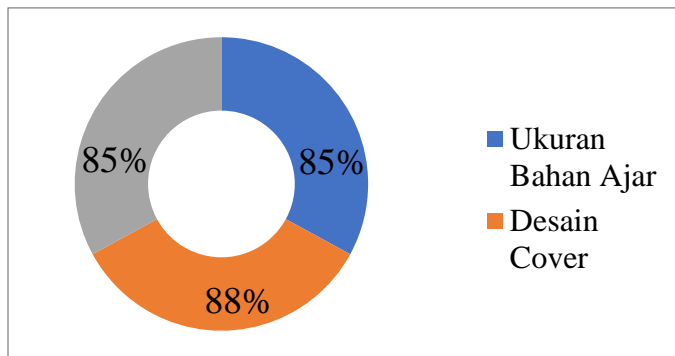


Figure 4.1 Graphics of assessment by media design experts

Analysis of the data obtained from media design experts in Table 4.1. shows that the feasibility of the teaching materials developed as a whole is included in the Very feasible (SL) category. This can be seen from the overall value of all aspects, namely the percentage of eligibility 87%. Thus, based on the assessment of media design experts on the feasibility of teaching materials developed by researchers, it shows that teaching materials are suitable for use or can be used with revisions.

Thus, based on the media substance expert's assessment of the feasibility of the teaching materials developed by the researchers, it shows that the teaching materials are very feasible to use.

3. Assessment of Material Substance Experts Analysis of data obtained from material substance experts in Table 4.2 shows that the feasibility of the teaching materials developed as a whole is included in the appropriate category (L). This can be seen from the overall value of all aspects that have been assessed by material substance experts, namely the feasibility percentage of 80.83%. The percentage of assessment results by material substance experts on English teaching materials in each aspect can be seen in the following graph:

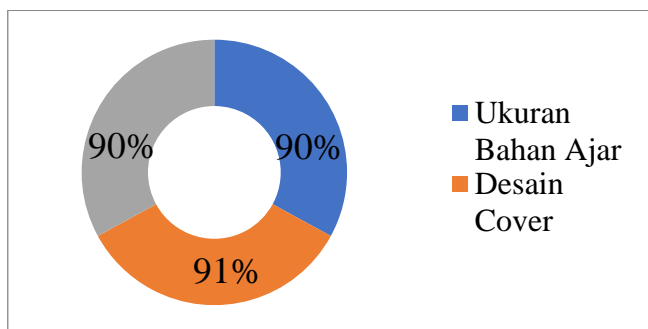


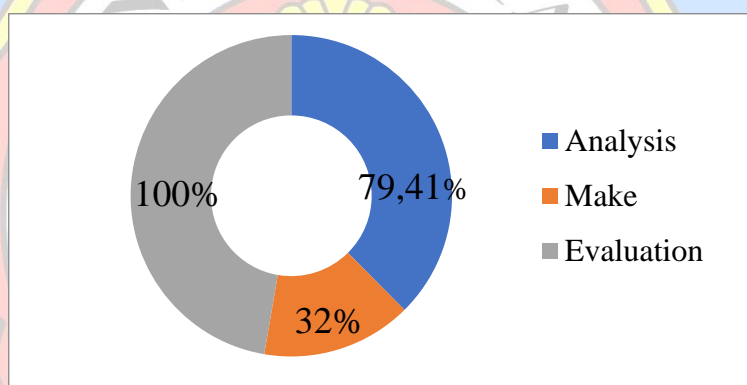
Figure 4.2 Graphics of assessment by material design experts

4. Student Response Questionnaire Assessment

The results of the students' questionnaire responses have a positive response to the HOTS-based English Teaching Materials. When viewed from the results of the questionnaire distribution, the majority of students strongly agreed to use HOTS-based teaching materials in the learning process. The results of the response analysis showed that the average number of students' responses obtained an average of 87.6% which was included in the very interested category.

5. Assessment of student test results

The results of the average assessment of students obtained an average number of 61.76% which was included in the effective category. The results of students' tests of English teaching materials are shown in the following graph:



CONCLUSION

The development of HOTS-based teaching materials on reading comprehension materials in class XI IPA 6 IN MAN 2 MEDAN MODEL is suitable for use by educators in learning English based on material experts with a 90% eligibility percentage and media experts with eligibility percentage 88.33%. The results of the validity in the form of student responses indicate that the average number is 87.6% in the very interested category.

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