An Enrichment of Bulacan State University Industrial Engineering Program Through Graduates Employability and Productivity

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Abstract — Engineering is a popular course and there are several job offers for them. However, graduates face a competitive market, making hard for some to land a job after graduation. Industrial Engineering graduates have a lot of options when looking for a job as Industrial Engineer-related work can be found in any company be it manufacturing, technology, retail, hardware, service and the like. The researchers aim to assess the employability and productivity of graduates of Bachelor of Science in Industrial Engineering of Bulacan State University. The study covers the graduate from the year 2015 to 2017. A graduate tracer questionnaire is formulated to evaluate their work entrance, work transition, job career, current occupation and connections to the education institution. Competencies learned and acquired technical knowledge of graduates is also assessed. Respondents are selected using cluster and random sampling method and the graduate tracer study has a descriptive research design. A test of one sample proportion shows that employed graduates is greater than 88% (p-value = 0.014). Also, graduates found highly related Industrial Engineering jobs in less than 6 months after completing the program. Communication, problem solving and critical thinking are the most useful competency skills for their job. Thus, this study reveals that the design of Industrial Engineering curriculum of Bulacan State University is relevant to its graduates’ jobs hence resulted to high employability rate and low level of job mismatch.

Keywords: Curriculum, employability, industrial engineering, productivity, tracer study.
I. INTRODUCTION

Engineering is a popular course and there are several job offers for them. One of the in-demand engineering discipline is industrial engineering, it offers a lot of jobs opportunities. As Industrial Engineer-related work can be found in any company be it manufacturing, technology, retail, hardware, service and the like.

Bulacan State University (BulSU) offers Industrial Engineering (IE) in year 1999 and the first batch graduated in 2004. Through the years, the university is committed to enhance the IE program. Review and revision of curriculum, faculty and staff development and upgrading of facilities are some of the strategies done by the university to further improve the program. In the review and revision of curriculum one of the factors that they considered is the graduates’ employability and productivity. In measuring said factor, the university utilizes the graduate tracer study.

A graduate tracer study or graduate survey is a survey (in written or oral form) of graduates from education institutions, which takes place sometime after graduation or end of the training. The subjects of a tracer study can be manifold, but common topics include questions on the study progress, the transition to work, work entrance, job career, use of learned competencies, current occupation and bonds to the education institution. The survey questions were related to the graduates’ qualifications prior to their entry into higher education, their education history, their transition into employment, their career path, and the perceived link between their education experience and their employment after graduation [1].

The researchers seek to investigate factors affecting the employability and productivity of Bulacan State University industrial engineering graduates of batch 2015-2017. Also, to evaluate the relationship between the education and trainings that they learned from the university and the skill that are needed in the labor market. This may help to enrich the education, knowledge and trainings to be provided by the university to have amore more competitive IE graduates.

II. PROBLEM STATEMENT

Generally, engineering in the Philippines is a popular course. There are 55,000 jobs for those with engineering specialization. However, engineering graduates also face a competitive market as Commission on Higher Education (CHED) resent data shows that the number of graduates with engineering degrees rose by 10 percent [2].

With this, the researchers seek to measure and identify what factors may affect the employability of industrial engineering graduates from 2015, 2016 and 2017. Also, the researchers assessed the competencies learned and acquired technical knowledge to measure the graduates’ productivity.

III. SIGNIFICANCE OF THE STUDY

The study would be significant to the following:

a. To the institution, this would help them to enrich the IE program based on the status of its graduates. Also, it would help them to identify what strategies they need to employ to further improve the program.

b. To the future researchers, this may serve as a guide to assess furthermore the employability and productivity of industrial engineering graduates.

IV. SCOPE AND LIMITATION OF THE STUDY

The study covers the graduates from 2015 to 2017. A graduate tracer questionnaire is formulated to evaluate their work entrance, work transition, job career, current occupation and connections of their work to their educational attainment.

V. METHODOLOGY

1. Research Design

Cross-sectional type of research design is used in this study that analyzes data from a population. The data is collected from the respondents that is similar in other characteristics but is different in key factor of interest such as age, income level or even the geographical location. It also a qualitative type of research because it explains how certain event happens. In this case, the researchers try to
determine what are the factors that cause the unemployment of IE graduates, if there is any.

2. Sampling Method

The researchers used cluster sampling method in this study. Cluster sampling method is a type of sampling method where the population are being split into groups called clusters (batch). The formed clusters have equal chances of being a part of the sample size. It is also a type of sampling method where the members of the clusters are being selected randomly.

The total number of graduates is 196. Below is the number of respondents.

<table>
<thead>
<tr>
<th>Year Graduated</th>
<th>Number of Female</th>
<th>Number of Male</th>
<th>Sub-Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>29</td>
<td>22</td>
<td>51</td>
</tr>
<tr>
<td>2016</td>
<td>38</td>
<td>23</td>
<td>61</td>
</tr>
<tr>
<td>2017</td>
<td>35</td>
<td>20</td>
<td>55</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>167</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Number of Respondents

3. Methodological Framework

The researchers followed the input-process-output framework as seen in figure 1. In the input part, the researchers considered, a graduate survey, demographic profile of graduates and review of related studies. In process, collecting and analyzing data from interviews and survey. The expected output is to determine the employability and productivity of IE graduates.

VI. RESULTS AND DISCUSSION

This part of the study further discussed the result of the graduate survey. A test of one sample proportion shows that employed graduates is greater than 88% (p-value = 0.014). Specifically, Figure 2 shows that 96% of the graduates are currently employed and only 4% does not have IE related work. The result manifests that the program is effective in producing highly competent graduates.

In regard with the relevance of their job to the curriculum in they had in college, 96% of the respondents answered that the curriculum is relevant to their current job. The result reveals that the curriculum is designed to cater the needs of any industry.
Another important question for the graduates is if their job is related to the course they took in college. Again, 96% of the respondents answered that the course they took in college is related to their current job only 4% answered not relevant.

Figure 4. Is your job relevant to the course you took in college?

In the question how long, it took for them to land a job after graduation, 58% of the respondents took them less than a month, 39% 1 to 6 months and 3 % 7 to 1 year. The result reveals that the graduates could easily acquire IE related jobs in short period of time. Also, the results could indicate that IE graduates of Bulacan State University are highly flexible thus giving them numbers of job opportunities.

Figure 5. How long did it take for you to land a job after graduation?

The most useful competency skills in their job are problem-solving, critical thinking and communication as seen in figure 6.

The result reveals that Industrial Engineering program of Bulacan State University is capable of producing highly competent graduates who can effectively demonstrate their problem-solving, critical thinking and communication skills in industrial engineering related fields.
The researchers conclude that the most of BulSU IE graduates from 2015-2017 are employed. After graduation they took less than a month to find their respective jobs. Also, based on the study the IE curriculum of BulSU is relevant to their job. Communication, problem solving, and critical thinking are the most useful competency skills for their job. Thus, this study reveals that the design of Industrial Engineering curriculum of Bulacan State University is relevant to its graduates’ jobs hence resulted to high employability rate and low level of job mismatch.

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REFERENCES

