Employability of Engineering Graduates of one Asian University as Basis for Curriculum Review

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ABSTRACT

This tracer study intended to assess the relevance of the undergraduates' curricula in industrial engineering, electronics engineering and mechanical engineering as well as the knowledge and skills acquired by the graduates to their employment; identify the personal and professional characteristics and job placement of the engineering graduates of the said degree programs and the school-related factors associated with their employment. This tracer study used the quantitative and descriptive research design. Results showed that the greater percentage of the respondents landed on first job related to their course completed; obtained their first jobs within 6 months; have stayed in their first job almost more than one year and low salary is the number one reason who left their first job.

Mathematics subjects were considered very relevant; Electronics contributed the most relevant subject to the present job of Electronics Engineering Graduates; Time and Motion Study for Industrial Engineering Graduates; and Power Plant Engineering for Mechanical Engineering Graduates. The graduate – respondents considered the intellectual skills developed by the University have contributed much to their present employment. The work – related values most especially the honesty and truthfulness were considered very much relevant to the present employment of the employed graduate-respondents.

Keywords: employability, engineering, curriculum, job placement

INTRODUCTION

As a response to the needs of professional education in engineering, society and industries, academic institutions must provide an updated curriculum; modern facilities and equipment; efficient student services; responsive organization and administration; and educators must possess effective teaching techniques and strategies to ensure and maximize the learning of the students.

The graduates are the ultimate products of higher education institutions. They move in every part of the world to showcase their skills and competencies and be involved in the development of every nation. They are now part of the work force who contributes to the success of every organization leading towards a common goal (Dotong, 2014). The strong majority of responding graduates appraise their knowledge gained as very useful. Three distinct scopes of usefulness are addressed, including appraisals of the usefulness of study programs with regards to gaining knowledge, developing technical skills, and forming an attitude that is supportive of national development (Weber et al., 2000). Generally, at the time of graduation, most of the graduates had acquired critical skills required in their current work (Kimani, 2002). Factual knowledge and critical orientation are among the most useful skills students learn at universities (Debono, 2002).

Engineering is directed to developing, providing and maintaining infrastructure, goods and services for industry and the community (Zaharim et al., 2009). Industrial engineering draws upon specialized knowledge and skills in the mathematical, physical, and social sciences, together with the principles and methods of engineering analysis and design to specify, predict, and evaluate the results to be obtained from such systems' (Lister and Donaldson, 2003). Mechanical Engineering is the branch of engineering that encompasses the generation and

application of heat and mechanical power and the design, production, and use of machines and tools (thefreedictionary.com, 2013). Electronics Engineering is one of the largest and fastest growing fields of engineering. It covers a wide range of applications which make life easier and enjoyable such as Television, Radio, computers, telecommunication etc. (career.webindia123.com). Engineering graduates obviously need to have a certain skills to help them applying and practicing the knowledge effectively in workplace (Zaharim et al., 2009). Employers and leading engineers agreed that local engineering graduates are lack of oral and written communication skills (Hassan, 2007).

The results of this study will contribute to the improvement of the college, in such a manner that it will be more responsive to the needs of the industries and the community. The effectiveness of the curriculum should be monitored periodically to ensure its continued relevance. Curriculum plays a vital role in the realization of three domains of learning and it serves as a guide to achieve the objectives of outcomes based education (Laguador & Dizon, 2013). The effectiveness of the school program can be gauged by the skills presented to the graduates, their present positions and the nature of the jobs they obtained immediately after graduation.

Tracer studies – surveys of graduates from institutions of higher education – are often seen as an important tool of institutional development especially when the world of work is changing rapidly. With this method the higher education institution can get a systematic feedback from their former students (Sawyer, 2005). This tracer study intends to assess the relevance of the Engineering curricula under study, knowledge and skills acquired by the graduates to their employment; to identify the personal and professional characteristics and job placement of the Bachelor of Science in Industrial Engineering (BSIE), Bachelor of Science in Mechanical Engineering (BSME) and Bachelor of Science in Electronics and Engineering (BSEcE) graduates and the school-related factors associated with their employment. Since it is a part of the mission of Lyceum of the Philippines University in Batangas City, Philippines through the College of Engineering to provide the students an equal growth and opportunity like what the other universities and colleges can offer to their students and the appropriate application of knowledge and skills that would be well-suited to the graduates' future employment, the findings of the study would serve as the bases for the management to improve, update or enhance the curricula of three programs and services to make these more responsive to the needs of industries.

This study primarily aimed to determine the factors associated with the job placement of the graduates of Industrial Engineering, Mechanical Engineering and Electronics Engineering of Lyceum of the Philippines University in Batangas City from 2006-2008.

Specifically, this study was guided by the following objectives: to determine the job placement profile of the respondents in terms of job after graduation, present employment, reasons if unemployed, problems encountered in job seeking and factors that contributed to the job placement; to determine the skills developed by the University which are considered useful by the respondents in meeting the demands of their present work; to describe how the respondents rate their work values; and to enhance the relevance of present course offerings and the faculty development program of the college based on the findings of the study.

METHOD

This chapter presents the method of research, the sampling scheme and selection of subjects, the instrument used, the data gathering procedure, the validation of instrument, and the statistical treatment used by the researchers in interpreting the results.

Research Design

This tracer study used the quantitative and descriptive research design. It involved the collection of data in the attempt to test the hypothesis and so with the different questions posted as regards the status of the subject under study.

Along with this, Calderon (1996) emphasized that descriptive research is a purposive process of gathering, analyzing, classifying and tabulating data about the prevailing conditions, practices, beliefs, process, trends and cause and effect relationship, thereby making adequate and accurate interpretations about such data with or without the aid of a statistical method.

Participants

The respondents of the study were 14 Mechanical Engineering, 35 Electronics Engineering and 30 Industrial Engineering graduates from 2006 -2008. Profile of the respondents in terms of age, gender, civil status and eligibility examination passed were also considered in the study.

The data reveal that majority of the respondents belong to 22-23 years old comprising of 41 or 51.90 percent followed by 24 – 25 years old comprising of 36 or 45.57 percent and 26 – 27 years old with 2 or 2.53 percent. Majority of them are males manifested by the frequency of 62 or 78.5 per cent against 17 or 21.5 percent of females. The data imply the male dominance of skills in the Engineering field. The data show that majority of the respondents is still single as manifested by the frequency of 72 or 91.1per cent while 7 or 8.9 per cent are married.

However, 19 or 24.1 per cent of the respondents are with eligibility in the Licensure Examination for Mechanical Engineers and Electronics Engineers, while majority of the respondents haven't taken or passed any eligibility examination even the Civil Service Professional.

Instrument

The main instrument used in this study was a survey questionnaire. The questionnaire consists of three parts: profile of the respondents, job placement of the respondents and relevance of school related factors to the job placement of the respondents. The LPU Research Center provided the institutional survey instrument to be used for this study. The information gathered from the first part of the questionnaire which was the profile of the respondents were only some of the pertinent data needed to analyze and answer the problem posted in the study. The job placement section of the questionnaire was adapted from previous studies conducted by some graduate students in their master's thesis. The third part of the questionnaire was adapted from the instrument used by PACUCOA in accreditation. The questionnaire was validated by some of the research experts including the Research Council of LPU.

Procedure

Personal data such as names, addresses and telephone/cellular phone numbers of the graduates from 2006 – 2008 were obtained from their undergraduate theses' index - curriculum vitae. The researchers administered some of the questionnaires personally and others were mailed to the graduate – respondents. Questionnaires were sent with self addressed stamped envelopes. The researchers also asked for the help and assistance of friends, relatives and currently enrolled students from the time of data gathering for the personal delivery of the questionnaire to the identified respondents.

The researchers used electronic mail or e-mail in sending the questionnaires. It was the most convenient and fastest way of sending notes, letters and messages through Internet. Most of the graduate respondents were using computers in their offices or companies which meant that it was easier to communicate with them in asking their participation as respondents of the study.

Analysis

The data collected were classified, tabulated and coded for analysis. The following statistical tools were employed in interpreting the data obtained from the survey: Percentage was used to analyze the profile of the respondents with respect to the selected variables. Weighted Mean was used to determine the degree of perception of the graduate respondents in the school factors related to their job placement. Rank showed the position of importance of the items used.

The respondents were offered five options to identify the factors that contributed to the placement of the engineering graduates in their present employment and to determine the skills developed by Lyceum of the Philippines University and work related values of the respondents. To arrive at a verbal

description for Identifying the Factors that Contributed to the Job Placement of the Engineering Graduates, the arbitrary numerical guide was followed: 4.5 – 5.00: Very Much; 3.5 – 4.49: Much; 2.5 – 3.49: Little; 1.5 – 2.49: Very Little and 1.0 – 1.49: Not at all.

In identifying the relevance of school related factors to the job placement of the respondents, the respondents were offered four options. To arrive at a verbal description of each item, the arbitrary numerical guide was followed: 3.5 – 4.00: Very Relevant; 2.5 – 3.49: Relevant; 1.5 – 2.49: Slightly Relevant; 1.0 – 1.49: Not Relevant.

RESULTS AND DISCUSSION

Job Placement Profile in Terms of Job After Graduation

The greater percentage of the respondents with 50 or 87.7 percent landed on first job related to their course completed while only 7 or 12.3 of the employed respondents landed on a job not related to their course completed. In terms of length of job search, it can be noted that 23 or 40.4 percent of the employed graduates obtained their first jobs within 6 months followed by the employed graduates within one year with 17 or 29.8 percent and 15 or 26.3 percent of the employed graduates within 3 months, while 2 or 3.50 percent have reached more than 1 year before they got into work.

The board examination for mechanical engineering and electronics engineering graduates hampers them to work immediately after graduation. It takes almost half a year for them to finish and passed the comprehensive examination before they have given the chance to take the actual board examination being facilitated by Professional Regulation Commission (PRC) which almost took another 6 months. Since Industrial Engineering program has no board examination requirement, the BSIE graduates can look for their possible work places that suit to their field of specialization immediately after graduation.

Majority of the employed respondents have stayed in their first job almost more than one year as manifested by 30 or 52.6 percent of the total employed respondents and 23 or 40.4 percent have worked and stayed in the industry within one year and still most of them are currently connected, while 4 or 7 percent of them stayed within 6 months in the company.

Low salary is the number one reason of 9 or 75 percent out of 12 respondents who left their first job followed by the end of contact with 4 or 33.3 percent and no benefits or incentives being provided by the company with 3 or 25.0 percent, while the work environment and not related to the degree are another reasons of the 4 or 33.4 percent of the respondents and one respondent agreed that strict regulation of the company is the reason why he left his job.

For the entry level position, sometimes it is nothing but normal to receive low salary every pay day because of their qualification. Salaries of most companies are sometimes based from the skills and experienced of the worker. As beginners in the field, gaining more knowledge and expertise in the chosen specialization will lead them to a more productive position and salary in the future.

Job Placement Profile in Terms of Present Employment

Industrial Engineering graduates obtained the highest number and percentage of respondents compared to other two courses who are presently employed as indicated by the frequency of 27 or 90.0 percent out of 30 total number of graduates with only 3 or 10.0 percent never been employed graduates.

It was followed by Mechanical Engineering Graduates with 12 or 85.7 percent out of 14 graduate-respondents who are presently employed and 2 or 14.3 percent never been employed while almost half of Electronics Engineering graduates are presently employed with 18 or 51.4 percent out of 35 total ECE graduates and 16 or 45.7 percent are never been employed because of the board examination and 1 respondent or 2.9 percent was previously employed.

Supervisory positions are being handled by five or 16.6 percent of the Industrial Engineering graduates; 3 or 21.4 percent of Mechanical Engineering graduates and 3 or 8.6 of Electronics Engineering graduates while still majority of the graduates comprising of 46 or 80.70 are in rank and file position. One to three years after graduation is not enough to measure the success of the graduates in their chosen of

endeavor. This is just only the beginning of their long journey and starting to climb in the ladder of the corporate and real world of business and progress.

Job Placement Profile in Terms of Nature of Employment, Position, Work and Number of Job Prior to the Present Job

Ninety-eight percent or 56 employed respondents are working full time and majority of them are handling jobs related to their course completed as manifested by the frequency of 50 or 87.7 percent while only 7 or 12.3 percent are carrying out task in the company not related to their course completed in college. Moreover, majority of them are still staying with their first job as manifested by 44 or 77.2 percent out of 57 employed respondents, 7 or 12.3 percent of the employed respondents have one job prior to their present job; three or 5.3 percent with three jobs prior to present; 2 or 3.5 percent with two jobs while 1 or 1.8 percent has changed his job for more than 3 times. This signifies that majority of the graduates are trying to gain more experience from their first and present employment because of stiff competition in looking for another job. The data revealed that majority of the employed respondents are having lead technician position in the company with 12 or 21.05 percent, six staff engineers, five process engineers, four production engineers, three assistant supervisor and three production supervisor.

Problems Encountered When Looking for a Job

Out of 79 graduate–respondents, 30 or 37.97 percent affirmed that no previous experience on the position applied for is the number 1 problem they encountered when looking for a job followed by pre employment interviews with 25 or 31.65 percent and pre employment exams with 19 or 24.05 percent. Least chosen reasons are adequacy of knowledge and skills with 13 or 16.46 percent and satisfying minimum requirements like school, course, experience and grades with 6 or 7.59 percent.

Since they are all fresh graduates during the time they are looking for a possible job, it is true that they have no previous experience yet at hand, what they only have are the school credentials, school based knowledge and some industry-experience from their on-the-training wherein they do not allow handling and executing complicated tasks in the company.

Due to inadequate experience in oral communication, engineering students and graduates have difficulty in expressing themselves orally. This area needs to be addressed carefully to solve the problems of the students while they are still in the academe.

Pre employment exam is another cause of problem being confronted by engineering graduates as manifested by 19 or 24.05 percent of the respondents. They must be guided properly and trained how to take the examinations related to pre-employment exams. The academe must ensure that students have possessed the appropriate knowledge and skills that they can use as weapon against their competitors or co-applicants eyeing for the same position.

Table 1. Factors that Contributed to the Placement of the Engineering Graduates in Their Present Employment

Factors	Weighted Mean	Interpretation	Rank
1. Grade point average	3.67	Much	4
2. Relevance of the course	4.71	Very Much	1
3. Performance in examination and interview given by the company	4.38	Much	2
4. Personality	1.63	Very Little	5
5. Letter of Recommendation	1.37	Not at all	6
6.Persistence in Job Seeking	4.21	Much	3
Total			

Relevance of their course (4.71) served as the primary factor that contributes to the placement of engineering graduates in their present job followed by performance in examination and interview given by the company (4.38) and persistence in job seeking (4.21).

The field of engineering is never been put off in the long list of job openings due to minimal number of students who tried to love hard sciences and mathematics. That is the reason why engineering is always in demand. Various examinations and interviews are part of selection process being implemented and conducted mostly by the Human Resource Department which according to the graduates their performance in this selection process contributed much to their employment. These are some of the factors need to be practiced by engineering students while they are still in the academe. Universities and colleges must prepare their students in this kind of pre-employment practices.

Persistence in job seeking is an important factor being considered by new applicants because of the numerous challenges they have been encountered along the way to a dream job. The journey leading to success is bumpy, sometimes distressing and embarrassing. But the person with perseverance and self-determination to attain his goals and wants to turn his aspirations to reality, no matter how narrow and stiff the road going to it, he will take all the chances just to get his dreams achieved. Grade point average (3.67) also contributed much to attain their present job. But the personality (1.63) has very little contribution in the attainment of their present position while the letter of recommendation (1.37) does not contribute at all. It only implies that most of them manage to have their jobs even without recommendations from other people like relatives and politicians.

Table 2. Relevance of School Related Factors to the Job Placement of Respondents in Terms of Curriculum

General Education Subjects	Weighted Mean	Interpretation	Rank
English and Literature subjects	3.46	Relevant	2
Mathematics subjects (Algebra, Trigonometry,…)	3.67	Very Relevant	1
Social Sciences (Psychology, History,…)	1.67	Slightly Relevant	4
Natural Sciences (Biology, Physics, Chemistry,…)	1.78	Slightly Relevant	3
Composite Mean	**2.65**	**Relevant**	
Basic Engineering Subjects			
1. Engineering Drawing with AutoCAD	2.87	Relevant	3
2. MS Office Applications	3.78	Very Relevant	1
3. Engineering Management	2.32	Relevant	4
4. Computer Fundamentals	3.59	Very Relevant	2
Composite Mean	**3.14**	**Relevant**	

Table 2 presents the relevance of school-related factors to the job placement of respondents in terms of curriculum. In the area of General Education, data revealed that mathematics subjects (3.67) were considered very relevant in the job placement of the graduate-respondents followed by English and literature which were considered relevant while social and natural sciences have slight relevance in the attainment of the present job of the graduates. This only signifies that the coverage of pre-employment examinations of the companies is mostly to test the mathematical ability of the applicant and their English proficiency through written exams and interviews.

However, in Basic Engineering Subjects, MS Office Applications and Computer Fundamentals reveal a very relevant contribution to the job placement of the respondents with weighted mean scores of 3.78 and 3.59 respectively followed by engineering drawing with AutoCAD (2.87) and Engineering Management (2.32). Reports and summaries of productions or operations of many companies are being done using MS Office like Microsoft Word, Excel and Power point. This gives emphasis to the importance of computer applications and fundamentals to the tasks being performed by the respondents. Since they are not assigned in product design and lay-out section they are not able to use the AutoCAD but they also encountered instances that they need to understand certain technical drawings which could be used in the company operation and making decisions.

On the other hand, Engineering Management seems not very popular to them because they are not managing large group of people like what supervisors and managers do. But in the later years, when they got promoted, the lessons they have learned from this subject will also be beneficial to them.

Table 3. Relevance of School Related Factors to the Job Placement of Respondents in Terms of ECE Curriculum

ECE Professional Subjects	Weighted Mean	Interpretation	Rank
1. Electronics	3.67	Very Relevant	1
2. Logic Circuit & Switching Theory	3.46	Relevant	3
3. Microprocessor System	3.19	Relevant	5
4. Digital Communications	2.68	Relevant	9
5. Control Systems	2.76	Relevant	8
6. Engineering Circuits/Energy Conversion	2.54	Relevant	10
7. Spectra and Signal Processing	2.87	Relevant	7
8. Transmission Media and Antenna System	3.23	Relevant	4
9. Principles of Communications	3.58	Very Relevant	2
10. Data Communications	3.18	Relevant	6
Composite Mean	**3.12**	**Relevant**	

Table 3 presents the relevance of school-related factors to the job placement of respondents in terms of ECE curriculum. The weighted mean scores of the relevance of ECE curriculum to their present employment range from 2.54 to 3.67 with the most number of "Relevant" verbal interpretations which are manifested by the composite mean score of 3.12.

Electronics Engineering graduates affirmed that Electronics (3.67) contributed the most relevant subject to their present job followed by Principles of Communications (3.58) and Logic Circuit and Switching Theory (3.46). The three least relevant major subjects taken by ECE graduates are the Control Systems (2.76), Digital Communications (2.68) and Engineering Circuits or Energy Conversion (2.54). They learned from these subjects the basic functions and operating characteristics of different electronics devices, communication circuits, signals and spectra, noise distortion, methods of modulation, reception and detection of signals which are beneficial to their present task and work environment.

The least rated relevant ECE professional subjects are: Control Systems (2.76); Digital Communications (2.68) and Engineering Circuits/Energy Conversion (2.54).

This only implies that these major subjects are relevant to their present job and the knowledge and information provided by the University can contribute to the application of their present position and work load effective.

Table 4 presents the relevance of school-related factors to the job placement of respondents in terms of Industrial Engineering curriculum. The weighted mean scores of the relevance of Industrial Engineering curriculum to their present employment range from 2.68 to 3.86 with an even distribution of "Relevant" and "Very Relevant" verbal interpretations in which the composite mean score of 3.33 falls within the "Relevant" verbal interpretation.

Industrial Engineering graduates affirmed that Time and Motion Study (3.86) contributed the most relevant subject to their present job followed by Industrial Materials and Processes (3.76); Industrial Quality Control (3.64); Production Systems (3.54) and Facilities Planning and Design (3.50). This implies that the majority of the employed Industrial Engineering graduates were assigned in production and quality assurance department. They illustrate the progress made in connection to work methods and time standards. They are concerned with industrial processes and equipment related to materials and product use which sometimes include wood working, sand molding, heat treatment, machining and finishing, machine shop practice and foundry.

Table 4. Relevance of School Related Factors to the Job Placement of Respondents in Terms of IE Curriculum

IE Professional Subjects	Weighted Mean	Interpretation	Rank
1. Industrial Materials & Processes	3.76	Very Relevant	2
2. Time and Motion Study	3.86	Very Relevant	1
3. Facilities Planning and Design	3.50	Very Relevant	5
4. Industrial Quality Control	3.64	Very Relevant	3
5. Ergonomics	2.67	Relevant	10
6. Operations Research	3.12	Relevant	8
7. Production Systems	3.54	Very Relevant	4
8. Accounting	2.68	Relevant	9
9. Systems Engineering	3.16	Relevant	7
10. Personnel Management	3.37	Relevant	6
Composite Mean	**3.33**	**Relevant**	

The three least verbally interpreted major subjects by the Industrial Engineering employed graduates are Operations Research (3.12); Accounting (2.68) and Ergonomics (2.67). This signifies that the Industrial Engineering graduates are not engaged in the works of linear programming and tasks being handled by the company researchers, they are not also assigned in accounting and finance section and they are not belonged to product design department wherein these subjects are being undertaken and applied.

Table 5. Relevance of School Related Factors to the Job Placement of Respondents in Terms of ME Curriculum

IE Professional Subjects	Weighted Mean	Interpretation	Rank
1. Machine Design	3.23	Relevant	7
2. Refrigeration System	3.36	Relevant	6
3. Air-conditioning and Ventilation	3.12	Relevant	8
4. Fluid Machinery	2.56	Relevant	9
5. Vibration Engineering	2.51	Relevant	10
6. Industrial Plant Engineering	3.52	Very Relevant	3
7. Power Plant Engineering	3.65	Very Relevant	1
8. Machine Elements	3.59	Very Relevant	2
9. Electronics and Electricity	3.42	Relevant	4
10. Thermodynamics	3.38	Relevant	5
Composite Mean	**3.24**	Relevant	

Table 5 presents the relevance of school-related factors to the job placement of respondents in terms of Mechanical Engineering curriculum. The weighted mean scores of the relevance of Mechanical Engineering curriculum to their present employment range from 2.51 to 3.65 with the most number of "Relevant" verbal interpretations which are manifested by the composite mean score of 3.24.

Mechanical Engineering graduates affirmed that Power Plant Engineering (3.65) contributed the most relevant subject to their present job followed by Machine Elements (3.59) and Industrial Plant Engineering (3.52). in Machine elements, they are engaged in graphical study of displacement, velocity and acceleration of basic mechanism and basic study of design of cams that includes drafting work. In Industrial Plant Engineering, they learned the fundamental concepts of design and installation of typical power plants such as steam power plant, diesel electric power plant, geothermal power plant as well as other generating plants using unconventional source of energy which they can use to understand the operations in field.

The three least verbally interpreted major subjects by the Mechanical Engineering employed graduates are Air-conditioning and Ventilation (3.12); Fluid Machinery (2.56) and Vibration Engineering (2.51). They were not occupying the position who handles pumps, fans, blowers, compressors and turbines in fluid machineries as well as person who use the method of static load analysis and approximate dynamic analysis for vibration engineering.

Table 6. Skills Developed by LPU Considered Useful by Respondents in Meeting the Demands of their Present Work

Skills	Weighted Mean	Interpretation	Rank
1. Intellectual	4.47	Much	1
2. Communications	3.23	Much	5
3. Manipulative / Technical	4.15	Much	3
4. Management Skills	3.89	Much	4
5. Interpersonal skills	4.29	Much	2
Composite Mean	**4.01**	**Much**	

The graduate – respondents considered the intellectual skills (4.47) developed by LPU have contributed much to their present employment which followed by Interpersonal skills (4.29) and manipulative/technical skills (4.15). Management and communication skills developed by LPU also contributed much to their job placement although these items belongs to 4th and 5th ranks with 3.89 and 3.23 weighted mean scores respectively.

It is the primary objective of all academic institutions to develop and enhance the intellectual capacity of their students. Any university or college who failed to develop the intellectual skills of their students will be considered an academic institution offering poor quality education. LPU has a capacity to cultivate the knowledge of their students and put them in a more progressive tract with right interpersonal skills and significant manipulative and technical skills towards the achievement of their future goals in industry.

Overall, graduates find the skills they learned at universities as relevant to their job. The most applicable skills are those of factual knowledge and organizational skills. The factual knowledge and organizational skills imparted by the universities are perceived by its students to be useful (Debono et al., 2002).

There is ample evidence of the many employability skills have much impact on capabilities of new entry-level job applicants to get a job. Labour market conditions for engineering graduates today are particularly tough due to globalization and competition as the numbers of graduates are continuously increasing (Zaharim et al., 2009).

Table 7 presents the work related values relevant to the present employment of the respondents. The weighted mean scores of the work – related values relevant to the present employment of the respondents range from 4.26 to 4.87 with composite mean score of 4.51 falls within the "Very Much" verbal interpretation.

Honesty and truthfulness (4.87), commitment and dedication (4.68); diligence and hard work (4.59); attendance and punctuality (4.54) and love of work (4.51) were considered to have very much contribution to the present employment of the employed graduate – respondents. According to them, these are the work values they possessed which helped them obtained their first jobs. The value of honesty in all aspects of life really matters a lot, most especially in establishing a good name in the company, dignified profession and ensuring a lifelong treasure.

Table 7. Work – Related Values Relevant to the Present Employment of the Respondents

Work – Related Values	Weighted Mean	Interpretation	Rank
1. Honesty and truthfulness	4.87	Very Much	1
2. Attendance and punctuality	4.54	Very Much	4

3. Obedience to superior	4.47	Much	6
4. Diligence and hard work	4.59	Very Much	3
5. Concern for Others	4.26	Much	10
6. Creativity and innovativeness	4.37	Much	9
7. Love of Work	4.51	Very Much	5
8. Achievement Oriented	4.45	Much	7
9. Respect for self and others	4.38	Much	8
10. Commitment and Dedication	4.68	Very Much	2
Composite Mean	**4.51**	**Very Much**	

Commitment and dedication are work values related to diligence and hard work which illustrate how sincere an employee to produce quality outputs and guarantee an employer's satisfaction. Attendance and punctuality demonstrate how an employee loves his work which the graduates also give emphasis in this study. They also learn how to give respect to the employer's objective of meeting the time limits and deadlines of their work outputs.

The three least rated work – related values are respect for self and others (4.38); creativity and innovativeness (4.37) and concerns for others (4.26) which are still considered to have much contribution to their present employment that cannot be taken away from the rest of the values cited in this study. These values were rated least but the differences between the weighted mean scores were not too far from each other.

Concern for others is also measured important but sometimes employees do not consider other people as part of their job that is one reason why some of them neglect this particular work values. Creativity and innovativeness by some means have little part in their job but since most of their tasks are machine based, sometimes they do not need to become creative and innovative because the procedures of making the products are already defined and standardized. Most of them were not assigned in the section wherein designing and lay-outing are being performed.

Proposed Program to enhance the relevance of present course offerings and the faculty development program of the College

The curriculum of engineering in terms of General Education Subjects must strengthen the oral and written communication skills of the students in English in able them to gain self-confidence in expressing their ideas most especially during the employment interviews. Mathematics must also be given great emphasis because of the pre-employment examinations. The College of Engineering may provide a certain activity or program that will enhance the capability of the students to take pre-employment examinations. The subjects in the three major fields of engineering mentioned with relevance to the present employment of the graduates must be continuously improved the teaching strategy of the instructors handling these subjects and reinforce more the delivery of lessons in the most creative way while the areas where the curriculum found least relevant to the present employment of the graduates must still be included in the program and provide trainings for the teachers like how to become good counselors inside the classroom, how to show genuine interest in the students, how to give awards to the deserving students, how to enhance their teaching skills in technical subjects in order to strengthen more the teaching – learning process in particular subject and the program itself.

CONCLUSIONS

Industrial Engineering graduates are more employable compared to Mechanical and Electronics Engineering while majority of them obtained their first jobs within 6 months, satisfied working in full time basis with lead technician position in Sun Power Manufacturing Ltd. Philippines and stayed more than one year with low salary as their reason why they left their first job.

Electronics, Time and Motion Study and Power Plant Engineering contributed the most relevant subject to the present job of ECE, IE and ME, respectively while Mathematics subjects were still

considered very relevant to all fields of engineering. The personal and social traits and instructional competencies of their college instructors have also slight relevance to graduates' job placement.

Intellectual skills developed by LPU have contributed much to present employment of the respondents.

The work – related values most especially honesty and truthfulness were considered very much relevant to the present employment of the employed graduate-respondents.

The proposed program focused on academic development and leadership capability of engineering students and faculty members as well.

RECOMMENDATION

Based on the aforementioned conclusions, it is strongly recommended that the graduating students before graduation must be given ample time to practice answering pre-employment examinations and interviews. Technical trainings must be given to the instructors handling major subjects in Mechanical Engineering, Industrial Engineering and Electronics Engineering to update their knowledge and skills in teaching the subjects. Instead of changing or revising the curriculum of three engineering programs, only the syllabi of all subjects either minor or major must be kept up-to-date to incorporate more relevant information to the subject.

English and Math subjects must be strengthened. Provide activity or program that will enhance the capability of the students to take pre-employment examinations. Provide relevant trainings for the teachers in teaching technical subjects and how to integrate values in the subject. University personnel must be conscious about their reactions to the situation while they are interacting with the students. All Offices and Departments must pursue and continue to improve their services towards the attainment of maximum customer satisfaction.

All department heads and personnel in the university must be aware of their contribution either direct or indirect to the development of each individual student to become a person with good character and attitude, wherein a true Lycean must bring to the world.

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