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Study the Impact of Internship on Improving Engineering Students' Competency

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Abstract. An effort to improve human resources quality in higher education can be done through an internship program. This program is important for the graduate student to enhance their self-development and entrepreneurship ability. This study aims to evaluate the effectiveness of internship course on the student's achievement, particularly of their professional competencies. Furthermore, this research was conducted to identify the type of industries that are suitable for internship program of the engineering students. The results showed that the investigation information related to data collection and assignment, lodging, suitability of expertise and some matters correlated to the process students' internship in industry. This study also found the method to improve the services of industries and university.

INTRODUCTION

In the face of the 21st Century of liberalization, the era is reasonable efforts needed to improve the quality of human resources (HR) that ready to meet the increase in the open global competition. In line with the policy of the Ministry of National Education on the relevance of education to the needs of development, the process of education in universities should consider the environment and the needs of the world of work, especially business and industrial world. The future world of employment will selectively attract prospective workers who are truly professional in their fields, as global competition will open up opportunities for foreign workers to enter the world of work in Indonesia. Therefore, one of the main challenges for college graduates is to prepare and give better skills on entering the workforce. One effort to improve human resources especially in higher education is through an internship which is an important means for self-development, entrepreneurship ability and independence long life learning for its graduates.

Since 2007 the management of industrial practices for Engineering students is managed by the PPL Unit. To improve the quality of industrial practice (internships) is required a study of the feasibility of the place of practice for the students for industrial practice achieved as expected.

Industrial practice for students of Mechanical Engineering Department aims to provide a real experience of what and how to work in the industry so that they will be ready to work after they graduate. The competencies of this course are: Having knowledge and experience about industrial work practices. Material: Implementation of field work in industries / workshops / projects/ companies and so on for 2 full months, about: (1) Various workshop workshops and machine tools, energy conversion machines, construction machinery, safety implementation, and reporting Industrial practice, (for machine production expertise); (2) various automotive, electrical, cooling, lubrication, body, chassis, steering, lubrication, body, chassis, steering, brake systems, diagnostic disorders and overcame, safety execution systems, and industry practice reports (for automotive engine expertise).

In each semester there are about 100 students who carry out internship activities this makes it difficult to place them in the right location for practice in accordance with the objectives set out in the curriculum. The procedures

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during which the students are looking for / apply themselves to the industry to get a place of practice. The industries that they choose are those industries that are usually willing to accept interns and locations around the city of Malang or where they come from. After they get approval or have been accepted then university publishing placement letter student as well as ask the Department of Mechanical Engineering to set a lecturer supervising practice.

The choice of place of internship in this way has some drawbacks, among others, where the practice of their select does not necessarily meet the requirements in which this practice can not be expected the competence or material of industrial practice that can be achieved. However, due to lack of data and funds to determine which practices are eligible, students' explanations are considered sufficient to establish that they may practice there. This is happening with the consideration that to get a place on a schedule that has been set university is an excellent time means students from other universities are also looking for a place of practice. Another problem is that there are industries only give a month to practice and there is also an industry that sets an internship time of 3 months.

RESEARCH OBJECTIVES

Based on the background above, the purpose of this research is: how feasibility of internship place for the students of industrial practice in the Department of Mechanical Engineering so that the purpose of internship can be achieved as expected. Referring to the description of the background above, the research is important because, with the knowledge of the feasibility of internship place for the students of industrial practice in the Department of Mechanical Engineering on increasing the achievement of professional competence of the students, the quality of the teaching and learning process will be improved and the student's competence in the field of mechanical engineering will be achieved.

INTERNSHIP

The internship is defined as, "… a fixed term work experience with clear learning objectives" [1]. Internships are the field-testing portion of any educational preparation program. Internships are common in teacher education. "Internships designed to provide future school leaders adequate preparation should clearly link theory to the real world problems faced by school leaders. Focused on standards, program and course designers have a responsibility to coherently sequence and align programs under these three constructs" [2]. Cunningham (2007) indicates that there should be "Greater emphasis on making knowledge-to-practice connections and providing students with opportunities to work on real-world problems in the most authentic settings possible under the guidance of university faculty and experienced practitioners" [3].

Internship programs can lend support to academic programs and to institutional initiatives involving student recruitment and retention [4]. Internship programs can assist with skill development, such as writing skills, oral communication and computer skills, initiative, time management skills, dependability, professional skills, interaction with others, ability to contribute, the overall quality of work and attitude [5]. Studies have found that internships are typically completed while a student is enrolled in other academic courses [6]. Enrollment in an internship course can provide students the additional benefits of earning course credit, as they connect classroom theory to the workplace [7].

Ehiyazaryan and Barraclough (2009) wrote that: Students were most motivated in the subject matter where they could engage in activity or situations which they were likely to encounter in the real world of business. This further influenced their behaviour – students demonstrated reflective thinking and enhanced confidence. The learning environment's design regarding the interdependent way in which students were expected to work was considered to have equally high implications for learner engagement in employability [8]. Self-understanding, reflective thinking and recognizing relational benefits can be enhanced by participation in experiential activities, such as internships [9].

In 2007 McKinney and Drovdahl found that interns gained a sense of integrity and self-understanding as their relationships with others associated with the internship strengthened. McKinney and Drovdahl (2007) wrote that, "young adults often seek a moratorium experience - space and time to test one's identity before fully committing to

a pathway in life. The 'temporary' period of an internship is aptly suited to a moratorium" [10]. They further stated that "good internships give participants opportunities to test themselves in various ways and these tests become the means of self-understanding". Sweitzer and King (2009) similarly found that self-understanding was enhanced by participating in an internship experience [11]. They reported that students who are able to understand their feelings and beliefs can make meaning of the experience and that it would aid in other interactions throughout the internship.

Structured internship programs also give students the opportunity to explore a career field and industry, receive professional guidance, enhance job and career satisfaction and increase organizational commitment [12]. Research conducted by [13] found that a "structured work experience and employer involvement in degree course design and delivery was found to have positive effects on graduates' outcomes, in their ability to find graduate-level jobs within six months of graduation".

RESEARCH METHOD

This research was conducted at Department of Mechanical Engineering, State University of Malang in 6 months. The period includes the preparation of proposals, research instruments, research data retrieval, and the preparation of final research reports. Population and sample in this research were the location of the industrial practice of student majoring in Mechanical Engineering which have follow industrial practice course. This research procedure includes several stages, among others. Data collection from the industries were used by the students. Those were based on the archive of the report and from the list of the industries issued in East Java Province.

Preparation stage was needed to select the student as research participant. It was followed by preparing the instruments for the retrieval of research data, and to collect information for responsible lecturers who will teach scheduled lab courses, block lab scheduled subjects, and identify students who register for the course. Moreover, an experimental test was conducted to identify the deficiencies of the instrument substance, the difficulties of the lecturer and the student ability in filling the instrument.

After the testing phase is completed, it was continued with the research data retrieval stage. Survey questionnaire was used in this study as instruments, where the evaluation points were developed from research variables. The measurement scale used was Likert scale, these were scale from 1 to 5. These scale were used to investigate the validity level of the questionnaire in the validity test. The results were analyzed using descriptive technique, which is in percentage and they will be presented by frequency distribution graph.

RESULTS AND DISCUSSION

Based on the collected data from 20 companies, the results were obtained as follows: (1) approximately of 70% of the industry party held data collection and giving clear assignment to the internship participants; (2) 85% of companies do not provide lodging places for internship participants; (3) 80% of industrial premises in accordance with the study program of internship participants; (4) 65% were given the confidence to do the job while 35% were only supervised in the work; (5) 80% of the company is orderly in working hours; (6) 45% of companies are orderly in granting permission for holiday; (7) 65% of companies prepare lunch for internship participants; (8) 75% is very concerned about the implementation of K3 within the company; (9) 50% of companies work using job sheets or work instructions; (10) 75% provide time conformity with the school of origin of internship participants; and (11) 75% of internship participants provide feedback to the industry. More details look like Fig. 1.

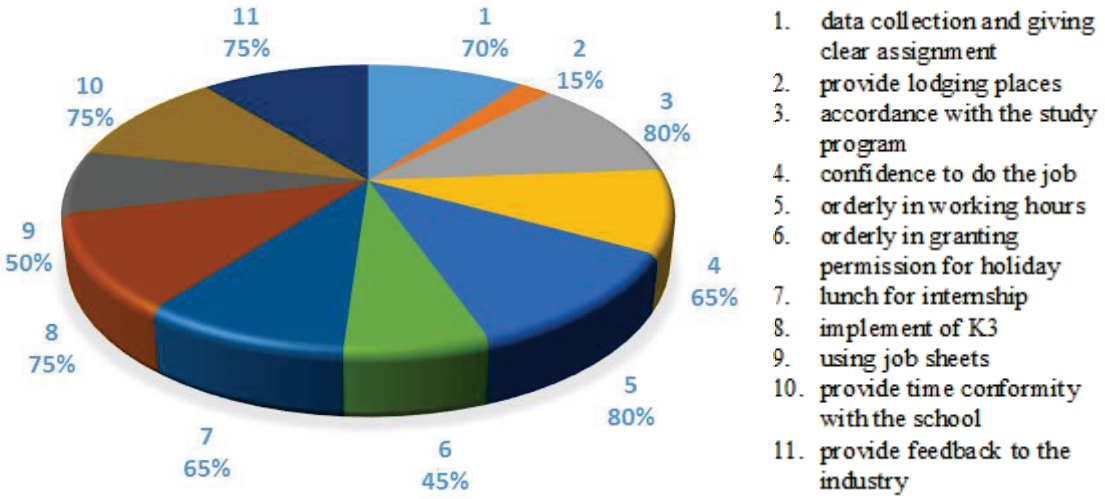

FIGURE 1. The support of industry on internship students

After a visit to the industry and meet the instructors of internship participants, there are several findings, among them: (1) 60% say they compose together work proker; (2) 75% of instructors provide guidance and direct assessment to internship participants; (3) 85% of instructors give warning and sanction to the wrong internship participants; (4) 70% of instructors discuss the work of internship participants; (5) 85% have educational qualifications and expertise in accordance with the work program provided by the company; (6) 55% of internship participants often consulate the work given to their instructors; And (7) 75% stated that the internship participants in the discussion are allowed to ask the other workers even though they are not the instructors appointed by the company. More clearly as shown in Fig. 2.

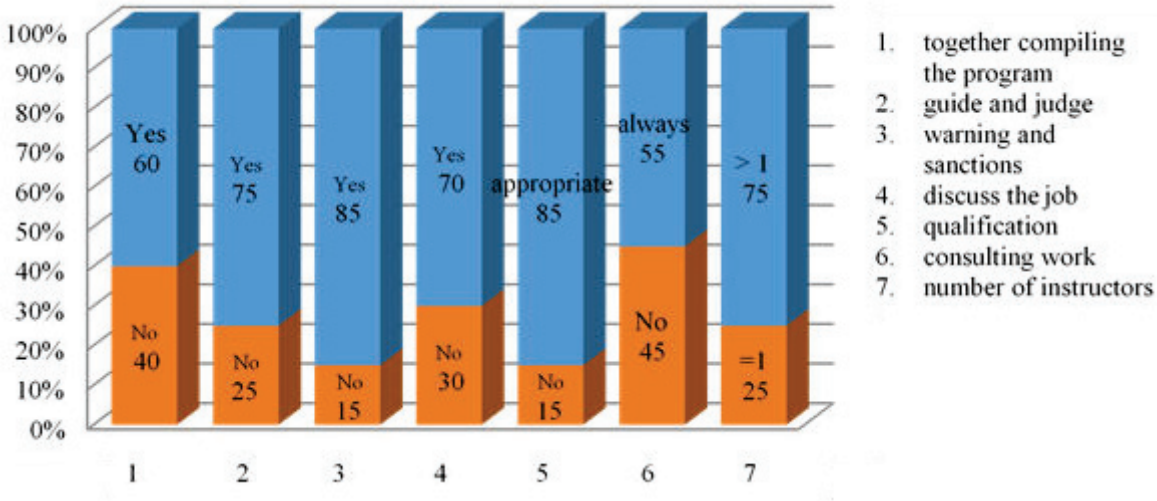

FIGURE 2. Implementation of the internship based on the instructor's perspective

CONCLUSIONS

There are 11 points should be more concern on conducting internship, including: data collection and giving clear assignment to the students, provide lodging places, accordance with the study program, let students try to finish the job, give students orderly in working hours, give students orderly in granting permission for holiday, prepare the lunch for internship, industries should implement of K3, students using job sheets, provide time conformity with the school, students provide feedback to the industry. To improve the competence of the internship program, industries and school should give the students opportunity to finish their job with more than one supervisor. The supervisor

should advise students to give them more confidence on finishing the job, also warning and sanction to the wrong internship participants are needed to make sure students do the right things.

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