

Lecturer Internship Program in Industry to Provide Real Work Experience for University Students

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Abstract: Indonesia higher education learning system is currently less responsive to the industrial job dynamics. As a result, there is a mismatch between graduates' skill with the competencies required by industry. Higher education has prepared nearly one million students to become teachers, but the government has no plans to increase the number of public servant teachers. This policy makes most of graduates are unemployed. Companies in non-education and manufacturing services have started complaining about the difficulty of finding workers like engineers to fill in skilled positions. The rapid changing of industrial job dynamics make learning in higher education institution should move as rapidly as possible with the industry. Therefore, it is necessary to develop collaboration between higher education institution and industry. This paper proposed an innovation to learn and develop knowledge from industry through lecturer internship program. After attending internship program in the industry, lecturers are expected to provide more real working experience to the students. The lecturer internship program in the industry will be focused on product research and development collaboration. In this paper will be presented a theoretical study about: (1)the benefits; (2)factors that can affect; or (3)hinder the success of lecturer internship program in the industry.

Keywords: [lecturer, internship, program, industry, university]

1. INTRODUCTION

The lack of skilled labor in Indonesia comes from the fact that many graduates of higher education do not meet the required skills by businesses and industries. The expectations of businesses and industries are not immediately responded by public and private universities in Indonesia. As a result, there is a mismatch between the competencies held by university graduates with industries' needs, which leads to many university graduates are unemployed after graduation.

The gap between the industries' demand and the supply of graduates from universities can be seen from the unemployment rate. Data from the Statistics Indonesia in Handayani (2015) shows that university graduates, especially the 15 – 24-year-olds with Diploma I, II, and III have an unemployment rate of 21.5% while the percentage of unemployed bachelors is 25.4%. Data from the ILO in Handayani (2015) states that the non-conformity of university graduates with industries' needs is

centered on several sectors, namely technicians and professionals, service providers, marketing officers, and salespeople, skilled workers in agricultural and fishing industries, craftsmen and related trade personnel, as well as factory machines' operators and assembly staffs.

The World Bank (2014) has been studying the cause of college disconnection with the business and industrial worlds. The main disconnection occurs because higher education prefers to focus on its largest stakeholders, i.e., prospective and existing students. If the students are interested in a course that does not yet exist in the university, it will open new study program and accept new students without considering the perspectives of business and industry worlds. Moreover, the other factors causing the disconnection are: (1) some universities want to have a partnership with the industries, but they are constrained by cost; (2) the curriculum of the study program does not meet the industries' needs; (3) lack of funds and experts to develop relevant

curriculum; and (4) the lack of lecturers with experience in the industry.

In the competitive global era, if universities do not immediately address the industries' demand, the skilled labor market in Indonesia could be filled by foreign workers. To address this problem, the government has initiated a curriculum based on the Indonesian Qualifications Framework (IQF). The IQF-based curriculum is expected to bridge and integrate the students' qualifications with the competencies expected by the industries in the context of providing competence according to the required skills in various sectors. Since established as government regulation in 2012, many institutions of higher education have developed their IQF-based curriculum. Khairiah (2015) states that the IQF-based curriculum improves the quality of teaching and learning process and the quality of the outputs in the form of knowledge, skills, and attitudes.

However, IQF-based curriculum only focuses on student competence. It does not discuss how to improve the competence of lecturers, even though the lecturers are the main pillar of knowledge transfer in universities. As mentioned earlier, the lack of teachers who have experience in the industrial world is one of the factors causing college disconnection with industries. The World Bank (2014) explicitly states that overcoming these problems requires collaboration between universities and industries in the form of research or internship, for students and lecturers.

Collaboration between universities and the industries is not a new thing in the world. Australia and other Asian countries such as China and Taiwan have adopted the system. Guan, Yam, and Mok (2005) state that the collaboration between universities and industries produces a positive thing, which is introducing innovations. More often collaboration will develop newer innovations. Meanwhile, Lai and Lu (2016) explain that the main objective of collaboration between industries and higher education institutions is to get skilled workers and reduce the cost of training human resources. For the higher education institutions, the collaboration also provides

input on the curriculum directly from the industries (McGill, Koppi, and Armarego, 2015).

Because of the many advantages that can be gained through collaboration between universities with the business world and the industrial world, this paper discussed the lecturer internship programs in the industry with the main goal of sharing applied science to the students. This was a literature study focusing on discussions of apprenticeship programs favored by industries and effective apprenticeship period so that lecturers get a picture and competence on the more up-to-date knowledge used by industries. The paper also discussed the benefits gained by lecturers, universities, and industries, as well as factors that affect or hinder the lecturer apprenticeship program.

2. METHOD

This was a literature study written by collecting, reading, taking notes, and reviewing any conceptual idea related to the lecturer apprenticeship program in the industry. Important ideas from the information were analyzed, and the results are presented in this paper.

3. RESULTS

Collaboration between universities and industry is inevitable to survive in the era of industry 4.0. Business and industrial worlds require adequate technology and resources to expand their products. In contrast, universities also need industry to comprehend the research that is useful and needed by the community. The symbiotic mutualism relationship created by collaborations between universities and industries has resulted in valuable knowledge and experience transfer for both parties. The benefits gained by both parties are presented in Table 1.

Table 1. Benefits of collaboration between universities and industries (Slotte and Tynjälä, 2003)

Business and industries	Universities
1. Expanding theoretical knowledge	1. Understanding the actual condition in the field
2. Building cooperation and collaborative research	2. Gaining work experience in industries
3. Sharing experience of working in the field to the students	3. Raising awareness to the business world
4. Acquiring skilled workers.	4. Acquiring better facilities
5. Creating continuity and stability	5. Obtaining case study to be used in the teaching process

Iqbal et al. (2013) state that building a strong relationship between university and industry can be done with two approaches, transfer of knowledge and sharing experience through collaborative research. Furthermore, sharing experience is explained in Guan (2005). There are six models of collaborative research that can be done by the industry to universities, namely: (1) buy research results directly from universities; (2) carry out product development together; (3) entrust research and development to universities; (4) make group research with universities; (5) participate in a national collaborative project; and (6) hiring skilled staff from universities in industry.

Among the six collaboration models, the most preferred model by industries was model (2), which is to carry out product development together with universities. This model has long been implemented in Indonesia. The universities require a new model to develop a diversification of cooperation with industries. Guan (2005) states that in addition to working with universities to develop products, model (6),

i.e., employing skilled workers from universities in the industry is the second preferred model. This is because industries are still lacking the number of skilled workers; therefore, hiring skilled workers from universities for a certain period will reduce costs. The universities can help the shortage of skilled workers by implementing lecturer apprenticeship program in the industry.

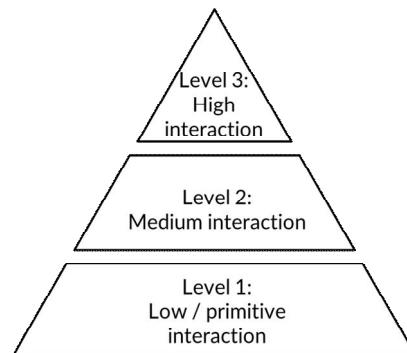


Figure 1. Level of collaboration between universities and industries

Three levels of interaction between industries and universities are displayed in Figure 1. The examples of level 1 interactions are when students are visiting industries in an excursion or internship studies, or when industries are visiting universities to recruit students as future workers. Meanwhile, the examples of level 2 interaction are when lecturers are visiting industries, or when industries hold seminars in universities. The example of level 3 or the highest interaction is the involvement of the industry and university in activities to improve and develop the skills of both parties (Pai and Chiplunkar in Natarajan, 2015). Lecturer apprenticeship program in the industry is one of the activities classified as level 3 interaction, which is the highest collaboration achieved by universities with industries.

The internship program is a skill development training in a particular area of expertise. The lecturer apprenticeship program in the industry is not a new thing. Farrell (1992) describes an internship program of teachers, lecturers, engineers, and researchers in the field of mathematics and science at the Dayton-Montgomery

County Group. With the apprenticeship program, many positive impacts have been experienced by both the institution and the participants.

However, the apprenticeship program in Indonesia is still largely oriented towards improving the skills of students, not lecturers. Lecturer apprenticeship program in industry in Indonesia still get less attention. Only a few institutions have ever implemented it. The Ministry of Industry conducted a lecturer apprenticeship program in the industry for lecturers within the Ministry of Industry in 2012. However, it has not been continued.

To provide a clear output in the industry apprenticeship program, it is necessary to establish a clear internship time and location. The chosen location should accommodate the lecturers' area of expertise. Meanwhile, the apprenticeship should be done during the long semester holidays because the lecturer has finished his main task of one semester. The remaining semester off-hours after the apprenticeship can be used to enhance lecturer collaboration as a university representative for the industry (Stephens, 2011).

The lecturer apprenticeship program in the industry contributes to industry and universities, and bring benefits to the lecturers and the students as stakeholders. A lecturer, as an independent learner, will have more competence after completing an internship program. The competencies to be obtained by lecturers include: (1) the development of soft skills such as teamwork, collaborating, communicating, and networking; (2) more opportunities to develop a career; (3) more opportunities to increase salaries; (4) a sense of work security; and (5) lifelong learning (Farrell, 1992; Slotte, 2003). Another advantage gained by a lecturer during an internship in an industry research program is gaining new experience in day-to-day work in industry and research that is useful to society (Wang, 2013). Figure 2 displayed a summary of lecturers' main competencies after completing internship program in industry.

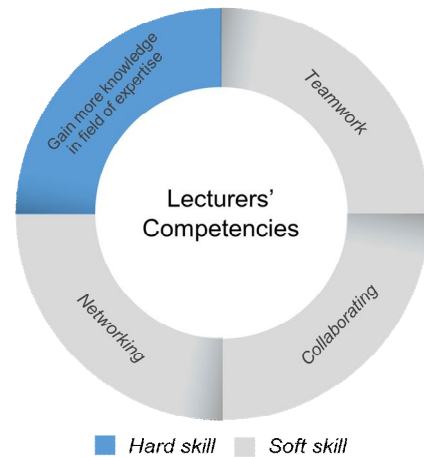


Figure 2. Hard skill and soft skills gained by the lecturers through the apprenticeship program



Figure 3. Hard skill and soft skills expected to be gained by students from lecturers

Students who get lecturers who have undergone an apprenticeship program will better understand the challenges of employment in the industry. In addition, the lecturers will be more ready to answer questions related to the business and industrial worlds because they have experienced it. After completing the apprenticeship program, the lecturers will be more adaptive in developing cooperative learning and open-ended problem-solving techniques for students. Lecturers can also explain to students the results of observations in the industry about soft skills that must be owned by professional employees, namely: (1) the ability to cope with pressure; (2) the desire to always try new things; (3) positive interests and

attitudes towards work; (4) have personal initiative; (5) have a confident attitude; (6) remain calm when faced with problems; and (7) have and always try to maintain a professional attitude (Farrell, 1992; Wang, 2013). Figure 3 displayed summary of students' competencies expected after attending lecturer class who have undergone an internship program.

Although the lecturer apprenticeship program in the industry brings many benefits for institutions, business world and industry, lecturers, and students, there are factors that could hinder the opportunity of the lecturer apprenticeship program in the industry. According to Muscio and Vallanti (2014), the inhibiting factors of the lecturer apprenticeship program in the industry are problems with the industry, internal academic problems of the institutions, industries do not have the same views on the academic goals, and the strategic plans of the institutional research are not in line with the industry.

Problems with the industry include patent claims, the short-term nature of industry research that is in contrast with the long-term research favored by universities, obstacles in the dissemination of research results, and lack of feedback from industry. Meanwhile, the problems with the university include no procedures of college collaboration with industry, difficulty in getting contact with industry, the industry is in the different area with the university's expertise; thus, the collaboration does not affect the lecturers' career development and the conducted research (Muscio and Vallanti, 2014).

Moreover, according to Akomaning, Voogt, and Pieters (2011), the factors that influence apprenticeship success are strong collaborations between college and industry, appropriate placement, and duration of apprenticeship. The strong collaboration is carried out by continuing to adopt the research with the cost favored by the industry. Proper placement in the right areas of expertise is required by the industry to acquire performance improvements.

Duration of apprenticeship is a major factor affecting the success of the lecturer apprenticeship program in the industry. The

duration of internship in Indonesia is divided into three, namely: (1) short-term, for 1 – 12 weeks; (2) medium term, for 13 – 52 weeks; and (3) long-term, for more than 12 months. The apprenticeship duration of fewer than four weeks is not deemed effective by the industry. The industry prefers an apprentice program with a long duration of at least four weeks, eight weeks, or more (Kaminskiene and Rutkiene, 2012; International Labor Organization, 2015). Therefore, the minimum duration of lecturer apprenticeship program in the industry is four weeks or one month

4. CONCLUSIONS

The lecturer apprenticeship program in the industry is a form of collaboration between universities and industry that is favored by industries. The lecturer apprenticeship program needs to be correctly planned to determine the place, duration, and the purpose of apprenticeship. The apprenticeship program brings profits for the lecturers, students, business and industry, and universities. However, there are factors hindering the internship program, such as problems with the industry, internal academic problems of the institutions, industries do not have the same views with the academic goals, and the strategic plans of the institutional research are not in line with the industry. In contrast, the success of an internship program is influenced by a strong collaboration between college and industry, appropriate placement, and duration of apprenticeship.

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