

Study of Career Readiness Level of Mechanical Engineering Education Students

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Abstract. In the era of globalization, students face considerable challenges in preparing for a career. These challenges arise after studying at the university level. Most students do not understand and do not have a career orientation. Therefore, early career planning is needed for each individual to help choose career goals and the path to the desired goals. One of the students who need planning is a student majoring in mechanical engineering education. This study aims to determine the readiness of Mechanical Engineering Education students in preparing for a career. This study uses a quantitative approach. The instrument used in this study was a questionnaire that was prepared based on the readiness indicators from the experts. Results Based on the survey, it can be seen that the level of student career readiness is low. Therefore, the next recommendation is to intervene to improve the career readiness of mechanical engineering education students.

Keywords: Career readiness; Student; Mechanical Engineering Education

1 Introduction

The current era of globalization is a big challenge for students. One of the serious challenges for students is the challenge of preparing for a career after taking studies at the tertiary level. The level of student career readiness has become one of the concerns in the last 10 years [1]. Career readiness is the ability to prepare to cope with tasks and roles in the world of work with adjustments driven by changes in work and working conditions [2]. Career readiness has become the main goal in education so that students can adapt to an increasingly global economy and increasingly rapid social mobility [3]. Adequate career readiness is very important because early career experiences will affect future career experiences [4].

Based on data from the Central Statistics Agency in 2021, it shows movements in Indonesia reached 8.75 million people and what is quite worrying of this number is 7.51% based on student graduates. In addition, a survey conducted by Rachmawati shows that 91% of people think that university graduates are still not in work, still have low abilities in professional skills and determine careers [5]. Students are not ready to work directly in the work environment caused by the lack of early career planning [6]. This is certainly a very important issue to consider because students must have sufficient competence from their education to enter the world of work. However, statistical data shows that the combined number of students is still high.

Career determination often focuses on choosing a field of study or training, choosing a job, and determining when to stop working [7]. Careers are not only related to work, but also related to the process of achieving that career. Career determination becomes a vital role that

can affect the social, economic, and emotional well-being of individuals. Career determination can be a very difficult process for some individuals [8]. Learning programs implemented in universities can help students face limited choices regarding careers. The introduction of self-potential can be done during education in college. The introduction of this potential can be intended so that students can prepare well. In addition, adaptive skills in students must also be improved so that they can face various possibilities in their careers [2].

Student competition readiness is influenced by two factors, namely factors and attitude factors [9]. The factor of competition with the cognitive abilities of students to be ready to switch to the world of work [10]. This ability includes the ability to determine, solve problems, knowledge acquired during education, as well as self and group management skills. Meanwhile, the attitude factor is related to the development of students' positive attitudes towards work planning and exploration. A positive attitude includes integrity, professionalism, and hard work. Competence and behavioral factors will encourage a sharper focus on how someone has a good level of work ability [11]. When one or both factors are not met, students will have doubts in determining a career. External factors also cause students to find it increasingly difficult to choose career goals [8]. In addition, uncertainty factors, limited access to information, career development programs, and the economy can also cause difficulties for students in determining careers [12].

Based on the description above, it can be seen that this problem is serious. This is because currently most students do not understand and do not have a career orientation after taking education [13]. In fact, readiness is one of the important aspects to be mastered in order to prepare competence in the field of expertise, namely developing the skills and knowledge possessed to face the tight world of work [14]. Students are ideally in the exploration stage. This stage allows individuals to learn and try various things so that it can be a means of determining goals.

Among students, it is important to carry out career preparation to enable individuals to make wise decisions, and to satisfy them with choices so as to make individuals have the development to determine their abilities and work interests [15]. One who needs to prepare for an early career is mechanical engineering education students. This is in line with the increasing number of graduates of technical education, so the competition to enter the world of work is getting tougher. Therefore, the authors conducted research on the career readiness of students after studying in college. This study aims to describe the career readiness of mechanical engineering education students.

2 Method

This research is quantitative descriptive. The subjects of this study were students of Mechanical Engineering Education. The population of this study found 240 people and the number of samples was 110. Characteristics were grouped by age and class of students. The instrument used in this study was a questionnaire. The questionnaire used to determine the level of career readiness possessed by students. The questionnaire contains 30 question items based on concept and operational definitions. The data collection of this research was done online via google form. Then data processing is done by using excel and SPSS 25.0.

The next process is an interpretation that is based on the results of SPSS statistical data analysis which further shows students' career readiness. A descriptive analysis model is used to interpret the results of the analysis. The last stage is the preparation of conclusions.

Conclusions are drawn up by reducing descriptions that already contain explanations related to student career readiness. This process re-selects the content that is considered important to strengthen the answers to the research problem formulation.

3 Results and Discussion

3.1 Results

The data in this study includes a description of the career readiness of students in the Mechanical Engineering Education study program. The results of the study were shown through data collection in the form of questionnaires given to students. Questionnaires were developed based on indicators of career readiness described by [16] with the indicators, namely (1) individuals who are able to identify interests that are in accordance with college majors, (2) able to match plans education with career requirements, (3) identify suitable institutions, (4) understand financial options to help cover costs, (5) develop realistic goals, (6) develop non-cognitive skills (eg, self-discipline, perseverance, critical thinking, decision making, problem-solving, leadership/teamwork, communication skills, interpersonal skills, responsibility, and organization). Based on these indicators, then obtained 30 question items to analyze the career readiness of students.

Validity test and reliability test were conducted to determine the validity of the questionnaire. The decision was based on a significance value of 0.05 and a Cronbach alpha value >0.6 . The results shown in Table 1. have a Cronbach alpha test value of more than 0.6, indicating that the instrument has a high value. The test results obtained 26 questions which are said to be valid and reliable.

Table 1. Reliability Test
Reliability Statistics

Cronbach's Alpha	N of Items
.826	26

The next stage is the distribution of questionnaires given to 110 students of the Mechanical Engineering Education study program. The results of the questionnaire were then categorized by referring to low, medium, and high career readiness scores.

CAREER READINESS CATEGORY

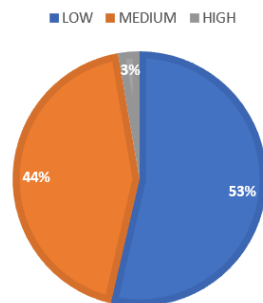


Figure 1. Questionnaire Result Data

Figure 1. shows a diagram of research results regarding career readiness of mechanical engineering education students. These results indicate that the readiness of mechanical engineering education students tends to be low. As many as 53% are in the category of having low career readiness, 44% are moderate, and only 3% are classified as high.

3.2 Discussion

Career readiness for individuals is a necessity that needs to be possessed because it plays an important role in social, economic, and emotional well-being [7]. The career selection process is a very complex process and requires maturity in thinking. Some individuals can make easy career decisions and some need to make efforts that are quite difficult to make decisions in determining careers [8]. These difficulties can hinder the preparation process to get a good career. Career readiness should have been owned by individuals before choosing a field of study in order to facilitate the journey in achieving it. This will create an efficient performance because it has been prepared early on.

Individuals who have decided to choose a major in college are ready to continue their career with a focus and already have supportive skills [17] [18]. However, the results of this study indicate a different situation. The average category of readiness of Mechanical Engineering Education students is low. From the research results, only 3% of students have a high category career readiness score. These results indicate that the career readiness of students in Mechanical Engineering Education is still low. respondents are still hesitant in determining career goals. These doubts can be one of the obstacles to starting to take steps in preparing a career. These results indicate that the provision of career preparation in schools is classified as a failed intervention.

Lack of career readiness in students can also be caused by anxiety. Career-related anxiety consists of four categories, namely anxiety about the process, feelings of stress and anxiety before making decisions, anxiety about uncertainty, and anxiety about results [22]. This can come from the individual's lack of confidence or from outside pressure. This anxiety becomes negative energy because it can affect emotions so it interferes with individuals making decisions regarding career goals. The delay in making decisions regarding career goals will certainly have an impact on the preparation process and make the individual's level of readiness very low when it comes time to switch to the world of work.

Career readiness should be owned by students from the start. At the student level, career readiness is certainly not a need that is too late to prepare. needs to be done to prevent students from unclear career planning. Students who do not have the readiness to prepare themselves to determine attitudes towards responsibilities as students in college [23]. So that help to prepare students' careers is really needed. [24] stated that at least there are mentors in universities who can help students to prepare preparations related to the world of work and further studies. In addition, students also need to be equipped with adaptive skills in preparing for a career. This is so that students can be flexible in dealing with the possibilities that will occur. Adaptability in this career can reflect the individual's ability to overcome difficulties that arise from various changes through self-adjustment, self-control, and efficient performance. The results of this study have results that indicate that the problem of career readiness is quite complex to pay attention to. Therefore, recommendations for further research are expected to produce an intervention that can improve students' career readiness.

4 Conclusion

Based on the results of research that has been done, it can be said that the average career preparation of Mechanical Engineering Education students is in the low category, 53% of students are in the category of having low career readiness, 44% of students are in the medium category, and 3% of students are in the high category. There are several factors that can affect students' career readiness, including the lack of guidance and assistance during high school, the slowness of making career-related decisions, and the presence of self-anxiety. Therefore, we recommend for further research to provide interventions that can effectively improve the career readiness of mechanical engineering students. But apart from that, there are still limitations in conducting the survey due to direct interaction with respondents which is difficult to do as a whole. So that surveys and communication to students who are out of reach must be done through bold media. It is hoped that the intervention recommendations can be applied directly to students.

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