Relationship 6 task KKNI for student’s scientific publications

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Abstract. The KKNI is a reference framework in the tertiary level to improve the quality of human resources by community needs analysis. The primary objective of this study was to increase the interest of scientific publications of students of mathematics education through mini research, and its relationship with six tasks in the KKNI applied in Unimed. This research is a descriptive study, the population in this study was the fifth-semester students of mathematics education in Medan State University. The sample in the study consisted of one class in the research methodology course chosen randomly. Data collection was carried out through interest questionnaires and mini-research-focused response questionnaires and their relevance to the implementation of the six KKNI tasks. The results obtained show a significant increase in interest of students to publish the results of mini research. As many as 83% of students are interested in publishing their scientific papers. 10 draft article ready for publish. With the connection of the implementation of the 6 KKNI tasks that ended in the project in the form of writing a scientific document from the results of mini-research, students became more confident and confident. The interconnected and gradual tasks of the KKNI make it easier for students to conduct research and publish them in a systematic and structured manner.

1. Introduction
Nowadays, education must be able to address and anticipate the development of labor market liberalization and the development of science-based society. Therefore innovation in various educational methods and models must also be developed (UNESCO: 2006) [1]. Along with the needs and demands of the people who are full of developments in science and technology, the curriculum should make efforts to change, develop and innovate towards these demands [2]. Curriculum development is a necessity in welcoming the development of the world of education, especially universities to be able to adapt to the demands of the field of work to prepare skilled and national and global competitive resources [3].

Responding to various problems and challenges in the future that will be faced by Indonesia in the education and employment sector, then at the end of 2009 The Directorate General of Higher Education KEMENDIKBUD, through activities developed within the Directorate of Learning and Student Affairs (BELMAWA), took the initiative in line with the idea of the Directorate of Instructors and Training Personnel, KEMENNAKERTRANS to develop a qualification framework at the national level which was then named the Indonesian National Qualification Framework or abbreviated as KKNI [1].

The Indonesian National Qualifications Framework (KKNI) is a frame of reference that becomes a measuring tool in recognizing tertiary educational institutions. KKNI is also a framework for competing qualifications of Indonesian human resources that can juxtapose, equalize and integrate the
education sector with the sector of training and work experience in a scheme of recognition of employment capabilities adapted to structures in various areas of employment.

KKNi is an embodiment of the quality and identity of the Indonesian nation in relation to the national education system, the federal job training system, and the national achievement equality assessment system that Indonesia has to produce human resources from learning outcomes, which every Indonesian worker creates in his work and quality contributions in their respective fields of work. [1] Furthermore, KKNI is regulated in the Presidential Regulation of the Republic of Indonesia Number 8 of 2012. Therefore, the application of the KKNI-based curriculum in higher education becomes very necessary to hone the potential of students to be broad-minded, have skills that are in line with the employment sector available and able to contribute to the broader community.

Medan State University (Unimed) is one of the universities in North Sumatra that has implemented its learning curriculum with the KKNI [4]. By national instructions in the Minister of Culture and Regulation (Permendikbud) number 73 of 2013 concerning the application of the KKNI in the field of Higher Education. Unimed also designed the lecture plan concerning Permenristekdikti Number 44 of 2015. In article 12 it was stated that the semester lecture plan was set and developed by the lecturers independently or together in the expert group of a field of science and technology in the study program. The design of the KKNI curriculum standard will be a reference for all lecturers in designing, implementing and evaluating the lecture process carried out in class.

Through the implementation of the UNIMED, KKNI aspire to produce students who are more accomplished, creative, and have character and have noble character. Furthermore is the capital for students to survive in society [5]. The learning curriculum of Unimed KKNI is supported by the six tasks that must be done by students for one semester. The six tasks are Routine Task (TR), Critical Book Review (CBR), Critical Journal Review (CJR), Mini Research (MR), Engineering Idea (RI) and Project Tasks. These six tasks are intended to make students become human beings who are skilled in science and have competence in their fields.

Many benefits are obtained through the implementation of the KKNI duties. Simply stated, if students can review journals and criticize student journals, they are expected to be able to analyze stake holder needs based on the findings of the researchers. From the results of the analysis made by students with the guidance of lecturers, students get mini research that produces a problem-solving project.

The experience found by researchers so far, the tasks that students have done so far are limited to working on questions, making papers and task reports that are only presented in front of the class. The one who listens and knows the results of student assignments is just their friend. In other words, projects from and for students. Though many of the tasks of students can be continued into mini-research assignments and the results can be published in the form of scientific work.

Students assume it is easier to speak orally to convey the results of their assignments than to write in the form of scientific works or publicized articles. It is important to familiarize students to publish the findings of their mini-research in the form of articles in journals and at national seminars. The aim is to improve the ability of students to obtain references, experience writing and analyzing and to make problem-solving better.

Lack of knowledge of the benefits of publishing scientific work is a significant problem. As is known, Learning in high schools has unique requirements for students who want to complete their studies and obtain an honorary degree. The condition that must be fulfilled by prospective graduates in completing their studies is by doing scientific work. Scientific work can be in the form of a thesis for the undergraduate level (S1), a thesis for the second level (S2), and a dissertation for the third level (S3). This is said that students have passed the stratum study if they have compiled the scientific work by the level of the strata [6]. The role of learning devices in the KKNI curriculum is significant to overcome them. The development of KKNI-oriented learning tools is needed so learning devices according to the characteristics of students and the characteristics of the course [3].

Of the six tasks, the tasks of Mini-Research (MR) and Engineering Ideas (RI) are the most integrated into changing the ability to write scientific papers [7]. Even though the relevance of the
tasks of the 3 KKNI tasks, namely CJR, CBR and RI, students are more comfortable to put their context and creative ideas into writing as proposals from [8] Referring to the above conditions, the researcher is interested in developing six sustainable KKNI tasks with outputs in the form of scientific works and publications. Learning outcomes in the way of scientific works produced by students can improve the competitiveness of universities [9]. One of the efforts made by universities to improve their quality is to develop human resources capable of conducting scientific publications. Through publication, it can contribute to every public who reads it.

The learning model that applied in the development of 6 KKNI tasks is discovery learning. This model emphasizes the understanding of structures or ideas that are beneficial to scientific disciplines. According to Bruner, education can only be accessed through learning discovery. For learning to be real and to have a strong information structure, students must actively identify the fundamental principles that they find themselves, not just accept explanations from the instructor. Bruner shows that every individual has the willingness to learn and do this activity in activities related to and discovering knowledge. Learning occurs with discovery, which prioritizes reflection, thinking, experimenting, and exploring. People who use themselves in the process of becoming more confident [10,11].

Active participation of students in the learning process called discovery. In discovery learning, students build knowledge based on new information and data collected by them in an exploratory learning environment [11]. This model will provide a real and meaningful experience of students through the learning stages with six routine assignments that are charged. The purpose of the implementation of this research is through the development of six mutually sustainable tasks and synergistically can increase the interest of students to write scientific work and publish their scientific work.

2. Method
The coverage in the research method is the techniques and procedures used in research [12]. Therefore, the determination of research methods is closely related to the tools and steps of research work. This research is a descriptive study, namely research that analyzes data only on variable descriptions one by one. The story means giving systematically and factually about certain characteristics in a particular population. Descriptive research is a form of research that aims to describe real phenomena, both natural phenomena and human-made phenomena. Descriptive method is fact-finding with the right interpretation. [12, 13].

The research approach used is qualitative descriptive approach, meaning research that seeks to describe and interpret existing conditions or relationships, growing opinions, ongoing processes, the results of what is happening or trends that are developing [14]. This method is used because the results of the study emphasize the meaning rather than generalization. The discovery of meaning in question is the focus of the entire process carried out to examine in depth the stages of the implementation of the KKNI tasks that are mutually sustainable.

The sample of this study was the fifth semester Unimed mathematics education students who took the research methodology courses, namely 31 mathematics education extension classes. The learning and assignment steps of the KKNI in this study are as in Figure 1. This research was conducted in 3 stages. Each stage is structured by developing and carrying out six tasks of the KKNI so that they are synergistic through discourse learning. The research was conducted with the provision of questionnaires of interest in publications and inquiries in response to the relevance of 6 KKNI tasks in achieving learning objectives, namely articles obtained from the stages of developing six functions of the KKNI. Also carried out observations of students and the learning process to see symptoms of symptoms that inhibit student interest. The type of data obtained is qualitative data. Furthermore, the data collected will be integrated and described in a research result.
3. Result and discussion
3.1. Stage I
The first stage lasts for five meetings. At the first meeting, students have been given one semester of learning which is arranged in the Semester Lecture Plan (RPS) and the accuracy through the college contract. The ultimate goal of education is to use a scientific work that can be issued. There will be the development of 6 KKNI tasks which will synergistically as a whole produce the ultimate goal of learning.

At the time of the lecture, contract interaction is also conducted to see the characteristics of students. Also, a questionnaire was given to indicate students’ interest in publishing their assignments. To see the extent to which student interest in publications begins by examining reading benefits. Reading is the initial process to train and improve oral skills so that they are able to develop writing skills. Before writing, there needs to be reading activities. there is a significant correlation between reading and writing \[15\]. According to Harmer (2007) reading is useful for language acquisition. Provided that students more or less understand what they read, the more they read, the better they get at it. Further, Yopp (2001) states that reading can develop students’ ability to learn through a text; to expand their ability to think broadly, deeply, and critically about ideas in the text. Using a suitable text for students will motivate them to read and increase their interest in reading \[4\].

Some indicators that are seen to measure student interest in writing and publication are (1) concentration of attention (2) Personal experience (3) motivation to read (4) motivation to write (5) general knowledge (6) emotions in expressing thoughts. The questionnaire consists of 20 with two alternative answers "yes" or "no."

From the results of the distribution of the initial interest questionnaire, a general description of the indicators of observation was obtained.

| Indicator                        | Yes   | No    | No Answer |
|----------------------------------|-------|-------|-----------|
| Concentration of attention       | 52.92%| 41.3% | 5.18%     |
| Personal experience              | 25.9% | 74.1% |           |
| Motivation to read               | 46.1% | 53.9% |           |
| Motivation to writes             | 32.3% | 64.5% | 3.2%      |
| General Knowledge                | 38.7% | 61.3% |           |
| Emotions in expressing thoughts  | 37.6% | 52.7% | 9.7%      |

Result from Table 1 shows that students do not have a high interest in writing or publishing their writing. From the results of the interaction and analysis of questionnaire data obtained several reasons
which in general are a feeling of lack of confidence in pouring ideas in writing and a lack of knowledge and ability in pouring thoughts in writing is also a significant obstacle. Students also have not felt the benefits directly from writing and publishing writings. The student thinks that they do not need the script if they do not face a thesis, even though there are enough opportunities for students to show their thinking creativity in student creativity research held every year.

Observation results of the concentration of attention indicator obtained the following results as follows.

![Figure 2: Result concentration of attention](image)

From the results of observing the concentration focus indicator in Figure 2, the willingness to write is very low. It can be seen from the number of students who prefer reading rather than writing. As for reading and writing processes, one can assume relationships between them, but they have not yet been determined [16]. Although from the answer analysis students tend to like to read but are not balanced with the conditions in the field. Students tend to just read at a glance without giving a response to their reading.

The lack of interest in reading to students can also be known from student participation in class when attending college. Many writers meet, students who are awkward and reluctant to ask questions about the material given by the lecturer. Students tend to be quiet and receive all the information provided by the lecturer. They rarely give criticism, opinions or ideas. When the lecturer asks the reason why students do not want to ask questions, most students feel confused and unable to ask questions (afraid of quality questions). On the other hand, the quality of the actual problems can be traced from the results of their reading. Students who are not able to ask or give questions are not qualified, probably because they did not read about the material provided by the lecturers. The same thing happens almost every class outside the sample of researchers. Reading and Writing can be improved by applying the teaching to the right materials and the KKNI Curriculum [16]. Observation results of the personal experience indicator obtained the following results as follows.

![Figure 3: Result personal experience](image)
From Figure 3, it can also be analyzed that the personal experience of students in reading and writing is also very minimal. To keep a diary of lecture material or personal journals is very low. There were only five students who had written PKM (16.2%).

Observation results of the reading motivation indicator obtained the following results as follows,

![Reading Motivation](image1)

Figure 4. Result reading motivation

From the analysis of Figure 4, it was obtained information that low reading motivation was caused by technological advances. Student reading activities experienced a decline, possibly influenced by information technology that has been very advanced. Various kinds of entertainment that do not include book media become more interesting because reading requires special attention that cannot be interspersed with other activities [16]. The rise of internet usage through mobile phones has taken the care of students. Students prefer to look for material for referral assignments through mobile phones rather than visiting the library. The reading that is more selected is fictional reading.

Observation results of the writing motivation indicator obtained the following results as follows,

![Writing Motivation](image2)

Figure 5. Result writing motivation

The low interest in reading also has an impact on the little interest in writing. Motivational factors for self-actualization and motivation to share knowledge have a significant influence on student interest in writing and publishing [17], in line with what is experienced by students in the research class. Observation results of General Knowledge indicator obtained the following results as follows.

![General Knowledge](image3)

Figure 6. Result general knowledge
From the results of the general knowledge indicator questionnaire analysis from figure 6, people can take a closer look at famous works, but many of the students do not understand why they do the scientific job. One of the reasons students have never been able to buy lecture material about doing spiritual works. Some provide additional content for articles on the internet. Therefore, the material can give a definite meaning to educators and students [18].

![Emotion in Expressing Thoughts](chart.png)

Figure 7. Result emotion in expressing thoughts

Based on the analysis of the emotion in expressing thoughts indicator from Figure 7, it was found that students were interested in writing low because they could not reveal the reading in written form and also did not understand the benefits of writing directly.

For now, students have not even thought about writing, doing research or publications because of grounds that there is no need and understanding. City residents who are engaged in activities with PKM. This case is supported by performance and indicators in the mind that is very low. On turn, if the hobby is reading this already high, then the penchant for writing will increase too. However, we must also strive to encourage interest and the penchant for writing can be done.

At the second meeting, students were given primary material about research following the lecture indicators. Each session will be given an LK-covered Routine Task (TR) given when the learning activities take place. To stimulate students to make an initial draft of writing and find ideas given the task of Critical Journal Review (CJR). Through this assignment, students are asked to look for five journals related to common problem variables in learning. From CJR, students are asked to analyze problems that often occur in the classroom supported by experience when students do an internship I and Internship II. Students are given one week's opportunity to complete their assignments. At this stage, students identify, choose and formulate problems.

At the third meeting, discussions were held on the results of the CJR assignment. Departing from problems obtained by students on CJR assignments, students are asked to find a way out of the issues they see. And this is part of the development of the KKNI Ideas task. Students are given one week to work on engineering ideas. At this stage, students develop a frame of mind from the problems found and formulate hypotheses.

At the fourth meeting, an evaluation was carried out from the previous assignment. By continuing to connect between CJR and RI duties, students are encouraged to find literature from the last discussion of CJR and RI. This task stated in the Critical Book Review (CBR) task.

At the fifth meeting, an evaluation of the previous task assignments, CJR, RI and, CBR conducted again. The lecture material is still provided during the sessions so it does not miss the primary knowledge material that must be possessed in writing a research proposal. From the results of the assignments obtained from the four previous meetings, students were asked to summarize all findings (CJR, RI and, CBR) into a research proposal. The research proposal consists of an introduction, literature review and research methods.
3.2. **Stage II**

At the sixth meeting, students and lecturers evaluate the completed proposal. Then, students were formed into small groups based on the similarity of variables in the research proposal and 11 groups were formed. Each group will choose one plan to continue and become a mini research assignment for students. As for the mini research, students are making research instruments and then testing and analyzing the findings. Furthermore, a report is made in the form of a research report which is the result and discussion. For mini research, students are given three weeks.

3.3. **Stage III**

This stage occurs at the tenth meeting. The lecturer gave a picture that the students had finished doing the research stage and completed the research report which was a task from the Mini research. The results of student research from mini research can be published in the form of scientific articles. Through the provision of article writing material, students are given group assignments in the way of writing scientific articles from research findings and directed to publications.

There were ten drafts of articles completed by students from the results of the project assignments. In figure 8, ten titles of student articles will be published.

![Draft articles from project task.](image)

At the end of the appointment, the students were given a development response questionnaire for 6 KKNI tasks and the linkages of the 6 KKNI tasks. At the end of the job, the students were given a development response questionnaire for six tasks of the KKNI. The results of the data were obtained that 9.7% (3 people) of the students considered the KKNI's assignment as not helping students write and publicize. 80.6% (25 people) said it was constructive, and 9.7% (3 people) chose not to answer. The following are some answers from students related to the response questionnaire for developing 6 of our assignments.
Figure 9. Results of answers to student response questionnaires

Students conclude in Figure 9 that with the task of CJR, RI, CBR, Mini Research and Projects that are mutually synergistic they are easier to express creative problems and ideas into written form because they are structured and systematically directed.

4. Conclusion

Through the development and synergy of 6 mutually sustainable KKNI tasks, namely collaboration between the functions of CJR, CBR, and RI students have completed an initial stage in conducting research, namely research proposals. From the recommendations arranged students are directed to conduct Mini Research which is part of the 6 KKNI tasks and write scientific articles through project assignments. The output of the results of this project assignment is an article prepared to be published. Obtained ten student articles from 10 groups formed. Through the questionnaire response analysis, there were 83% (26 people) of students interested in writing a journal and publishing it. By going through and carrying out six tasks of the KKNI that are synergistic and continuous, it turns out it makes it easier for students to create articles in a systematic and structured manner. The students became more confident and convinced that everything was gradually passed. The weaknesses in the results of this study are because this research is that in short the research time of the articles made by students is not too maximal. It was found that there were still many students who had not followed the procedure for writing correctly. The difficulty of finding facilities for free publications for students is also a weakness in student publications in this study. Also, the overall research has been quite good as long as students are motivated to write and publicize the necessary capital in becoming a potential human resource.

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