The Use of Tracer Study in Improving Undergraduate Programs in the University

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ABSTRACT

Every academic institution's goal is to produce competent and highly qualified graduates that can eventually be competitive in a local and global arena. A graduate tracer study is a very powerful tool that can provide valuable information for evaluating the whereabouts and performance of the graduates in the workplace. This study aimed to keep track of the graduates in one of the state universities in the Philippines. A total of 1,983 graduates responded to this study. A structured survey questionnaire served as instrument to gather data interpreted through frequencies and percentages. Results revealed that most of the graduates were in their early 20s and have just recently graduated from the university. Furthermore, they were able to find a job through someone they knew. Most of the graduates have jobs related to their respective degree programs. Relevance of the degree program to professional requirements was a major strength of the undergraduate curriculum. However, the study identified extra-curricular activities and a number of optional subjects as areas that need improvement. To enrich the existing degree programs, the institution has to focus on student mobility, credit transfers, quality assurance and research clusters as the four main priorities to harmonize with the ASEAN higher education system.

Introduction

At present, there is a larger pool of tertiary graduates; however, many do not have the relevant skills needed for successful integration into the labor market. These students put a strain on publicly-funded institutions of higher learning and many countries with limited resources are struggling to finance the growing needs of a

larger student body, without compromising the quality of their educational offerings (The World Bank, 2017). A number of countries, including China, India, and Brazil have undertaken a major restructuring of their tertiary education systems to enhance their reach and effectiveness. Yet, progress has been uneven. Nations across the globe made sure that their national policies prioritized fair access, improve learning, proficient retention, and increase assertion of the success of all qualified students, irrespective of their circumstances. Both policies and program degrees need to be tailored-fit to the needs of the economy (Marmolejo, 2016).

Nevertheless, Abel and colleagues (2014) argued that graduates who are beginning to build their careers often need time to transition into the labor market. These difficulties are not new occurrence. Based on their examination, college degree plays a significant role in determining whether a graduate would land a good job. This means that students should choose a degree program based on their skill level, particularly those who have higher intrinsic skills and abilities that might have better labor market outcomes.

In the challenges of 21st century education, higher education stands out as one of the major keys to cope with reforms through instruction, research, and extension. It has become a big challenge for all Philippine Higher Education Institutions (HEIs) to cater these reforms. One way of addressing these concerns is by producing fully-equipped graduates who would use what they have learned in school and apply them in their respective work (Tertiary Education Commission, 2009).

Compared to other countries in Asia, unemployment and underemployment are one of the main concerns of the Philippine government. The country has been encountering these same issues for many decades. The continual population explosion and labor force growth always outdo formal job creation. This problem has rippled as the Philippine HEIs generate more and more graduates in the field of commerce, engineering, health, sciences, agriculture, and many more, yet the jobs are not really created as quickly as the universities handing out the college diploma (de Ocampo, Bagano, & Tan, 2012). With this gap, education institutions should work in partnership with the private and the public sectors to guarantee an effective job market placement of fresh graduates. Stressing on specific and well-targeted skills and efficient collaboration between universities and firms will lead to a successful transition from education to the labor market (Drine, 2017). A graduate tracer study is a subject appropriate in evaluating the results of education and training provided in the academic institution. It gives basic types of information concerning the graduates' whereabouts and employment status. Results of such study can provide sufficient information on the success of education and training in relation to the graduates and employers.

Global Perspective in Conducting Tracer Study

The impression of HEIs in the Philippines is likely tangled to its reputation of generating graduates who would undoubtedly acquire a good and stable job after graduation. Tracer studies are common research methods for educational institutions to check on the employability of their graduates (de Ocampo, Bagano, & Tan, 2012). Likewise, Rogan and Reynolds (2016) asserted that a Graduate Tracer Study (GTS) is useful for policy and equity implication in higher education. They have suggested that policies should not just focus on providing interventions for the school but also by concentrating closely on university students from the poorly resourced schools and at the earliest stage of their studies. They also argued that instead of confronting study choices to address graduate unemployment,

it is better to focus more on improving the match between these graduates and labor market by dealing with the oversupply-side issues, as well as taking into account the shaping of labor demand by employer preferences and employment practices.

Meanwhile, tracer study as a research strategy stresses that education mismatches appear to capture different aspects of the accuracy of the job-worker pairing, and therefore, have separate consequences for workers (both in monetary and non-monetary terms). Skill mismatches are recognized by employees as a serious relevant issue than education mismatches. The wage and job satisfaction consequences of skill mismatches are strongly negative while education mismatches show much weaker effects (Badillo-Amador & Vila, 2013).

Badiru and Wahome (2016) used experiences, methodologies, results, and lessons of a pioneer GTS conducted at Moi University. Their paper posits a seven-stage GTS guide that fits the needs of East Africa. Recommendations, information feedback, and evaluative proposals created by graduates regarding their experiences during their degree study and transition to the job market hugely help to enhance the quality of education and services at the university. The paper, thus, intended to arouse the desire to initiate and entrench GTS as a means by which quality assurance can be achieved at the universities and HEIs in East Africa. Originality and value of this paper lie in its first-ever proposal for a guide for GTS suitable and domesticated for East Africa. Ghana's experience in tracer study supported that this tool found that the content of their program showed that the job performance of their graduates improved after their study. Job supervisors gave the graduates with 'very high rating' in job performance indicators such as 'teamwork ability' and 'improved work competence'. Based on the findings, Osei and colleagues (2015) recommended that the Institute of Distance Learning and the Department of Mathematics utilized the findings or results of the study to review their curricula to meet workplace demands.

Graduate Tracer Studies in the Philippines

The Commission on Higher Education (CHED) in the Philippines has mandated HEIs to conduct tracer studies as part of the definition of a center of excellence and center of development of degree programs. The graduate profile is also one of the documentary requirements of the higher education accrediting body e.g., the Accrediting Agency of Chartered Colleges and Universities in the Philippines (AACCUP), Inc. Data generated from a tracer study could re-evaluate the factors affecting and contributing to the status of the employment of graduates. Based on extant literature, the majority of graduates landed on local jobs, particularly in the government sector.

For instance, the Cebu Technological University-Main Campus (CTU-MC) College of Education (CoE) graduates were proven proficient and competent to be employable in the government schools as revealed in the seven illuminating themes (future high school teachers predominate on track, search for new employment begins, genesis of teaching novitiate, job-seeking: the struggle continues, teaching as a human relations act, relevant college of education curriculum), thus resulted in favorable opportunities. High school teachers prevail on the track than the elementary teachers with a negligible difference. CTU's mandate has equipped graduates for their chosen field indicating the importance of personality rather than other predetermined factors. Academic preparation and career performance exhibited significance for successful teaching employment in the public sector (Rojas & Rojas, 2016).

A tracer study of 200 Bachelor of Science in Computer Science graduates from

2004-2009 in Lyceum of the Philippines University (LPU) also showed that about 85% of the respondents were gainfully employed. The majority of them have professional, technical, and supervisory positions (Macatangay, 2013). Meanwhile, a tracer study in Philippine Normal University (PNU) showed that the competencies and skills to be considered for immediate job acquisition of the graduates were communication, human relations, leadership, research, and problem-solving skills (Gines, 2014). Although these exists undergraduate curricular programs which their graduates rated as "very adequate and very relevant", they still need to adhere to the international standards, be relevant to the competency framework of South East Asian Teachers of the 21st century, and integrate lifelong learning skills. Moreover, Gines (2014) emphasized the importance of an institutionalized university-wide tracer study every school year. Nonetheless, GTS should not only focus on the graduates but also include the employers as respondents.

Similarly, at the Lyceum of the Philippines, Celis, Festijo, and Cueto (2013) reported that the most useful competencies their graduates learned were human relations and communications. Lalican (2007) even revealed in her tracer study that employers prefer specialists rather than generalists and graduates who were effective, efficient, and cooperative.

The university has been producing graduates in different degree programs since its foundation on June 2, 1924. Thus, it is necessary to follow-up their whereabouts through a tracer study which may contribute to the literature on its reliability and efficiency to monitor and evaluate curricula. Findings are useful in the field of institutional improvement and quality assurance. Lastly, this study would also inform policymakers in crafting a curriculum for development to meet local and global demands for a highly skilled labor force.

Purposes of Research

The study aimed to keep track of the undergraduate programs of the university. It specifically sought to answer the following objectives: a) ascertain the employment status and job experiences of the graduates and b) identify policy implications and recommendations for the improvement of the tertiary education curriculum of the university.

Methods

Research Design

This study employed a quantitative descriptive research design covering the employment status and job experiences of the graduates. It is, in part, a curricular program evaluation if the graduates had effectively achieved the goal of their respective degree programs. Moreover, policy implications and recommendations identified were necessary for the curricular improvement in the university.

Instrument

To obtain the needed information, the research coordinators and research assistants of the different colleges and external campuses administered a structured-survey questionnaire which the university developed anchored on CHED graduate tracer competencies. The questionnaire had three major parts. Part A gathered the general information about the respondents. Part B collected the educational background of the respondents while Part C gathered the employment status of the respondents. This was done to ensure that all items in the research instrument are accurate and all concerns pertaining to each degree program will be addressed. After the seminar-workshop, the research instrument was then approved by the university.

Participant, Sampling Procedure and Ethical Consideration

The registrar's office provided a roster of graduates from school year 2010 to 2015. The respondents' profile was similar to a previous graduate tracer study conducted by Gines (2014). Out of the 6,500 graduates, a total of 1,983 respondents of this study represented 30.51% of the graduates. More than half of the respondents (58.4%) were females. Nearly two-thirds (38.5%) were middle-aged (24 to 29 years old), about one-fourth were between 18-23 years old(25.9%) and the majority (67.6%) were single.

A non-probability sampling technique decided the subjects included in the sample (Battaglia, 2008). In this technique, research coordinators and assistants chose those who were conveniently available and who could be reached either online or offline. The alumni directory of each department helped in contacting graduates who have not changed their contact details.

For ethical considerations, participation in the study was voluntary. Researchers assured their respondents that their responses and information were confidential and for research use only. Not disclosing any name, information, or sensitive details that could potentially identify any of them assured their protection.

Data Collection and Data Analysis

At the start, the researchers made a directory that contained the list of the graduates covered in this study. It took some time to track them and later instructed them to accomplish the web-based questionnaire. Online Google Form was the main platform in gathering data automatically stored in the Google drive. If the graduates had no access to the internet, the researchers personally visited them in their places or offices in order to achieve maximum consistency in data gathering, storing, and coding.

After gathering the information from the respondents of the study, researchers asked for their assistance in tracing or identifying people who possessed some of the characteristics of their research interest (Biernacki & Waldorf, 1981) to ensure accurate referrals and so as to maximize the time in the conduct of this study. Moreover, they tabulated the collected data in MS Excel and coded for analysis using frequencies and percentages to interpret the gathered data (Table 1).

Table 1

College degree of the respondents in the main campus and external campuses

Colleges of the main campus	No. of respondents	Percent
College of Agriculture and Food Science (CAFS)	381	19.2
College of Engineering (COE)	183	9.2
College of Forestry and Environmental Science (CFES)	169	8.5
College of Nursing (CON)	77	3.9
College of Veterinary Medicine (CVM)	288	14.5
College of Arts and Sciences (CAS)	288	14.5
Total	1386	69.8
VSU external campuses		
VSU – Tolosa Campus	178	9.0
VSU – Alang-alang Campus	165	8.3
VSU – Villaba Campus	254	12.8
Total	597	30.3
Total	**1983**	**100**

Result and Discussion

Employment Status and Job Experiences

Employment Status

At the time of the study, more than 75% of the graduates were employed. The rest of them were not employed and a few

Table 2

Distribution of graduates according to their degree programs and employment status

Degree programs	Employment status			Total
	Yes	No	Never have been employed	
Main campus				
Doctor of Veterinary Medicine (DVM)	258	29	1	288
Bachelor of Animal Science (BAS)	90	10	2	102
Bachelor of Science in Agriculture (BSA)	119	27	6	152
Bachelor of Science in Agricultural Chemistry (BSAC)	41	3	-	44
Bachelor of Science in Chemistry (BSC)	77	5	-	82
Bachelor of Science in Agricultural Engineering (BSAE)	22	6	-	28
Bachelor of Science in Development Education (DSDE)	44	4	2	50
Bachelor of Science in Forestry (BSFo)	169	-	-	169
Bachelor of Science in Food Technology (BSFT)	63	10	3	76
Bachelor of Science in Statistics (BSS)	37	3	-	40
Bachelor of Science in Biology (BSB)	98	24	-	122
Bachelor of Science in Computer Science (BSCS)	77	3	-	80
Bachelor of Science in Geodetic Engineering (BSGE)	39	2	-	41
Bachelor of Science in Nursing (BSN)	70	7	-	77
Bachelor of Science in Civil Engineering (BSCE)	32	2	-	34
Villaba campus				
Bachelor of Science in Agricultural Education (BSAE)	4	-	-	4
Bachelor of Science in Agriculture (BSA)	20	8	1	29
Bachelor of Secondary Education (BSEd)	64	10	6	80
Bachelor of Elementary Education (BEEd)	61	49	5	115
Tolosa campus				
Bachelor of Science in Criminology (BSC)	37	8	6	51
Bachelor of Science in Fisheries (BSFi)	12	5	-	17
Bachelor of Secondary Education (BSEd)	28	3	2	33
Bachelor of Elementary Education (BEEd)	37	8	6	51
Alang-alang campus				
Bachelor of Science in Agriculture (BSA)	12	4	1	17
Bachelor of Science in Environmental Management (BSEM)	23	13	1	37
Bachelor of Secondary Education (BSEd)	18	9	1	28
Bachelor of Elementary Education (BSEEd)	53	25	5	83

of them had never been employed. Table 2 showed the distribution of graduates based on their employment status. Bachelor of Science in Forestry (BSFo) and Bachelor of Science in Agricultural Education (BSAE) had the highest employment rate among the degree programs. In the Philippine Statistics Authority (PSA) report on employment rate, the agriculture sector comprised the second largest group making up to 24.1% of the total employed. This implies that agriculture education graduates are needed in the country. However, BSFo had a higher response rate compared to BSAE. More than three-fourths of the BEEd graduates from Villaba campus were not yet employed. The findings of Baking and colleagues (2015) showed opposite results to the study because the majority of their education graduates were employed.

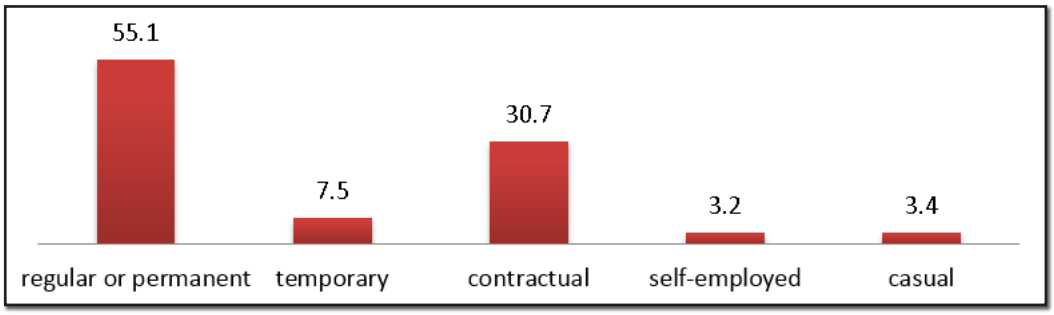

Figure 1. Tenure status of employed graduates

The respondents who were not currently employed gave reasons why they did not have a job yet. They revealed that family concern made them decide not to find a job, however, the main cause of their unemployment was the lack of job opportunities. It is very alarming that one of the top reasons for being not employed was due to lack of job opportunity when in fact there are several sectors in the public and private in dire need of employees (Salvosa, 2015). These details could help the concerned institutions on how to address unemployment. In addition, Macatangay (2013) found lack of work experience as the number one problem when looking for a job followed by no job opportunity.

Tenure Status

Figure 1 presents the current tenure status of the graduates. Based on the graph, almost half of the graduates had regular or permanent status. Similarly, tracer study of the Lyceum of the Philippines presented almost the same percentage of employed respondents with regular or permanent status (Macatangay, 2013).

Nature of Work

The nature of work of the graduates' revealed that about one-fourth were in the education sector. These employed graduates are in the tertiary, secondary, and elementary levels. The findings of Baking and colleagues (2015) yielded similar results because the majority of the respondents were in the education sector. Gines (2014) also reported a high employment rate among teacher education graduates of a normal university in the Philippines. Furthermore, Canizares (2015) revealed in her study of teacher education graduates that they specialized in science and mathematics.

Work Location

Figure 2 shows that majority of them are working locally in the Philippines. The rest are working abroad. This indicates that a large fraction chose to stay and impart their knowledge/expertise in the country. The Lyceum of the Philippines conducted a study which also showed that the majority of the respondents were working in the Philippines.

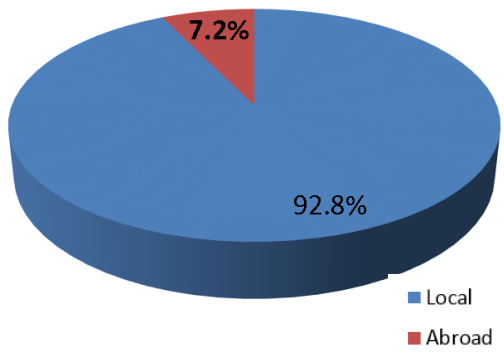

Figure 2. Graduates' place of work

Table 3

Cross tabulation between colleges/external campuses and degree relevance to job

Colleges	Degree Relevance to Job				Total	
	Yes		No			
	F	%	F	%	F	%
CAFS	323	87.5%	46	12.5%	369	100%
COE	163	90.1%	18	9.9%	181	100%
CFES	167	98.8%	2	1.2%	169	100%
CON	71	93.4%	5	6.6%	76	100%
CVM	255	90.7%	26	9.3%	281	100%
CAS	237	84%	45	16%	282	100%
Tolosa Campus	71	97.3%	2	2.7%	73	100%
Alang-alang Campus	116	73.9%	41	26.1%	157	100%
Villaba Campus	171	77.7%	49	22.3%	220	100%
Total	1574	87.1%	234	12.9%	1808	100%

Job Retention and Change

When the employed graduates were asked if this was their first job after college, more than half of them said no. Similarly, the findings of Aquino *and colleagues* (2015) from the State University of Batangas reported that the employment of their graduates was their first.

For those who responded yes, they disclosed that they stayed on their first job for three top reasons, which included salaries and benefits related to course program of study, and career challenge. These were also the reasons for switching, changing and leaving from their first one. A similar study of Aquino and colleagues (2015) revealed that the reason for staying on their present employment was attributed to salaries and benefits. Furthermore, the first job of the majority of the graduates was related to the degree program they took up in college. Vong (2015) also reported that majority of the respondents of the GTS conducted confirmed that their current jobs were related to the degree they had studied in the university. Miralles and Macatangay (2015) also cited career challenge, salaries and benefits as the prime reasons for the job switch.

Job Search Strategies

In terms of ways on landing their first job, recommendation from someone was the most effective means while the school's arrangement on job placement was the least. The findings are also similar with the findings of Aquino *and colleague* (2015) that majority of their respondents found their first job through someone's recommendation.

Relevance of Degree to Job

A considerable number of graduates said that they have relevant degrees to their current job. Based on Table 3, majority of the graduates in all colleges and external campuses had jobs related to their degree. CFES had the highest number of graduates whose degree was related to their job while Villaba campus had the least number of graduates whose jobs were not related to their degrees. This result simply means that most of the graduates recognized that their degree programs provided them the necessary knowledge and skills for them to be useful in their respective jobs. This could be the reason why more than half of the graduates landed a job six months after graduation. There is, however, a need for

Villalaba and Alang-alang campuses to revisit their curricula to meet the demands of the labor market and reduce unemployment rate in the country.

Competencies and Skills Acquired

Table 4 reflects the competencies and/or skills that the graduates learned in college and which were very useful to their job. The top competencies were communication, human relations, critical thinking, problem-solving, information technology, and teaching skills. Macatangay (2013) also stressed that communication skills and information technology skills were the top skills found useful in the workplace. This also supports the reasons for landing a job six months after graduation.

Table 4

Skills acquired by the graduates in college

Skills/competencies learned in college	F	%
Communication skills	1237	20.2%
Human relations skills	1086	17.8%
Critical thinking skills	884	14.5%
Problem-solving skills	872	14.3%
Information technology skills	678	11.1%
Teaching skills	648	10.6%
Entrepreneurial/ managerial skills	377	6.2%
Laboratory/technical skills	304	5.0%
Time management	4	0.1%
Analytical skill	4	0.1%
Surveying skills	3	0.0%
Leadership skills	3	0.0%
Entertainment skills	3	0.0%
Hardwork	2	0.0%
Coping life's challenges	2	0.0%
National Certificate (NC)	2	0.0%
Research skills	2	0.0%
Ethical skills	1	0.0%
Nursing skills	1	0.0%
Total	6113	100.0%

**Multiple responses*

Meanwhile, those who were self-employed were asked what skills they learned in college and which were useful to their respective professions. The respondents stated computer literacy skills, biomass assessment, and related computation, AutoCAD, and GIS and remote sensing (College of Engineering), time management, patience, and nursing care (College of Nursing), teaching skills, management skills, and doing work responsibly (College of Education), analytical, computer, mathematics, and critical thinking skills (College of Arts and Sciences), business and tax, laboratory and surgery work (College of Veterinary Medicine). This means that these existing skills gained from the university proved to be very applicable in their respective fields.

Strategic Action Plan to Improve Undergraduate Programs

Accommodating the challenges deduced by this tracer study, the university may need to address major academic concerns. One of the key concerns is relevant curriculum. To tackle this, the different degree programs must be strengthened through updating of laboratory equipment, constructing/renovating of classrooms, and revisiting and enhancing existing curricula. Instituting programs to improve the teaching competencies and organizing programs that supplement classroom learning are strategies to further improve the existing curricula.

A qualified and committed faculty member must also be a major concern to improve the outcome of the programs. To deal with this, development and recruitment of competent faculty and updating of teaching courses should be undertaken.

Finally, on the challenges of the university to produce highly trained and employable graduates, opportunities through support programs should be expanded. To

respond to this, strategies like establishing review centers for some programs, setting up a clinic for DVM students, requiring On-the-Job Training (OJT) to some programs, exposing students to more research and field studies, and encouraging students to present and publish papers in local/international conferences should be instituted. With all responsible units of the university pitching in, a much brighter future for the university is achievable.

Implications

More than half of the respondents were in their 20s, single, and female. It is widely accepted in the Philippines that women are more progressive in schooling than men according to Gustafson (2018) who quoted Yamauchi and Marites Tiongco of De La Salle University in the Philippines that girls tend to receive more schooling than boys. It can also be inferred from the findings that most of the graduates were literally at their young adulthood stage and the normal age for students who just graduated from college education. When asked how they were able to find their first job, 761 replied that someone recommended them. This means that this person they knew had a connection with influential personalities in the institution where they had their first job. This finding is similar with Aquino and colleague's (2015) tracer study.

The study revealed that one of the major reasons of staying in their job is that their work is related to the course program of study. This implies that the different programs of the university matched the needs of the society after they acquired the following skills upon graduation: communication, human relations, critical thinking, problem-solving, information technology, and teaching skills. The graduates need these skills when they enter the work force (Hansen and Hansen, 2019). Workers can develop these skills and values in a variety of ways, but college is the place where many inexperienced teens transform themselves into highly desirable college graduates and prospective employees.

The majority of the graduates are hired locally and only a few are working abroad. This sends signal to the university to start working to produce graduates who are globally competitive. In a globalized economy, every student should be educated as an international student, a global citizen with the aspiration to compete globally. To do this, the university has to focus on student mobility, credit transfers, quality assurance and research clusters as the four main priorities to harmonize with the ASEAN higher education system.

Conclusion and Recommendation

To determine the employment characteristics and job experiences of the university graduates in the undergraduate degree programs and their feedback on their educational experiences in the university to improve the delivery of the degree programs is the main objective of the study.

The university has productively attained its goal of developing manpower which can provide leadership in addressing the development needs specifically of the Visayas region. This is manifested by the high percentage of graduates who are occupying academic (instruction and research) and supervisory positions in state colleges and universities, government agencies and local government units in the Visayas and the neighboring regions.

The degree programs that students pursued help improve their skills and their employment status. These are manifested by the high percentage of respondents whose degrees are highly related and relevant to their current jobs; that a number of skills they learned are found useful in the performance of their jobs, and that they are having regular and/or permanent items.

The respondents are generally satisfied with the delivery of the undergraduate degree programs of the university; likewise, they give high average ratings on the curricular offerings. Furthermore, the graduates believe that the education curriculum of the university could be improved by providing and/or considering the following: review centers, quality professors, state of the art lab facilities, equipment and lecture rooms, on-the-job training, courses related to degree programs, constant revision of curriculums, more social activities, thesis subject, collaboration with other institutions in teaching other courses, encouragement of students to publish and present papers in national and international conferences, more field subjects, and hands-on activities.

Conclusively, the respondents are generally satisfied with the delivery of the undergraduate programs, but they give a number of suggestions to further enhance the delivery of the said programs of the university. It is strongly recommended that the school administrators and curriculum planners should review these suggestions and use these as bases in formulating strategies that can make the undergraduate curricular offerings of the university more responsive to the needs of the students and the employers. Retooling of faculty in terms of their competencies (e.g. updates of knowledge and skills, teaching pedagogies, use of appropriate instructional materials and technology, etc.) must be instituted. Additionally, the existing curriculum should be revisited to conform to the skills required in the different job markets. The difficulty in locating the graduates and retrieving the data from them provide a need to improve the alumni network at the department level to update information on the graduates' whereabouts. To address these problems, Graduate Tracer Study should be done regularly in order to know their whereabouts, evaluate existing programs, assess study provisions and conditions, and design improvements to strengthen them, or to come up with new relevant programs in the future. Finally, to improve the content and construct of the graduate tracer study questionnaire, the study recommends the conduct of reliability index.

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