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# TASKS AND RUBRICS FOR ASSESSING RESEARCH SKILLS OF UNDERGRADUATE STUDENTS

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**Abstract**
Intraarticular learning can improve students' research skills, one of which is strengthening educational seminar courses. This research aims to develop a task and rubric to assess undergraduate students' research skills. This study is a research and development using the DDD-E model design (Decide, Design, Development, and Evaluation). This research has succeeded in compiling a task and rubric to measure undergraduate students' research skills in preparing research proposals. This rubric can be implemented by researchers in the broader area with some adjustments.



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## INTRODUCTION

The development of science and technology resulted from research by scientists in their fields. The nature of science itself is a process of finding something, one of which is through research. Research skills are one of the skills that must be possessed by everyone at their respective levels and capacities, including undergraduate students. Through research, students gain valuable experience recognizing problems and formulating and finding solutions.

Students research skills have been facilitated through the Research Methodology course. With this course, students are equipped to master research concepts, types of research, and various research methods, both quantitative, qualitative, and mixed methods. However, students' skills in research are still lacking. The low of these skills is evidenced by the number of students who find it challenging to make research proposals, make research instruments, plan research, carry out research, and make research reports.

Many students graduate late because they fail to carry out research as their final project.

Previous research shows that there is no similarity in the framework used to measure the indicators of student research skills. The study (Azizah, 2012) focuses on research skills in preparing research reports. Meanwhile, research (Musa & Hardianto, 2020) identified students' skills in several indicators, such as formulating problems, seeking required information and methodologies, making research designs, sorting and describing research data collected, and analyzing, interpreting, and concluding research data.. Research conducted by (Handayanie, 2018) shows almost the same indicators of research skills, namely formulating background, formulating research questions, formulating hypotheses, collecting data, analyzing data, evaluating data, and communicating the results. Similar research was conducted by (Prahmana et al., 2016) with almost the same indicators. From some previous studies, the research skills can be classified based on the research stages, namely preliminary activities in the form of research proposal preparation, research implementation activities, and reporting and disseminating research results. This study aims to compile tasks and rubrics to measure student skills in the first stage, namely, preparing research proposals.

## METHOD

This study was a Research and Development (R & D) with the DDD-E model design adapted from (Ivers & Barron, 2002). The research procedure is shown in Figure 1.

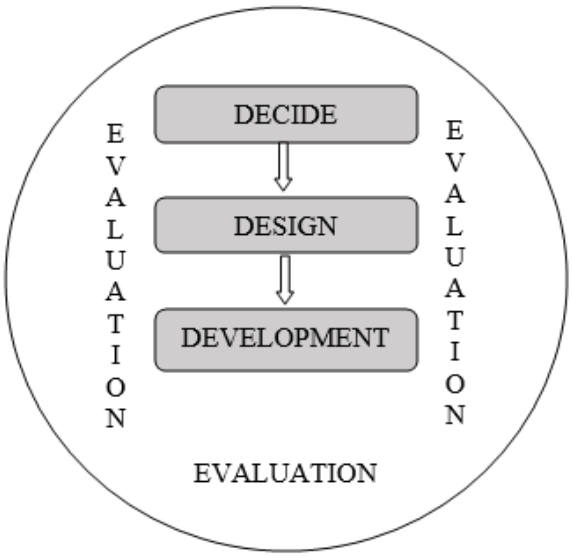


**Figure 1.** The research design of the DDD-E Model adapted from Ivers & Barron (2002)

The research procedure includes the following stages:

1. Decide

The main activity at this stage is the determination of needs analysis. The needs analysis is based on studying the lesson plan documents and the targeted learning outcomes.

2. Design

The main activity in this phase is mapping the main competencies along with the indicators. The design stage shows the tasks as well as the selection of the type of rubric.

3. Development Stage

At this stage, the components of assessing students' research skills in preparing research proposals have been determined, including assessment components, weight mapping, and assessment criteria.

4. Evaluation Stage

As seen in Figure 1, this stage is a stage carried out in each phase of the previous activity. The evaluation stage is carried out after the decide, design, and development phases. The evaluation stage aims to ensure that each step has been carried out correctly.

## RESULT

1. Selection of a representative task

The main thing to do before assessing students' research skills is to select and determine a representative task. Representative tasks refer to the expected learning outcomes. One of the learning outcomes of educational seminar courses is that students can prepare research proposals. Therefore, the task created is a task that asks students to compile a research proposal. The task in this research refers to authentic assessment (in the form of performance appraisal) (Montgomery, 2002).

2. Selection of assessment components

The selection of assessment components in this study refers to the guidelines for preparing research proposals issued by one of the universities in Indonesia. The assessment includes preparing the problem background, problem formulation, research objectives, benefits, operational definitions, a framework of thought, literature review, research methods, research schedule, and bibliography.

3. Selection of the type of rubric

The rubric (Brookhart, 2013) is "a coherent set of criteria for students' work that includes descriptions of levels of performance quality on the criteria." She emphasizes two essential aspects in preparing the rubric, namely coherent sets of criteria and descriptions of performance levels for these criteria. This study wants to develop a specific rubric, namely research skills in making research proposals.

In performance assessment, there are two types of rubrics: holistic and analytic. Every kind of rubric has its advantages and disadvantages. This study

chose an analytic rubric that seeks to describe each component of the assessment in detail. The reason for selecting the analytical rubric in this study is to help students and assessors (lecturers) identify strengths and areas for improvement (Bargainnier, 2003).

4. Undergraduate student skill assessment rubric

The results of developing an analytical rubric to measure students' research skills can be seen in table 1. Table 1 uses an analytical rubric to assess each component of the stages of preparing a research proposal.

**Table 1. Rubric for assessing research skills at each stage of proposal preparation**

| Component | Weight (%) | Standard | | | |
|---|---|---|---|---|---|
| | | 4 | 3 | 2 | 1 |
| Background of the problem | 20 | (1) Shows the selected research topic<br>(2) Shows a problem<br>(3) Showing the trend of previous research (state-of-the-art)<br>(4) Indicates the position of research/novelty | *** | ** | * |
| Formulation of the problem | 5 | (1) According to the background of the problem<br>(2) Shows certain research variables<br>(3) Presented briefly and concisely<br>(4) Expressed in interrogative sentence | *** | ** | * |
| Research purposes | 5 | (1) Relevant to the problem<br>(2) Shows the expected result<br>(3) Show measurable operational words<br>(4) Written in a declarative | *** | ** | * |
| Benefits of research | 5 | (1) Demonstrate theoretical benefits<br>(2) Demonstrate practical benefits<br>(3) Description of research benefits following research objectives<br>(4) Practical beneficiaries according to the problem under study | *** | ** | * |
| Operational definition | 5 | (1) All variables are defined operationally<br>(2) Show how to measure | *** | ** | * |

| | | | | | |
|---|---|---|---|---|---|
| | | variables correctly<br>(3) Does not contain quotes<br>(4) The description of the operational definition is presented in short, concise, and operational sentences | | | |
| Framework of Thought | 10 | (1) Shows the research variables to be studied<br>(2) Demonstrate relevant theories regarding research variables<br>(3) Shows a conceptual model of the relationship between variables<br>(4) Shows a temporary conclusion description | *** | ** | * |
| Literature review | 20 | (1) Shows the discussion of research variables sequentially (theoretical and practical)<br>(2) Include the appropriate variable framework<br>(3) Include a discussion of the relationship between variables<br>(4) Indicates the area (focus) of research to be researched | *** | ** | * |
| Research methods | 20 | (1) Demonstrate research approaches, methods, and designs<br>(2) Indicate the subject and locus of research<br>(3) Shows the types of data and how to collect them<br>(4) Demonstrate how to process and analyze data | *** | ** | * |
| Research schedule | 5 | (1) Shows the stages of activities in detail and logically<br>(2) Shows the time of implementation and completion of activities clearly<br>(3) Indicates the target to be achieved<br>(4) Presented in the informative table or figure format | *** | ** | * |
| Bibliography | 5 | (1) Compiled using the APA style<br>(2) Using reference management | *** | ** | * |

| | | |
|---|---|---|
| | | (3) The minimum number of references is 25, with 70% coming from reputable international journals<br>(4) The majority are taken from research results of the last five years |

Note: ***) Only three criteria shown
**) Only two criteria shown
*) Only one criteria shown

In addition to presenting a rubric for assessing each component of a research proposal, this study also considers it necessary to deliver a rubric for evaluating research proposals writing as a whole, as presented in table 2.

**Table 2. Rubric for assessing research skills in proposal writing**

| Component | Weight (%) | Standard | | | |
|---|---|---|---|---|---|
| | | 4 | 3 | 2 | 1 |
| Language | 20 | Sentence writing in all components follows EYD (enhanced spelling) | Most of the sentence writing in all components follows EYD | Some of the sentence writing in all components follows EYD | Most of the sentence writing in all components is not following EYD |
| Originality | 35 | The results of the similarity check (plagiarism) are below 20% | The results of the similarity check (plagiarism) are between 21% -30% | The results of the similarity check (plagiarism) are between 31%-40% | The results of the similarity check (plagiarism) are above 40% |
| Logical consistency | 35 | All sections of the proposal demonstrate consistent and logical delivery of ideas | Most of the proposal content shows consistent and logical delivery of ideas | Only a tiny part of the proposal content shows consistent and logical delivery of ideas | The proposal's content does not indicate a consistent and logical delivery of ideas |
| Compatibility with templates | 10 | Proposal writing follows the given template | Most of the proposal writing follows the given | Only a tiny part of the proposal writing follows the | Proposal writing does not follow the given |

template given template template

## DISCUSSION

The development of student skills in research is a necessity. This research skill can equip them to formulate and find solutions to their problems. The educator must impart these skills early at all levels of education, including universities. The educator can provide these skills through intra-curricular, co-curricular, and extra-curricular learning. One of the efforts to provide insight and practice student research skills is through intra-curricular courses in educational seminars.

To optimize the achievement of student research skills, lecturers should start by preparing lesson plans that follow learning outcomes. Selection of the type of assessment is the next major factor. Choosing the type of performance assessment to measure students' research skills is a wise choice. Preparing representative and authentic tasks and rubrics are an integral part of measuring performance tests.

One of the frameworks for developing student research skills is the model developed by (Willison & O'Regan, 2006). This conceptual model provides detailed steps and appropriate indicators for students to develop their research skills (e.g., information literacy, academic writing, critical thinking) (Willison & O'Regan, 2007). The framework created by Willison and O'Regan is also valuable for developing grading rubrics that explicitly state the skills required to succeed in an assessment task. This research seeks to establish tasks and rubrics in one of the stages of research, namely the preparation of research proposals.

Through the DDD-E method, this research has developed an analytical rubric to measure students' skills in preparing research proposals. This rubric shows all the components of the assessment along with the criteria that are used as standards. The researcher can apply this rubric to a broader research area tailored to the needs.

## REFERENCES

Azizah, A. (2012). Inquiry Training untuk Mengembangkan Keterampilan Meneliti Mahasiswa. *Unnes Science Education Journal*, *1*(1).

Bargainnier, S. (2003). Fundamentals of rubrics. *Pacific Crest*, 1–4.

Brookhart, S. M. (2013). *How to create and use rubrics for formative assessment and grading*. Ascd.

Handayanie, Y. (2018). *Penggunaan Step-By-Step Model Experiment pada Pembelajaran Biologi untuk Melatih Keterampilan Meneliti Siswa Abad Ke-21 Sekolah Berwawasan Lingkungan*. Universitas Pendidikan Indonesia.

Ivers, K. S., & Barron, A. E. (2002). *Multimedia Projects in Education: Designing, Producing, and Assessing*. http://books.google.com/books?id=Adi07NylHwcC&pgis=1

Montgomery, K. (2002). Authentic tasks and rubrics: Going beyond traditional assessments in college teaching. *College Teaching*, *50*(1), 34–40.

Musa, L. A. D., & Hardianto, H. (2020). Implementasi Pembelajaran Berbasis Riset Untuk Meningkatkan Keterampilan Meneliti Mahasiswa. *Tadrib*, *6*(1), 1–12.

Prahmana, R. C. I., Kusumah, Y. S., & Darhim, D. (2016). Keterampilan mahasiswa dalam melakukan penelitian pendidikan matematika melalui pembelajaran berbasis riset. *Beta: Jurnal Tadris Matematika*, *9*(1), 1–14.

Willison, J., & O'Regan, K. (2007). Commonly known, commonly not known, totally unknown: A framework for students becoming researchers. *Higher Education Research & Development*, *26*(4), 393–409.