

RESEARCH PAPER

JOB DEMANDS OF SELECTED INDUSTRIES IN THE PHILIPPINES FOR INFORMATION TECHNOLOGY (IT) COURSES: BASIS FOR CURRICULUM ENHANCEMENT.

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ABSTRACT

The researcher conducted this study to analyze the job demands of selected industries for IT courses, with the end in view of proposing an IT curriculum enhancement of IT course content of the academe recommended to fit the industry job requirements. To respond systematically to the problems posed in this study, the researcher employed the descriptive research method, particularly the causal-comparative design. The respondents of the study were selected using purposive sampling. The 80 HR Manager/Personnel were chosen by virtue of their first-hand knowledge about the recruitment process of respective applicants in their respective company or organization. The 250 IT hired applicants were chosen through convenience sampling, and each was taken from the same respective industries. The study revealed that the IT course content in categories like personal skills, interpersonal skills and technical understanding needed by HR personnel and IT hired applicants are responsive and relevant to the industry needs. This implies that IT careers require a similar set of basic skills required by the HR personnel. The main objective of the study was to assess the job demands of selected industries for IT courses and to be used as basis for an enhanced curriculum in the college and university. It was hypothesized that there is no significant difference between the acquired competencies with the schools and preferred skills by the industries. The design used in this study was the result of the survey questionnaire where 80 came from the HR personnel and 250 from the IT hired applicants' respondents that were purposively selected. To assess the extent of job demands for IT courses, and for valid interpretation, frequency, percentage and weighted mean were the statistical tools used in this study. The z-test for significant difference was used to test the hypothesis between the acquired competencies with the schools and preferred by the industries to compare the means of two independent groups of HR personnel and IT hired applicants. It was found out that the IT course content in the category of personal skills, interpersonal skills and technical understanding needed by HR personnel are almost the same with IT hired applicants preferred skills by the industries. This implies that IT careers require a similar set of basic skills and knowledge required by the HR personnel. It was concluded that companies have comparable expectations of quality IT course content in terms of personal skills, interpersonal skills and technical understanding in hiring employees to the benefit of the academe and the industry. Emphasis on specific skills will depend on the needs in the order of importance in each respective industry. The curriculum enhancement is useful in identifying curriculum strengths and weaknesses relative to skills, knowledge and work attitude, and increases the likelihood that IT graduates will acquire those skills and competencies that HR personnel values most.

KEYWORDS: Job Demands, Industries, IT curriculum

1. INTRODUCTION

Information Technology Education (ITE) is built upon a core of courses and a series of professional courses leading to one or more of the Information Technology (IT) programs. The government recently directed the Department of Education to raise the level of the country's educational system to leverage with the world standards, especially technology education to address the job demands of the industry.

One of the aims of all schools stated in the Philippine Constitution of 1987 is to broaden scientific and technological knowledge and promote vocational efficiency. This is a mandatory goal and after 25 years this still holds applicable to all schools in Department of

Education especially in the field of information technology in the tertiary education. The IT education system in the Philippines is currently governed by the policies mandated by the Commission on Higher Education (CHED). The ITE curriculum regarding IT course in personal skills, interpersonal skills and technical understanding should be adaptive in response to the dynamic industry requirements, providing greater opportunities for graduates in terms of employment. CHED Article IV Memorandum 53 Series 2006 competencies standards states that IT graduates should have acquired but not limited to the competencies in personal skills, interpersonal skills and technical understanding. Curriculum planners should realize the

importance of technological innovations and integration of technology towards IT education improvement in the academe. They should encourage the IT education experts to align the IT curriculum to business objectives and demands for a better economic life competition.

The researcher conducted this study on the basis of the above mentioned scenarios to find out the job demands of selected industries for IT courses, with the end view of enhancing IT curriculum to produce ideal IT graduates.

2. METHODOLOGY AND STATISTICAL TOOLS

The study made use of the descriptive research method, particularly the causal-comparative design. The main goal of this type of research is to describe the data and characteristics of what is being studied. The respondents of the study were selected using purposive sampling. The 80 HR Manager/Personnel were chosen by virtue of their firsthand knowledge about the recruitment process of prospective applicants in their respective company or organization, of whom 20 were selected from each industry. The 250 hired applicants were chosen through convenience sampling, and each was taken from the same respective industries.

The respondent of the study were the 80 HR personnel and 250 IT hired applicants with a total of 330 respondents.

These respondents were categorized into 4 groups according to the type of industries selected. These eight industries were selected by virtue of different major industries of the country in the field of banking, telecommunications, call centers and utility provider. The IT hired applicant respondents are the newly hired employees for the last 3 years 2009 to 2011.

The survey questionnaire was constructed based on the statement of the problem and the concepts treated in the conceptual framework and the review of the related literature and studies on the topic. It was the main instrument used in gathering data. It was primarily used to obtain information about the study. The questionnaire consists of set written questions comprising lists of data congruent to the problems of the study.

Article IV of CHED Memo No. 53 about competency standards in IT course content on personal skills, interpersonal skills and technical understanding described for graduates in BSCS, BSIT or BSIS was considered.

Descriptive statistics was used in the study to summarize and interpret the findings of the study.

To assess the extent of job demands for IT courses and for valid interpretation, the following statistical tools were used:

a. Frequency is the number of occurrences of a repeating event per unit time.

b. Percentage is a method of standardizing for size, which indicates the frequency of occurrence of category per 100 cases.

The following statistical tools were used to solve the problems and test the hypothesis:

Weighted Mean (\bar{X}) to describe the profile of the respondents and to determine the weighted mean of the given criterion.

In order to give qualities being averaged in their proper degree of importance, it is necessary to assign their weights and calculate a weighted mean. The researcher used this to give quantities being averaged in their degree of importance.

To get the result of the percentage, the researcher used Likert Scale Method. The choice of this statistical method made the formulation and interpretation of conclusion and tabulation of respondents easier and gave accurate result.

Z-test of Significance (for a two-sample mean test) as defined by Broto(2008).

The z-test for a two-sample mean test is another parametric test used to compare the means of two independent groups of samples drawn from a normal population, if there are more than 30 samples for every group.

3. STATEMENT OF THE PROBLEM

The main objective of the study was to assess the job demands of selected industries for IT courses and used it as basis in enhancing IT curriculum in colleges and universities.

Specifically, the study will provide answers to the following questions:

1. What qualifications are preferred by the selected industries in hiring applicants in terms of the following profiles:
 - 1.1. gender,
 - 1.2. age,
 - 1.3. civil status,
 - 1.4. educational attainment,
 - 1.5. school category,
 - 1.6. actual numbers of IT applicants and IT hired applicants?
2. What do companies preferred in hiring applicants in terms of the following dimensions:
 - 2.1. Personal Skills
 - 2.2. Interpersonal Skills
 - 2.3. Technical Understanding?
3. What are the acquired competencies of the IT hired applicants in terms of the following:
 - 3.1. Personal Skills
 - 3.2. Interpersonal Skills

3.3. Technical Understanding?

4. Is there a significant difference between the acquired competencies with the schools and preferred skills by the industries?

5. What enhancement in the IT curriculum can be developed to match the needs of the industries?

4. SIGNIFICANCE OF THE STUDY

The following groups may benefit from the results of this study:

The quality of IT education is a matter of concern for the officials of CHED. While various Higher Education Institutions (HEIs) with established reputations in IT education such as the University of the Philippines, De La Salle University, and Ateneo de Manila are developing programs to address the human resource needs of the country in terms of information technology, the IT system of education has been described as predominantly substandard. The results of this study may help CHED in their efforts to devise a system of certifying graduates of IT courses through an industry-regulated mechanism to improve the quality of IT education in the country.

The results of this study may provide vital data needed for the preparation of the Unified National Qualifications Framework for IT. This framework provides an alternative of educational quality for IT at various levels of shifting from a perspective on educational inputs to greater focus on educational outputs. Such shift makes the framework a natural mechanism for responding to the requirements of international quality assurance and also lays down the groundwork for mutual recognition of credentials, competencies and skills required by the students.

The colleges and universities must realize that their programs must be relevant and responsive to the human resource requirements of the various sectors of the economy, particularly in the field of IT. The result on relevance and responsiveness should not be exclusively focused on skills training but should also provide relevant experience in the actual work environment. The results of this study may help these colleges and universities in mapping out the competency roadmap to match the needs of the industries in terms of the required labor force.

The results of the study may make the administrators of colleges and universities realize that they face the pressing reality of limited resources in the operations of their programs. The resource requirements needed to sustain the efficient and effective delivery of educational services are enormous. The administrators must manage their resources efficiently to ensure that their instruction function is effectively pursued.

The faculty and staff may also benefit from the results of the study and by examining the specific competencies and skills needed by the industry; they can understand better the conceptions and misconceptions people hold about IT. With this understanding, the teachers and administrators can plan interventions to enhance IT curriculum.

5. RESULTS AND DISSECTION

1. *Demographic Profile Required by the HR Personnel Respondents from the IT Hired Applicants.*

As revealed by 100 percent of the HR personnel, the company respondents made no preference as to gender, age, civil status, and school where IT applicant graduated. Preference was made on educational attainment as company respondents preferred IT applicants with Bachelor degree in information technology courses.

As to number of IT hired applicants only 24 percent of the total IT applicants of selected companies were hired for the last three years.

2. *Preferences of Selected Companies in Hiring IT Applicants.*

Based on the obtained mean scores of 4.57 to 4.74, the company respondents showed most preference for personal skills in terms of personal-discipline, problem solving, and perseverance in pursuing goals, critical thinking, planning and organizing. For interpersonal skills, much preference was reflected in teamwork and collaborative skills and oral and written communication skills as indicated by the mean scores of 4.57 to 4.64 respectively. The mean scores of 4.57 to 4.70 in technical understanding showed that the company respondents had much preference for research in computer science related areas, system analysis and design, computer system architecture, operation database, networks and multimedia systems, computer application skills and understand input and output system.

Acquired Competencies Needs of IT Hired Applicants in Selected Industries.

Based on the obtained mean scores of 4.51 to 4.64, the IT hired applicant respondents showed high competency for personal skills in terms of personal-discipline, planning and organizing, perseverance in pursuing goals, problem solving skills and critical-thinking skills. For interpersonal skills, high competency was reflected in teamwork and collaborative skills and conflict resolution skills as indicated by the mean scores of 4.65 and 4.59 respectively. The mean scores of 4.54 to 4.77 in technical understanding showed that the IT hired

applicants had high competency for systems analysis and design, understands input and output system, operation database, networks and multimedia system, computer application skills and understands computer system architecture.

4. *Significant Differences between the Acquired Competency with the Schools and Preferred Skills by the Industries.*

It was hypothesized that there is no significant difference between the acquired competency with the schools and preferred skills by the industries in terms of personal skills, interpersonal skills and technical understanding.

5. *Curriculum Enhancement on the Job Demands of the Industries for IT Courses.*

The basis of the findings of the study is the curriculum enhancement on the job demands of the industries for IT courses in terms of personal skills, interpersonal skills and technical understanding to give quality information technology education in the academe in collaboration with the industry needs.

The IT course content enhanced are the preferred skills on job demands of the industry for IT courses that was not given emphasis in the curriculum, like in the category of personal skills are ethical thinking, innovative, inter and intra person motivation skills and entrepreneurial thinking. In interpersonal skills the IT course content enhanced are oral and written communication skills and conflict resolution skills. In technical understanding the IT course content enhanced are information management, system management and administration, implement computer-based solutions, computer system organization and assembling knowledge, knowledge in software tuning and maintenance and principles of accounting. All the above mentioned IT courses content were selected for IT curriculum enhancement.

6. CONCLUSIONS

Based on the findings of this study, the following conclusions are drawn:

1. Generally, the HR respondents of selected industries have no preference in terms of gender, age, civil status and school graduated in hiring IT applicants except for educational attainment of Bachelor's Degree in IT courses.

2. The IT applicants will benefit from the most preferred personal skills in the IT course content category like personal-discipline skills, interpersonal skills like teamwork and collaborative skills, and technical understanding to input and output system for the selection of the HR personnel in qualifying on the job demands of the industry.

3. HR personnel and IT hired applicants have similarities that match the preferences in terms of IT course content in categories like personal skills, interpersonal skills and technical understanding to the job demands of the industry.

4. There is no significant difference between the acquired competencies with the schools and skills preferred by the industries in terms of personal skills, interpersonal skills and technical understanding.

5. The IT curriculum enhancement is useful in identifying curriculum IT course content strengths and weaknesses relative to personal skills, interpersonal skills and technical understanding to the benefit of both the academe and the industry.

7. RECOMMENDATIONS

In view of the findings of this study and conclusions reached, the following recommendations are hereby offered:

1. Given the importance of this IT curriculum enhancement, other factors should be explored by colleges and universities offering IT courses to promote broader accessibility and linkages to interested parties especially the industry.

2. The success rate of IT graduates will continue to be determined by the extent to which these personal skills, interpersonal skills and technical understanding are acquired based on the needs of the industry and the willingness of the academe to update and enhance IT curriculum based upon industry needs.

3. The industry and the academe need to work together towards the same objectives in order to produce a globally competitive work force to improve the economy.

4. To supplement the findings of this study, further research to document the job demands of other courses in industries not covered by this study.

5. Future research should include other stakeholders and comparisons can be made using other IT course content in personal skills, interpersonal skills and technical understanding to be applied to other major industries of the country not found in this research.

TABLE .5. Job Demands for IT Course Content in Personal Skills

Personal Skills	Job Demands	Rank	IT Course Content	Rank	Mean	Inter-pretation	Overall Rank
Personal-discipline skills	4.74	1	4.64	1	4.69	Most Preferred	1
Critical-thinking skills	4.58	4	4.51	5	4.55	Most Preferred	5
Inter and intra person motivation skills	4.16	7	4.29	8	4.23	Preferred	8
Problem solving skills	4.68	2	4.56	4	4.62	Most Preferred	2
Planning and organizing skills	4.57	5	4.61	2	4.59	Most Preferred	4
Ethical thinking	4.41	6	4.34	7	4.38	Preferred	6
Entrepreneurial thinking	3.83	9	3.78	9	3.81	Preferred	9
Innovative	4.15	8	4.42	6	4.29	Preferred	7
Perseverance in pursuing goals	4.65	3	4.57	3	4.61	Most Preferred	3
Grand Mean	4.42		4.41		4.42		

TABLE .8. Job Demands for IT Course Content in Interpersonal Skills

Interpersonal Skills	Job Demands	Rank	IT Course Content	Rank	Mean	Inter-pretation	Overall Rank
Teamwork and collaborative skills	4.64	1	4.65	1	4.65	Most Preferred	1
Oral and written communication skills	4.57	2	4.25	3	4.41	Preferred	2
Conflict resolution skills	4.21	3	4.59	2	4.40	Preferred	3
Grand Mean	4.47		4.50		4.49		

TABLE .11. Job Demands for IT Course Content in Technical Understanding

Technical Understanding	Job Demands	Rank	IT Course Content	Rank	Mean	Inter-pretation	Overall Rank
Understands input and output system	4.73	1	4.77	1.5	4.75	Most Preferred	1
Implement computer-based solutions	4.40	7	3.87	12	4.14	Preferred	9
Understands computer system architecture						Most	

Research in computer science related areas	4.60	4	4.60	5	4.60	Preferred	5
System management and administration	4.57	6	4.54	6	4.56	Most Preferred	6
System analysis and design	4.26	9	4.06	8	4.16	Preferred	8
Operation database, networks and multimedia system	4.58	5	4.77	1.5	4.68	Most Preferred	3
Knowledge in software tuning and maintenance	4.66	3	4.68	3.5	4.67	Most Preferred	4
Principles of accounting	4.06	10	3.95	11	4.01	Preferred	11
Computer system organization and assembling knowledge	3.99	12	3.97	10	3.98	Preferred	12
Information management	4.05	11	4.18	7	4.12	Preferred	10
Computer application skills	4.35	8	3.99	9	4.17	Preferred	7
	4.70	2	4.68	3.5	4.69	Most Preferred	2
Grand Mean	4.41		4.34		4.38		

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