

Employers' Feedback on the Job Performance of Computer Engineering Graduates in an Asian Academic Institution

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Abstract – *The study aims to determine the job performance of computer engineering graduates based on the evaluation of their immediate superiors or employers in terms of competence, commitment, caring and credibility. Descriptive type of research was utilized in the study. Results showed that the graduates obtained highest performance rating in demonstrating passion for execution and sense of urgency in all tasks, working professionally with the team in applying suitable technology to accomplish certain task and practicing honesty, fairness and transparency in all business transactions with the stakeholders. However, they obtained the least scores in providing sound decision making in responding to the needs of the organization and demonstrating assertive communication skills in dealing with colleagues, customers and other stakeholders.*

Keywords: performance evaluation, computer engineering, higher education, competence, commitment

INTRODUCTION

Employers' feedback about the job performance of the graduates is an essential input to the curriculum developers and educators in the academic community to execute more strategies on how the graduates could be able to perform their functions as members of dynamic organizations in national and international settings. The leadership brand of Lyceum of the Philippines University-Batangas (LPU-B) is necessary to emphasize in identifying the performance of the graduates if they really possess this characteristics to be able for them to exemplify the uniqueness of being a graduate of this university.

Engineering as a profession requires technical skills and knowledge on project management and designs and development of products and services

leading to innovation and introduction of new technologies. Engineering graduates are expected to possess certain level of communication and presentation skills with high analytical and critical thinking skills. Computer engineers are trained to handle any related situation to computer hardware and software including computer networks. It is a very broad profession where someone needs to choose specific area where to concentrate. They might go into design and development or manufacturing of products through the use of computer aided designs and other graphic communication and application software while others could work on computer networks and programming. No matter how good they are in the technical aspect of their job descriptions, it is still essential to possess the character and work values that are necessary to perform their duties and responsibilities along with the other members of the team.

Positive behavior towards any work assignment and having appropriate attitude towards the culture and environment of the organization is also important aspect that needs to consider by the graduates. Culture is one of the aspects of every organization where practices of one company are different from another. Social orientation of engineers should learn to adjust in various cultures based on how workers treat other workers and how the management handles its employees. Engineers need global competencies and multicultural skills as much as any other professionals [1]. An important caution to recognize and keep in mind in developing approaches to global learning is that one key feature of a globalizing world is that it is increasingly difficult and, indeed, problematic to characterize people as members of different cultures [2].

In developing its new engineering accreditation criteria, ABET reaffirmed a set of "hard" engineering skills while introducing a second, equally important,

set of six “professional” skills which include communication, teamwork, and understanding ethics and professionalism, which labelled as process skills, and engineering within a global and societal context, lifelong learning, and a knowledge of contemporary issues, which was designated as awareness skills [3].

Attitude is the heart of one's character that defines the quality of a person on how to face various challenges and concerns that need answers through proper treatment and acknowledgement of the problem. If engineering education considers how the social surroundings influence the individual level of competence, students' attitudes become accessible in the educational process. The possibility of shaping attitudes is very limited in the traditional approach of targeted instruction. The wider understanding of education means that the function and possibilities of engineering educators go beyond selecting and administering learning activities [4].

Competency deficiencies in graduates have also been referred to as “skills gaps”, referring to the difference between the level of competence required for employment [5], [6], [7] or alternatively the importance of competencies for employment and the level of competence of graduates [8].

Competency of the graduates is considered subjective which depends on the nature and complexity of the work to be accomplished [9], [10]. The analysis of the empirical study of Walther and Radcliffe [4] leads to a multi-scale systems model of engineering competence, where the attitudes and self-image are located on a meta-level, and organize and contextualize the individual's particular set of competencies in a specific work situation.

One study showed that employers need to know that 64 percent of the salaries they expend on newly graduated engineers pay for their communication skills, not their engineering competencies. Clearly, technical ideas and results are not useful until and unless they are communicated and discussed. Therefore, employers are justified in demanding graduates thoroughly trained in communicating technical information [11].

Engineering graduates may not have the competencies required for contemporary practice, even though program outcomes have been designed to meet the stated needs of industry [12]. This observable gap between education and practice points to a set of underlying causes that calls for the competence dilemma in engineering education [4].

The difference between university and industry is also reflected in the respective practices of determining competency requirements. The graduate attributes were developed, with considerable input from industry, using an expert panel approach. This approach specified broad aspirational goals that point out a general direction for engineering education [4].

Muthuvveloo's [13] study suggests that high organisational commitment can lead to high absenteeism and lower productivity, due to higher work stress. The results also imply that, organisational commitment is influenced by engineers' beliefs and values, while organisational outcomes are influenced by monetary rewards.

Employers seek employees who take the initiative and have the motivation to get the job done in a reasonable period of time. This is where quality measure comes in to have check and balance on the outputs and outcomes of the performance [14]. A positive attitude gets the work done and motivates others to do the same without dwelling on the challenges that inevitably come up in any job. It is the enthusiastic employee who creates an environment of good will and who provides a positive role model for others. A positive attitude is something that is most valued by supervisors and co-workers and that also makes the job more pleasant and fun to go to each day [15].

The credibility of employees cultivates the trust and confidence of the employers. It is one of the basic attributes anyone should possess to gain the respect of the entire organization. Especially those in the authority to implement the policies, rules and regulations must have certain level of integrity to keep their instruction powerful and compelling. As cadet engineers in the department, knowing how to follow protocols is a good manifestation of having sense of responsibility and discipline as a sign of respect to the governing rules of the organization.

This study explores on the feedback of the employers of computer engineering graduates in terms of their performance relative to the value of competence, commitment, caring and credibility [16]. Identifying the observations of the employers as important customer of the Higher Education Institution is one way of evaluating how the graduates applied the acquired technical knowledge and values to their respective work places. It gives substantial input on the areas need to be addressed in the teaching and learning process and the required outcomes of the educational services.

METHOD

This employability study used the descriptive research design wherein according to Shuttleworth [17], it is a scientific method which involves observing and describing the behavior of a subject without influencing it in any way. Out of 32 employed surveyed graduates from 2013 to 2015, only 24 or 75 percent of the employers responded in the study. Survey questionnaire is the main instrument used in this study which is based on the leadership brand of LPU-Batangas [18] wherein graduates should possess the 4Cs to exemplify the good image and uniqueness of being a Lycean. This was content-validated by the Department Chair of Computer Engineering, Dean of the College of Engineering and one Language teacher.

The respondents were informed on the purpose of the study and were invited to participate in the survey with the assurance that the data provided in the survey will be treated with utmost confidentiality and will solely be used for the purpose of this research. The researchers administered the questionnaires through online survey with the assistance of the employed graduates.

Weighted Mean is the statistical tool used to interpret the result of the survey. To arrive at a verbal description of each item, the given scale was followed: 3.5 – 4.00: Very Good (VG); 2.5 – 3.49: Good (G); 1.5 – 2.49: Fair (F); 1.0 – 1.49: Poor (P).

RESULTS AND DISCUSSION

Table 1. Employers' Feedback on the Job Performance of Computer Engineering Graduates in terms of Competence

Competence	WM	VI	Rank
1. Applying appropriate computer engineering skills in performing required duty /functions	3.46	G	3
2. Providing sound decision making in responding to the needs of the organization	2.97	G	4
3. Adopting easily to the environment of a new hardware and/or application software	3.59	VG	2
4. Demonstrating assertive communication skills in dealing with colleagues, customers and other stakeholders	2.93	G	5
5. Working professionally with the team in applying suitable technology to accomplish certain task	3.76	VG	1
Composite Mean	3.34	G	

Table 1 presents the employers' feedback on the job performance of Computer Engineering graduates in terms of competence. Computer Engineering graduates obtained very good performance rating as evaluated by their immediate superiors in terms of working professionally with the team in applying suitable technology to accomplish certain task (3.76) and adopting easily to the environment of a new hardware and/or application software (3.59). Meanwhile, they were evaluated with good performance in terms of applying appropriate computer engineering skills in performing required duty/functions (3.46), providing sound decision making in responding to the needs of the organization (2.97) and demonstrating assertive communication skills in dealing with colleagues, customers and other stakeholders (2.93). Sageev and Romanowski [11] emphasized that engineering schools need to prepare all their students for the real world communication demands their graduates will face. Just providing an outstanding technical education is no longer sufficient.

The composite mean score of 3.34 implies that the Computer Engineering graduates possessed good characteristics of being competent employees in performing their duties and responsibilities. This also signifies that the graduates can easily adapt to new environment as a demonstration of their willingness to learn the latest trend in technology and their eagerness to be trained to utilize the modern facilities of the company. In terms of applying their appropriate skills in the work place, it shows that not all of them were directly assigned to do what really computer engineers do in the design and development of computer hardware and software but most of them were placed in allied computer line of work giving them the opportunity to handle various tasks related to software application and utilization of hardware and networks. Competence of graduates can be seen even in other fields of endeavour where they can express what they have learned through the application of critical and analytical thinking.

It is in this context that competency is dependent on the nature of work assignment of the graduates not necessarily the technical competencies where they were trained. Therefore, Walther and Radcliffe [4] noted that different job situations require different levels of a competency as a basis for performance.

Table 2 presents the employers' feedback on the job performance of Computer Engineering graduates in terms of commitment.

Table 2. Employers' Feedback on the Job Performance of Computer Engineering Graduates in terms of Commitment

Commitment	WM	VI	Rank
1. accepting willingly and performing leadership roles in various activities with an exceptional sense of duty and dependability	3.24	G	4
2. providing necessary support, service and assistance for the welfare of the organization	3.59	VG	3
3. demonstrating passion for execution and sense of urgency in all tasks	3.79	VG	1
4. transcending personal needs when organizational concerns need to be attended to	3.66	VG	2
5. participating in making decisions and implementing the activities of the organization	2.96	G	5
Composite Mean	3.45	G	

They obtained very good performance rating in terms of demonstrating passion for execution and sense of urgency in all tasks (3.79), transcending personal needs when organizational concerns need to be attended to (3.66) and providing necessary support, service and assistance for the welfare of the organization (3.59). Meanwhile, they were rated good in accepting willingly and performing leadership roles in various activities with an exceptional sense of duty and dependability (3.24) and participating in making decisions and implementing the activities of the organization (2.96). The composite mean score of 3.45 implies that the computer engineering graduates were committed in responding to the immediate needs of the organization.

The employed computer engineering graduates as observed by their immediate superiors give value to the time and financial resources of the organization through demonstrating their sense of urgency to generate outputs and required outcomes from their respective assignments. Going beyond of what is expected of them to perform is also being given importance by the graduates to really express their sincerity and commitment towards work and the organization where they belong. Meanwhile, performing leadership role in the company entails more time to adjust with the attitude and culture of the organization before they can take off to show their

good intention of accepting roles with higher responsibilities and participating in the discussion of plans and projects would give them a second thought to initiate if they will not be asked to say something about it.

Although in the study of Muthuvveloo [13] noted that organisational commitments driven by remuneration ties are the easiest way for organisations to retain employees, it is a relatively more expensive and complex challenge for organisations, as supervisors have little influence over the development of ties based on remuneration. However, the present study did not consider compensation of the graduates, commitment as observed by the employers were good enough to note the dedication of the computer engineering graduates on their respective work places.

Table 3. Employers' Feedback on the Job Performance of Computer Engineering Graduates in terms of Caring

Caring	WM	VI	Rank
1. Fostering the sense of family in the workplace by helping co-employees with difficulty in completing some tasks	3.45	G	5
2. Maintaining harmonious and friendly relations with superior, peers and subordinates through respecting their individual differences	3.55	VG	3
3. Showing marked interest and pride in the present job by completing tasks on time	3.59	VG	2
4. Promoting positive image of the department through serving customers effectively	3.66	VG	1
5. Demonstrating the significant values of the organization in achieving its vision and mission	3.48	G	4
Composite Mean	3.55	VG	

Table 3 presents the employers' feedback on the job performance of Computer Engineering graduates in terms of caring. They obtained very good performance rating in terms of promoting positive image of the department through serving customers effectively (3.66), showing marked interest and pride in the present job by completing tasks on time (3.59) and maintaining harmonious and friendly relations

with superior, peers and subordinates through respecting their individual differences (3.55).

Furthermore, they obtained good performance rating in terms of demonstrating the significant values of the organization in achieving its vision and mission (3.48) and fostering the sense of family in the workplace by helping co-employees with difficulty in completing some tasks (3.45). The composite mean score of 3.55 implies that the Computer Engineering graduates possessed the character and value of showing concern and affection to their co-employees in the organization.

Custom of caring among employees is part of the culture where it is imbibed in the character of every individual whoever joins the organization. The ability of the engineers to adapt in multicultural group would be an advantage to work collaboratively with the team exercising the value of unity. Male et al. [8] noted that cultures within engineering and engineering faculties remain critical and it can be difficult for engineering academics to give communication and teamwork the necessary status to be taught and learnt seriously within traditional engineering faculties, without cultural change.

Employers have seen the Computer Engineering graduates of LPU-Batangas as employees with utmost concern to the welfare of the clients as part of building the image of the department as well as the entire organization. The character of showing genuine interest to any work assignment given to them is a sign of their appreciation to the people around them and respect to the precious schedule of other work units who will possibly need their outputs in any given time. The CpE graduates were also observed as people oriented with sense of compassion to the authorities. They maintain good work behavior and serenity among the members of the organization.

Table 4 presents the employers' feedback on the job performance of Computer Engineering graduates in terms of credibility. They obtained very good performance rating in terms of practicing honesty, fairness and transparency in all business transactions with the stakeholders (3.76), demonstrating professionalism in dealing with colleagues (3.76), setting oneself as an example of moral and ethical behavior to all stakeholders (3.59) and protecting and preserving company's property through careful and wise use of the resources (3.55).

Computer Engineering graduates were observed as trustworthy individuals in dealing with customers

and co-workers with sense of professionalism through making the clients satisfied with their services.

Table 4. Employers' Feedback on the Job Performance of Computer Engineering Graduates in terms of Credibility

Credibility	WM	VI	Rank
1. becoming a model of leadership who adheres to the policies, rules and regulations of the organization	3.24	G	5
2. practicing honesty, fairness and transparency in all business transactions with the stakeholders	3.76	VG	1.5
3. protecting and preserving company's property through careful and wise use of the resources	3.55	VG	4
4. demonstrating professionalism in dealing with colleagues	3.76	VG	1.5
5. setting oneself as an example of moral and ethical behavior to all stakeholders	3.59	VG	3
Composite Mean	3.58	VG	

The character of engineers is honed using exact science in making decision that follows ethical standards and procedures on how to utilize properly the resources of the organization.

Moreover, they obtained good performance rating in becoming a model of leadership who adheres to the policies, rules and regulations of the organization (3.24) which obtained the least weighted mean score. Tonso [19] emphasized that once credibility can be established, transferability, dependability, and confirmability are gauged. With the short period of time working in the company with less than 3 years, they are still in the period of adjustment. Therefore, seeing them as role models who follow diligently the rules and regulations and knowing everything about the company and its governing policies would take them more years to imbibe the culture as well as the atmosphere on how to establish long term relationship with the co-workers and the top management.

The composite mean score of 3.58 implies that the computer engineering graduates have very high degree of credibility in maintaining relationships with the co-workers and performing their work assignments with outputs based on the requirements of the organization.

CONCLUSION AND RECOMMENDATION

Credibility and caring as measure of graduates' performance obtained the highest rating while commitment and competence obtained the least. It has been noted that the graduates were evaluated very high in working professionally with the team in applying suitable technology to accomplish certain task and adopting easily to the environment of a new hardware and/or application software. They were also observed as committed employees in demonstrating passion for execution and sense of urgency in all tasks and transcending personal needs when organizational concerns need to be attended to. They also received very high performance in promoting positive image of the department through serving customers effectively and showing marked interest and pride in the present job by completing tasks on time.

However, it is recommended that the computer engineering graduates should be able to provide sound decision making in responding to the needs of the organization and demonstrating assertive communication skills in dealing with colleagues, customers and other stakeholders. They should also learn how to accept willingly and perform leadership roles in various activities with an exceptional sense of duty and dependability and participate in making decisions and implementing the activities of the organization.

Employers of the graduates as important stakeholders of the HEI may be invited as board of adviser and sit in a meeting once in a while to get their substantial comments and feedback about the performance of the graduates.

This study has a limited number of employers involved in the study and explored only the computer engineering graduates of one higher education institution in the Philippines and confined the variables into the leadership brand of its institution. Conducting surveys across engineering disciplines and across countries would generate higher level of acceptability in the results of competence of the participants under study.

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