Job Level Position and Academic Competencies: A Tracer Study of Engineering Graduates in Biliran Province State University

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Abstract

This study answers the lack of research on the relevance of academic-acquired competencies and job level positions among the graduates of Biliran Province State University (BIPSU). To analyze the employability of BIPSU engineering graduates, a descriptive research method was used. Chi-square statistics was also utilized to assess the relationship between academic-acquired competencies and the graduates' first job occupations. A combination of convenience and purposive sampling methods were applied to collect the required responses. There are a total of 281 respondents who participated in the survey, from a population of 483 engineering graduates from academic years 2006 to 2021. Data collection was carried out by the respondents by answering the fielded Graduate Tracer Survey (GTS) instrument via Google Forms, adapted from the standard GTS instrument from the Commission of Higher Education (CHED).

This study revealed that most BIPSU engineering graduates are now employed in regular or permanent positions. They are primarily in locally-based construction firms and majority of them hold positions which are under professional, technical, or supervisory levels. The chi-square test results indicated that graduates perceived critical thinking and communication skills as the most relevant academic-acquired skill to their initial job positions. A policy was proposed to better align the university's curriculum with the local job market. It is also recommended that BIPSU develop programs, offer training, and organize activities to enhance its curriculum, with a focus on critical thinking and communication skills, which are crucial for acquiring employment.

Keywords: *Graduate Tracer Study, employability, competencies, engineering graduates, BIPSU*

Introduction

As a newly industrialized country in the Asia-Pacific region, the Philippines must produce graduates who are globally competent and can readily adapt to the evolving demands of the workforce. The Higher Education Institutions (HEIs) in the Philippines play a critical role in equipping graduates the necessary competencies and skills suitable to job positions for them to quickly adapt to challenges and achieve mastery in their field while fostering the self-confidence needed to pursue future opportunities. Research suggests that competencies acquired in college could predict graduates' employability (Ballon, 2007).

Employers consistently seek graduates who are excellently ready and prepared for the workplace (Docherty, 2014). According to Philippine Qualifications Framework, (n.d.), graduates must be able to establish extensive and well-structured understanding and skills in their field of study for professional work; put on their skills in professional/inventive work or explore in a specialized field of discipline and/or further study; and work alone or in teams in related fields with limited need for supervision.

Conducting tracer surveys among graduates of higher education institutions has become a common practice among State Universities and Colleges (SUCs) in various countries, particularly in the Philippines. These surveys provide institutions with data-driven feedback, enabling them to assess their curricula and determine whether they are receptive to the requirements of the community and industry (Caingcoy et.al, 2021). Cagasan (2022) emphasized that tracer studies are essential for evaluating a university's performance in developing students' competencies to prepare them for the labor market.

Abas and Imam (2016) emphasized that a key indicator of workplace achievement is the ability of the employees to effectively apply knowledge, values, and skills that align with the requirements of a job, respond to employer's expectations, and contribute to the general success of institutional goals. This aligns with the observation of Ramirez, Cruz, and Alcantara (2021), who noted, "Over the past two decades, universities have increasingly offered a wide range of higher education courses that prepare students with the tools necessary to advance their

employability skills, boost their awareness of these skills, and expand their ability to articulate them."

As society and technology evolve rapidly, job opportunities are becoming increasingly diverse, which presents students with greater challenges in making career decisions (Yi & Park, 2024). This often leads to job mismatches, necessitating that higher education institutions equip students with skills relevant to industry demands. However, despite universities' efforts, unemployment rates and job mismatches have been constantly rising in the global market. As noted by Yaun and Parunda (2015), this trend is a typical situation in Malaysia, particularly with the growing unemployment rate among graduates, the mismatch between graduates' skills and employers' requirements, and the decline in government sector employment. International studies have also concluded that "there can be a clear mismatch between what university graduates can do, and what employers expect" (Poladashvili, 2018).

Businesses in the Philippines have expressed dissatisfaction with employees' work ethics, interpersonal skills, and communication abilities (Acosta & Igarashi, 2017). This reinforces the claim made by Yaun and Parunda (2015) that "As the government works to meet local, national, and international demands for quality education, it is imperative that every Higher Education Institution (HEI) be able to train graduates with the necessary skills for the 21st century."

Few tracer studies have investigated the association between employability and competencies acquired during college among different graduates. For instance, a study from the United Kingdom on the employability skills of Mechanical Engineering graduates found that industry professionals consider personal and work attitudes, along with professional conduct, to be the most important skills (Souppez, 2023). Another study by Albrando et al. (Guest, n.d.) suggested that critical thinking and communication skills were the two most significant skills developed among Manuel S. Enverga University Foundation Accountancy graduates from Lucena, Quezon Province, Philippines, which they utilized in their first jobs. Ramirez, Cruz, and Alcantara (2021) also found that the competencies acquired by Rizal Technological University-Pasig Campus graduates from School Year 2006 to 2011,

across three colleges, were relevant to their chosen occupations. Additionally, a study by Balala (2022) revealed that interpersonal communication, critical thinking, and problem-solving skills acquired by Bachelor of Computer Science (BSCS) graduates were highly valuable in their current jobs.

Another tracer study of Computer Engineering graduates found that information technology skills, problem-solving capabilities, and communication skills are among the beneficial competencies acquired in college (Perspective, 2017). Moreover, a study of engineering graduates from 2009 to 2012 at a Higher Education Institution in Batangas identified communication skills as the primary competency learned in college that proved to be highly useful for career placement (Dotong et al., 2016). Amparado (2018) also revealed that the key competencies acquired by University of Cebu graduates that were valuable in their jobs included communication skills, human relations skills, and information technology skills.

The employment rate of Bachelor of Science in Marine Engineering (BSMarE) graduates from the Naval State University-Main Campus was investigated locally in tracer research carried out by Naval State University, which is now Biliran Province State University (BIPSU). Fifty-two percent (52%) of BSMarE graduates were working for both domestic and foreign navies, according to the survey. Specifically, from the total of 1,664 BSMarE graduates from 2010 to 2017, 865 has been employed. The results indicate that the employability rate surpassed the program's target objective as stated in their operational plan, achieving this within ten years (Journal, 2019).

The current availability of tracer survey questionnaires at Biliran Province State University (BIPSU), Philippines, has facilitated several studies using the Graduate Tracer Survey (GTS), including the one mentioned above. However, there is a lack of studies addressing the relevance of academically acquired competencies in association with job positions. This study recognizes the need for a focused approach to developing academic competencies and employability skills among Filipino graduates, particularly those from BIPSU. The aim is for these graduates to become a source of pride for Biliranons in terms of work ethics and skills, and to eventually bring honor to Biliran Province. This study was conceptualized to provide

a foundation for improving academic skills and competencies at Higher Education Institutions and to ensure the production of more employable engineering graduates.

Given the scenarios and literature discussed above, it is crucial to analyze the association between academically acquired skills and the employability status of BIPSU graduates. This analysis is essential for enhancing the education system to better prepare graduates for both the local and international labor markets.

Given the necessity of this study, this paper aims to explore the employment status of BIPSU engineering alumni from SY 2006 to 2021 and to assess the prevalence of academically acquired competencies in their first job positions. Specifically, this paper aims to find answers to the following questions:

1. What is the demographic profile of the graduates in terms of the following specifics? (a) Sex, (b) Civil Status, and, (c) Course Graduated
2. What is the distribution of employment, unemployment, and self-employment among graduates; the nature & address of work, and the duration or how much time did it take for them to have their first job?
3. What is the association of the graduates' perception on the relevance of college curriculum to their first job and their current employment?
4. What is the relevance of school-acquired competencies to the first job occupation/employment of the graduates?
5. What policy can be suggested to enhance the educational practices of Biliran Province State University in developing the academic-acquired competencies?

Methods

This tracer study is crucial for Biliran Province State University as it provides a basis for assessing its curricular programs. It will also serve as a foundation for the Commission on Higher Education (CHED) in restructuring higher education institution (HEI) curricula to better align with workplace demands.

This paper employs a descriptive research method to examine employability and the association between academically acquired competencies and initial job positions among BIPSU engineering graduates. Descriptive research methods intend

to precisely and systematically describe a situation, a population, or a phenomenon (McCombes, 2019). It addresses questions related to what, when, where, and how regarding employability skills among BIPSU engineering graduates.

Population and Sampling Design

The total population of BIPSU engineering graduates from SY 2006 to 2021, according to the BIPSU registrar database, was 483. This data was presented to Foundation Degree (FD) Statistics students taking Statistics Classes for their Master's Degree. The researchers and their FD Statistics classmates were instructed to identify 15 graduates as part of their research requirement. The students were tasked to conduct research out of the data they collected as part of their final output on the subject. This is a graded activity as a practical application of the lessons discussed. The data gathering was performed after thorough orientation and discussions on data collection procedures. The discussions included the formulation of a coding manual, validity and reliability of research instruments in the collection of data, ethical considerations in the collection of data, and sampling design, among others that were necessary for data gathering. The FD Statistics instructor also supervised regularly the data collection conducted by the students.

Convenience-purposive sampling was utilized, with FD Statistics students selecting graduates based on locality and familiarity, regardless of their courses or year of graduation. No duplication was allowed in selecting respondents, and each FD Statistics student contacted 15 known graduates. The data collected was then consolidated by the FD Statistics instructor for use by the researchers. Out of the total population, 281 graduates completed the survey and were included as respondents in the study.

The table below specifies the number of respondents. The study includes graduates from the Bachelor of Science in Civil Engineering (BSCE) and the Bachelor of Science in Electrical Engineering programs from 2017 to 2021.

Additionally, graduates from the BS in Mechanical Engineering program from 2006 to 2021 were included due to the program's limited number of graduates. Finally, graduates from the BS in Computer Engineering program from 2010 to 2021 were also included for similar reasons.

Table 1. *Survey Respondents*

Program	Year of Graduation Included	No. of Graduates	No. of graduates who responded to the survey	Response Rate
Bachelor of Science Electrical Engineering	2017-2021	97	68	70.1%
Bachelor of Science in Civil Engineering	2017-2021	192	117	60.9%
Bachelor of Science in Computer Engineering	2010-2021	115	58	50.4%
Bachelor of Science in Mechanical Engineering	2006-2021	79	38	48.1%
Total		**483**	**281**	**58.2%**

The data collectors selected all registered graduates; however, only 58.2% of the total population completed the survey. This low response rate was due to several factors: the data collection period was limited to two weeks as directed by the FD Statistics instructor, some graduates were unreachable, others did not respond to contacts provided by their families and friends, and some contacted graduates were unwilling to participate.

Research Tool

The researchers collected data through an online survey. Respondents were required to complete answering the instrument known as the Graduate Tracer Survey (GTS) tool in a Google Form - adapted from the standard GTS questionnaire distributed by the Commission on Higher Education (CHED). This standardized GTS survey form, mandated by CHED's central office, was used without modifications—no questions were added, removed, or altered. The form is designed and required for use by all colleges and universities in the Philippines.

During data collection, each FD Statistics researcher had only two weeks to contact their selected graduates. Contact was primarily made via messenger or text, with a link to the Google Form provided if the respondents agreed to participate. The online survey form ensured data completeness by requiring all necessary questions to be answered. It was programmed to prevent the submission of erroneous data (e.g.,

text inputs where numbers were required) and does not allow progress to the next section or final submission if any required information is missing.

The survey questionnaire used for data gathering was the CHED GTS form, adapted into an online Google Form. It consists of the following parts: (1) General Information about the graduates as to (a) Sex (b) Civil Status (c) Course Graduated; (2) Educational Background; (3) Training(s)/Advance Studies Attended After College; (4) Employment Data.

Statistical Method

To analyze the results, the researchers employed Jeffreys's Amazing Statistics Program (JASP) application to process, organize, and produce answers to the research questions. The instructor required the usage of JASP due to its status as free software that does not necessitate a license, thereby avoiding the unethical use of unlicensed statistical software. Moreover, JASP saves the full data and analysis in the .jasp file, where everything is reproducible and interactive at the instructor's end.

In analyzing the data, the researchers employed descriptive statistics, including percentage distributions, frequency, and mean. The Chi-Square test was also employed to determine the relationship between graduates' academic-acquired competencies and their job-level positions. A chi-square test is a statistical test used to compare the observed results and expected results. The aim of this type of statistics is to determine whether the difference between observed data and expected data is merely due to chance, or if there is a relationship between the variables being studied (Chi-Square | Practical Applications of Statistics in the Social Sciences | University of Southampton, n.d.)

Ethical Considerations

The researchers provided an online informed consent letter to the selected respondents, ensuring that the collected data would be used solely for research purposes. Only graduates who consented participated in the survey. Additionally, only the FD Statistics instructor had access to the collected responses and was authorized to provide the consolidated data to the FD Statistics students. The data were accessible only to enrolled students working on their requirement papers via a

controlled link. The instructor ensured that this link could not be accessed by unregistered email accounts.

Results & Discussions

Table 2 presents the profile of the respondents in different specifics such as their sex classification, civil status, and course graduated.

Table 2. *Respondents' Demographic Profile*

Demographic Profile	Category	Frequency	Percentage
Sex	Male	181	64.4
	Female	100	35.6
	Total	**281**	**100.0**
Civil Status	Married	47	16.7
	Single	232	82.6
	Single Parent	2	0.7
	Total	**281**	**100.0**
Course Graduated at BiPSU/NSU	BS Civil Engineering	117	41.6
	BS Computer Engineering	58	20.7
	BS Electrical Engineering	68	24.2
	BS Mechanical Engineering	38	13.5
	Total	**281**	**100.0**

It can be observed that 181 respondents (64.4%) are male, while 100 respondents (35.6%) are female. This distribution indicates a significant gender disparity within the surveyed population. One reason for the dominating population of males in the engineering field could be their perception of engineering itself (Blaisdell, 1994). Blaisdell (1994), in her article, mentioned a study that revealed that both men and women perceived that engineering courses were a showcase of strength and were mostly for men.

However, this significant dominance of males compared to females raises questions about gender inclusivity within the field of engineering. Thus, there is a need for BIPSU to address gender disparity which may involve implementing

policies that promote gender diversity and equality in the engineering courses. Additionally, the result implies a need for further investigation that could explore factors contributing to this gender gap and its implications.

Regarding civil status, the table shows that most of the respondents, 232 (82.6%), were single. This was followed by 47 respondents (16.7%) who were married, and 2 respondents (0.7%) who were single parents. The predominance of single respondents may suggest that many graduates prioritized career development or further education before settling down. With this, it can be implied that employers and higher educational institutions could provide personalized support for career development, such as flexible work arrangements, especially for married employees, or professional development opportunities applicable to everyone regardless of their marital status.

The results also showcased that the majority of respondents graduated with a BS in Civil Engineering (117 or 41.6%), followed by a BS in Electrical Engineering (68 or 24.2%), a BS in Computer Engineering (58 or 20.7%), and a BS in Mechanical Engineering (38 or 13.5%). This indicates that the BS in Civil Engineering is the most prominent program in the province of Biliran. Civil engineering job is traditionally a male-dominated industry, as this profession requires not only manual skills but also physical stamina (Admin & Admin, 2024).

In another context, the distribution across different engineering disciplines indicates varying interests or career paths among respondents. Exploring the reasons behind these preferences could inform educational institutions and employers about potential areas of focus or recruitment strategies.

Lastly, the survey's limitations, such as sample size and representativeness, are crucial to be acknowledged. Future research could expand the sample size, include a broader demographic scope, or conduct qualitative studies to delve deeper into the inspirations and experiences of employees within these varied demographic groups.

Table 3 presents the status current of employment of the BIPSU engineering graduates

Table 3. *Status of Current Employment*

Current Employment Status	Category	Frequency	Percentage
Employed			
	Casual	12	4.3
	Contractual	98	34.9
	Regular/Permanent	109	38.8
	Self-employed	6	2.1
	Temporary	6	2.1
	Subtotal	**231**	**82.2**
Unemployed			
	But previously employed	39	13.9
	Never been employed	11	3.9
	Subtotal	50	17.8
	Total	**281**	**100.0**

Table 3 revealed that the majority of respondents hold regular or permanent employment status, with 109 (38.8%) reporting this status, followed by 98 (34.9%) in contractual positions. Only 12 respondents (4.3%) are in casual roles, while both temporary and self-employment categories each have 6 respondents (2.1%). This suggests that engineering graduates from Philippine HEIs, particularly those from BIPSU, are generally employable and can secure jobs relatively easily. It also indicates that the Philippines provides substantial employment opportunities for engineering graduates. All kinds of businesses recognize engineers as people who are very well-educated and good at unraveling problems (Plc, n.d.).

The results also suggests a stable job market for engineering graduates indicating a significant proportion of individuals who have secured long-term or permanent employment contracts. However, there is a significant portion of engineers who work both under fixed-term contracts and casual roles which could offer great job flexibility, mobility, and career planning. The low distribution of casual employees as compared to contractual is presumed to be due to the lack of job security and benefits, so engineering graduates do not settle for this type of role in the workplace. With the results, it can be implied that there is a need for employers

to provide competitive benefits for both contractual and casual employees in relation to permanent employees.

The small but existing distribution of temporary and self-employed graduates could indicate that some graduates choose to work on their pathway. Thus, the government should create policies supporting entrepreneurship and freelance opportunities for engineering sectors.

Conversely, the data shows that there were fifty (50) comprising 17.8% of the total respondents who are unemployed which were further categorized into unemployed but previously employed (39) and never been employed (11). This may represent a loss of potential productivity and imply that academic acquired skills and education are not being utilized effectively, which could slow economic growth and innovation. Unemployment distribution may also be a result of skills mismatch between what is imparted in the higher institutions and those required by the existing jobs in the labor market. Additionally, it could also represent a demographic that chooses not to pursue a career rather, they tend to focus on their families, especially the female population. The possible leading reasons of these cases of underemployment in engineering fields are the limited job opportunities especially in the local setting, the lack of experienced engineers, loads of competitions due to increasing number of unemployed graduates, and the substandard education system (Canta, et.al., n.d.).

With the number of unemployed graduates, the government may employ programs such as enhanced career counseling and job placement services to better explore the job market and find suitable employment opportunities. Additionally, educational institutions might need to adjust their curricula to better prepare students for the current job market, focusing more on practical skills, internships, and job readiness.

Table 4 presents the primary line or nature of business of the companies where the graduates or employed respondents are currently working.

Table 4. *Nature of Work*

Nature of Work / Major line of business of the company you are presently employed in	Frequency Distribution	Percentage
Agriculture, Hunting and Forestry	6	2.6
Construction	110	47.6
Education	19	8.2
Electricity, Gas and Water Supply	13	5.6
Extra-territorial Organizations and Bodies	3	1.3
Financial Intermediation	6	2.6
Health and Social Work	6	2.6
Hotels and Restaurants	2	0.9
Manufacturing	16	6.9
Other Community, Social and Personal Service Activities	18	7.8
Private Households with Employed Persons	1	0.4
Public Administration and Defense; Compulsory Social Security	12	5.2
Real Estate, Renting and Business Activities	8	3.5
Transport Storage and Communication	6	2.6
Wholesale and Retail Trade, repair of motor vehicles, motorcycles, and personal and household goods	5	2.2
Total	**231**	**100.0**

The table above reveals that most engineering graduates are currently employed in construction firms, with 110 respondents (47.6%). In contrast, the fewest respondents work in private households, with just 1 respondent (0.4%). The education sector employs 19 respondents (8.2%), followed by the Other Community, Social, and Personal Service Activities sector with 18 respondents (7.8%). The manufacturing sector has 16 respondents (6.9%), while Electricity, Gas, and Water Supply employs 13 respondents (5.6%), and Public Administration and Defense has 12 respondents (5.2%). The remaining sectors have fewer than ten respondents each: Real Estate, Renting, and Business Activities (8), Agriculture-related (6), Transport, Storage, and Communication (6), Financial Intermediation (6), Health and Social Work (6), Wholesale and Retail Trade, and Repair of Motor Vehicles, Motorcycles, and Household Goods (5), Extraterritorial Organizations and Bodies (3), and Hotels and Restaurants (2).

The superiority of Civil Engineering graduates among the respondents explains why most are employed in construction firms. This finding suggests that there are still ample job opportunities for engineering graduates in the Philippines and that these graduates are currently employed in fields closely related to their college courses.

Table 5 shows the place of work of the currently employed graduates.

Table 5. *Distribution of Graduates as to their Work Place*

Place of Work	Frequency	Percentage
Abroad	12	5.2
Local	219	94.8
Total	**231**	**100.0**

The data show that most graduates are employed locally, with 231 respondents (94.8%), while only 12 respondents (5.2%) are working abroad. This implies a strong alignment between the educational system and the local job market needs. There were still diverse business sectors in the Philippines that employed engineering graduates and graduates from other colleges. The dominance of having a high distribution of graduates employed locally compared to those working abroad also represents individuals who prefer to be an asset of the country, developing their skills locally to contribute innovations to the local job market.

The high distribution of young graduates working locally has several positive impacts. If these graduates apply their best efforts in local employment, they could enhance the country's economy and becomes valuable assets to the nation. Yet, potential job market saturation is a significant challenge of high local employment. An excess of graduates competing for a limited number of positions could drive wages down and restrict job opportunities, particularly for future graduates.

In the context of working abroad, graduates may find opportunities that are not available locally, such as higher salaries, advanced career prospects, exposure to diverse professional environments, and international experience and skills. However, a potential challenge is the risk of a 'brain drain,' where talented individuals leave the country for opportunities elsewhere. This can be detrimental to local development, as it may result in a loss of skilled professionals who could contribute

to the country's growth. Therefore, a balanced approach is ideal. While local employment is good for community and economic growth, a certain level of international exposure for graduates is beneficial for expansion of their career prospects and skills.

Employability may also refer to how easily graduates land a job after completing a college degree. Table 6 shows the duration or how long it takes the employed engineering graduates to be employed or to obtain their first job.

Table 6. *Distribution of How long did the engineering graduates to land in their first job?*

How long did it take you to land your first job?	**Frequency**	**Percent**
Duration/ Timeframe		
Less than a month	99	36.7
1 to 6 months	113	41.8
7 to 11 months	23	8.5
1 year to less than 2 years	22	8.1
2 years to less than 3 years	8	3.0
3 years to less than 4 years	5	1.9
Total	**270**	**100.0**

It can be observed that 113 BIPSU Engineering graduates (41.8%) took between 1 to 6 months to secure their first job. This was followed by 99 respondents (36.7%) who found employment within a month of graduation. Additionally, 23 graduates (8.5%) obtained their first job after 7 to 11 months, 22 (8.1%) secured a job within 1 to less than 2 years, 8 (3.0%) found employment within 2 to less than 3 years, and 5 (1.9%) were employed within 3 to less than 4 years. The remaining respondents who did not respond are those who have never been employed. These results suggest that engineering graduates have relatively smooth transitions into the workforce, highlighting their high employability. As noted by Bisio (2022), problem-solving skills paired with critical thinking skills, which are emphasized in college, contribute significantly to the employability of graduates, especially those in engineering fields.

Table 7 shows the percentages of the job-level positions of the engineering graduates in their first job as well as in their current job.

Table 7. *Job Level Position in Both First Job and Current Job*

Job Level Position Category	Job Level Position in the First Job		Job Level Position in the Present Job	
	Frequency f	***Percentage %***	***Frequency F***	***Percentage %***
Managerial or Executive	8	3.0	11	5.9
Professional, Technical, or Supervisory	164	60.7	124	66.3
Rank or Clerical	85	31.5	46	24.6
Self-employed	13	4.8	6	3.2
Total	**270**	**100.0**	**187**	**100.0**

The table shows that most employed respondents held Professional, Clerical, or Supervisory positions for both their first job and current job, with 60.7% (164) and 66.3% (124) respectively. This was followed by Rank or Clerical positions, which accounted for 31.5% (85) of the first jobs and 24.6% (46) of the current jobs. Self-employed individuals ranked third, comprising 4.8% (13) for their first job and 5.9% (11) for their current job. Conversely, Managerial or Executive positions had the fewest responses, with 3.0% (8) for the first job and 3.2% (6) for the current job. These results suggest that engineers, particularly those who are board passers, often hold high-ranking positions within their firms and receive competitive salaries. This further implies that engineering courses are a strong choice for college, as graduates frequently secure well-paying jobs.

Table 8 shows the association of the course in college to their first job as perceived by the employed graduates whose first job is also their current job.

Table 8. *Frequency Distribution of Employed Graduates on how Related their Course in their First Job*

Question	Response	Frequency	Percentage
Is your first job related to the course you took up in college?	No	15	5.6
	Yes	44	16.3
	Did not respond	211	78.1
Total		**270**	**100.0**

Among the 270 respondents who were employed after graduating college, 44 (16.3%) reported that their first job was related to their college course, while 15 (5.6%) indicated that it was not. The remaining 211 respondents did not answer this question because their current job is not their first job, and they were directed to other questions in the survey. Of those, only 59 respondents remain in their first job. This means that 74.6% of respondents who stayed in their first job perceived it as related to their college course, while 25.4% did not.

These results indicate a generally good alignment between college courses and the local job market. Graduates who found jobs related to their field of study are likely able to apply their acquired knowledge and skills effectively, making their transition into the workforce smoother. Conversely, those who answered 'No' may find that their courses did not fully prepare them for the practical demands of their current roles. This situation may require them to develop new skills to become effective in their positions. Educational institutions might also need to reassess and update their curricula to better align with industry requirements and emerging job market trends.

However, the researchers identified a limitation in the survey instrument. To gain a more thorough understanding of the data, it is necessary to include qualitative descriptions that explain why respondents perceive the college curriculum as related to their first job.

Table 9 shows the distribution of responses of the employed graduates based on the perceived relevance of their school-acquired competency and skills in their first job.

Table 9. *Distribution of Employed Graduates on the Perceived Relevance of Academic-acquired Competency and Skills in their First Job*

Skills Relevant to their First Job	Frequency	Percentage
Communication Skills	181	67.0
Human Relations Skills	135	50.0
Entrepreneurial Skills	45	16.7
Information Technology Skills	131	48.5
Problem-Solving Skills	195	72.2
Critical Thinking Skills	202	74.8

The data revealed that Critical Thinking skills received the highest number of responses, with 202 (74.8%), followed by Problem-Solving skills at 195 (72.2%). Communication skills were reported by 181 respondents (67.0%), Human Relations skills by 135 (50.0%), Information Technology skills by 131 (48.5%), and Entrepreneurial skills by 45 (16.7%). This distribution highlights a hierarchy of skill importance, with a notable emphasis on Critical Thinking and Problem-Solving skills. The prominence of Critical Thinking suggests that it plays a crucial role in employee success. Employees with strong Critical Thinking skills are better equipped to make well-informed and strategic choices, resolve complex challenges, and enhance general productivity and effectiveness (Loyola, 2023).

Problem-solving skills are also crucial, as they reflect the ability to identify issues and devise practical solutions. The significant emphasis on Communication skills stressed the importance of clear and effective communication in professional settings for becoming an efficient worker. Similarly, the fact that half of the respondents value Human Relations skills emphasized the need for teamwork, leadership, and interpersonal interactions, suggesting a possible benefit to enhance collaboration and workplace culture.

The relatively lower emphasis on Information Technology skills implies that while digital literacy and technological competence are important, there may be a need for more focused IT training and education. The lowest percentage for Entrepreneurial skills indicates that they are not widely recognized as crucial by the respondents. This might suggest a preference for more immediate, practical skills over entrepreneurial thinking, or that fewer respondents are in roles where entrepreneurial skills are essential. Overall, developing academic skills remains vital because they are closely intertwined with various other skills needed in different aspects of life, particularly in the workforce (Developing Your Academic Skills, 2022).

The researchers also sought to determine whether graduates' perceptions of the relevance of their college curriculum to their first job are linked to their current employment status. To determine the association, a chi-square test was conducted. Table 10 presents the relationship between the graduates' present employment status to their perception of the relevance of the college curriculum to their first job.

Table 10. *Relationship between the Graduates' Present Employment Status and their Perception of the Relevance of College Curriculum to their First Job*

Was the curriculum you had in college relevant to your first job?		Present Employment Status			X^2	P	Cramer's V value
		Employed	Unemployed	Total			
No	Count	47.0	4.0	51.0			
	Expected Count	43.6	7.4	51.0			
Yes	Count	184.0	35.0	219.0	2.2	0.1	0.1
	Expected Count	187.4	31.6	219.0			

a =0.05, df = 1, *failed to reject the null hypothesis*

The table indicates that out of the 231 graduates currently employed, 184 (or 79.7%) who perceived their college curriculum as relevant to their first job were actually employed. This number is slightly below the expected count of 187, suggesting a minor discrepancy. Conversely, among those who considered the curriculum irrelevant (No), the observed count of employed respondents was 47, exceeding the expected count of 44. This discrepancy suggests that some graduates who initially found their first job unrelated to their field may have transitioned into roles more aligned with their engineering background.

Additionally, as reflected in Table 8, only 59 out of 231 employed graduates remain in their first job, implying that many have shifted to other positions. This data aligns with the finding in Table 4, where most employed graduates are now working in construction firms, indicating a trend where graduates have settled in employment more relevant to their field after their initial job.

The data indicates no significant relationship between the perception of the relevance of the college curriculum to graduates' first jobs and their current employment status, $\chi^2(1) = 2.2$, $p = 0.1$. This lack of significance suggests that the relevance of college courses may not strongly predict future career outcomes, as some graduates transition into unrelated fields. It could imply that the content of the curriculum may not be directly aligned with the local job market demands or that employers may not prioritize specific course knowledge when hiring. Additionally,

these results may highlight the adaptability and flexibility of graduates as they navigate changes in their career paths.

However, this result of the misalignment of curriculum to the graduates' current jobs posed a challenge to educational sectors to strengthen partnerships with businesses and industry leaders to ensure that what students learned in school are aligned with the current job market available today. There is also a necessity to implement a system for a regular review and updating of curricula based on market trends and technological advancements. College curriculum should also focus on teaching adaptable skills such as communication, critical thinking, problem-solving skills, and teamwork, which are valuable in any job market.

Table 11 presents the association of Academic Acquired Competencies to the Graduates' First Job Level Positions.

Table 11. *Association of Academic Acquired Competencies to First Job Level Position*

Competencies	Job level Position (First Job)			Total	X^2	df	P	Cramer's V
	Managerial/ Professional/ Technical/ Supervisory	Rank/ Clerical	Self-Employed					
Competency 1: Communication Skills								
Yes	Frequency	121.0	56.0	4.0	181.0			
	Expected Frequency	115.3	57.0	8.7	181.0			
No	Frequency	51.0	29.0	9.0	89.0	8.6	20.01	0.2
	Expected Frequency	56.7	28.0	4.3	89.0			
Total	Frequency	172.0	85.0	13.0	270.0			
	Expected Frequency	172.0	85.0	13.0	270.0			
Competency 2: Human Relations Skills								
Yes	Frequency	90.0	41.0	4.0	135.0			
	Expected Frequency	86.0	42.5	6.5	135.0			
No	Frequency	82.0	44.0	9.0	135.0			
	Expected Frequency	86.0	42.5	6.5	135.0	2.4	20.3	0.1
Total	Frequency	172.0	85.0	13.0	270.0			

	Expected Frequency	172.0	85.0	13.0	270.0			
Competency 3: Entrepreneurial Skills								
Yes	Frequency	32.0	12.0	1.0	45.0			
	Expected Frequency	28.7	14.2	2.2	45.0			
No	Frequency	140.0	73.0	12.0	225.0			
	Expected Frequency	143.3	70.8	10.8	225.0	1.6	20.4	0.1
Total	Frequency	172.0	85.0	13.0	270.0			
	Expected Frequency	172.0	85.0	13.0	270.0			
Competency 4: Information Technology Skills								
Yes	Frequency	80.0	45.0	6.0	131.0			
	Expected Frequency	83.4	41.2	6.3	131.0			
No	Frequency	92.0	40.0	7.0	139.0			
	Expected Frequency	88.5	43.8	6.7	139.0	1.0	20.6	0.1
Total	Frequency	172.0	85.0	13.0	270.0			
	Expected Frequency	172.0	85.0	13.0	270.0			
Competency 5: Problem-Solving Skills								
Yes	Frequency	129.0	57.0	9.0	195.0			
	Expected Frequency	124.2	61.4	9.4	195.0			
No	Frequency	43.0	28.0	4.0	75.0			
	Expected Frequency	47.8	23.6	3.6	75.0	1.8	20.4	0.1
Total	Frequency	172.0	85.0	13.0	270.0			
	Expected Frequency	172.0	85.0	13.0	270.0			
Competency 6: Critical Thinking Skills								
Yes	Frequency	136.0	55.0	11.0	202.0			
	Expected Frequency	128.7	63.6	9.7	202.0			
No	Frequency	36.0	30.0	2.0	68.0			
	Expected Frequency	43.3	21.4	3.3	68.0	6.9	20.0	0.2
Total	Frequency	172.0	85.0	13.0	270.0			

Expected Frequency	172.0	85.0	13.0	270.0

a =0.05

The table indicates that only two competencies—Critical Thinking Skills and Communication Skills—are perceived as relevant to graduates' first job-level positions. The chi-square analysis reveals that Critical Thinking Skills is statistically significant with $\chi^2(2) = 6.9$, $p = 0.03$, and Communication Skills is also significant with $\chi^2(2) = 8.6$, $p = 0.01$. Other competencies do not show statistical significance with p-values greater than 0.05 (Human Relations = 0.3; Entrepreneurial = 0.4; Information Technology = 0.6; Problem-Solving = 0.4).

Further analysis shows that graduates who perceive Communication Skills and Critical Thinking Skills as relevant to their first job-level positions are more likely to be employed in Managerial, Professional, Technical, or Supervisory roles, with 121 and 136 responses, respectively. Conversely, graduates who do not perceive these skills as relevant tend to be Self-employed (9 responses for Communication Skills and 30 for Critical Thinking Skills) or in Rank/Clerical positions.

The results imply that both Critical Thinking and Communication Skills are crucial determinants of employability and job performance. The significant association of these skills with higher-level positions, such as Managerial, Professional, Technical, and Supervisory roles, highlights their importance for advanced job functions. Effective communication in the workplace helps employees have the needed information to do their jobs well, creates a positive work atmosphere, and minimizes misunderstanding and delays of work (Coursera, 2023). Similarly, Critical Thinking skills enable individuals to analyze information, draw informed conclusions, and make sound decisions, thereby enhancing their leadership qualities and overall job performance (Hubbard, 2023).

Conversely, the lack of perceived relevance of Critical Thinking and Communication Skills among those in lower-level positions or independent roles, such as Self-employed and Rank/Clerical positions, may suggest that these roles do not require these skills to the same extent or prioritize different competencies. Additionally, the lack of statistical significance may indicate a potential

misalignment between the skills emphasized in the curriculum and the actual requirements or valued competencies in the job market.

In summary, the significant role of Critical Thinking and Communication Skills underscores the necessity for curricula to emphasize these competencies. Higher Education Institutions (HEIs) should ensure that these skills are thoroughly integrated across various courses and programs. For competencies that did not show significance, it may be necessary to re-evaluate and adjust the curriculum to better align with market demands. This adjustment could involve updating course content, incorporating practical applications, and enhancing teaching methodologies.

HEIs must place a greater emphasis on developing and improving practical soft skills across all disciplines. Curricula should be designed or revised to integrate these skills more effectively, thereby better preparing graduates for the job market. Prioritizing the development of practical and transferable skills is crucial for ensuring the professional success of graduates. The results presented in this study can be a valuable reference for guiding future curriculum enhancements within HEIs.

Hence, based on the data presented, the researchers proposed the following policy guidelines to enhance curriculum relevance to the job market.

Title: **Refining Curriculum Relevance to Job Market Demands**

Objective: To align college curricula with the current job market demands by emphasizing critical thinking and communication skills while reevaluating and improving other competencies to ensure graduates are well-prepared for their first job level positions.

Policy Components:

1. **Curriculum Enhancement for Critical Thinking and Communication Skills**
    a. **Integration Across Disciplines:** Embed critical thinking and communication skills into the core curriculum across all programs. Ensure these skills are developed through different teaching methods, such as lectures, discussions, case studies, and project-based learning.

b. **Dedicated Courses:** Introduce or strengthen dedicated courses focused on critical thinking and communication, making them mandatory for all students regardless of their major. Give greater emphasis to engineering courses.

2. **Regular Curriculum Review and Industry Collaboration:**
    a. **Advisory Boards:** Establish advisory boards consisting of industry leaders, alumni, and faculty members to provide regular feedback on curriculum relevance and suggest updates based on job market trends.
    b. **Annual Curriculum Review:** Implement an annual review process to assess and update the curriculum based on feedback from the advisory boards and recent job market data.
3. **Enhanced Internship Programs:**
    a. **Partnerships with Employers:** Form strong partnerships with employers to create meaningful internship and cooperative education opportunities that provide practical, hands-on experience.
4. **Focus on Underemphasized Competencies**
    a. **Targeted Skill Development:** Review and revise the teaching methodologies for entrepreneurial skills, information technology skills, human relation or socialization skills, and problem-solving skills to make them more applicable to the job market.
    b. **Practical Applications:** Incorporate more real-world applications, simulations, and projects that require the use of these competencies.
5. **Professional Development and Lifelong Learning:**
    a. **Workshops and Seminars:** Offer regular workshops and seminars on professional development topics, including critical thinking, communication, leadership, and other essential skills.
    b. **Continuing Education:** Develop continuing education programs and certification courses to help graduates and working professionals update their skills in line with industry developments.

Conclusion

This tracer study among BIPSU Engineering graduates offers critical insights into the alignment between college curricula and job market demands. The data reveals that most BIPSU Engineering graduates are male, single, and from civil engineering courses. These graduates are predominantly employed in local construction firms, holding regular or permanent positions, and have secured their jobs relatively quickly, often in professional or supervisory roles.

The analysis indicates that engineering graduates perceived no significant association between their college curriculum and their first/current job ($\chi^2(1) = 2.2$, $p = 0.1$) while there were only two academic-acquired competencies and skills that are perceived by the graduates to be relevant to their job level position– Critical Thinking Skills ($\chi^2(2) = 6.9$, $p = 0.03$) and Communication Skills ($\chi^2(2) = 8.6$, $p = 0.01$). This suggests a partial misalignment between the curriculum and job market needs. It emphasized the importance to explore deeper into the policies and practices of the school to ensure alignment of the curriculum to local market trends. Employers' profiles available in the local market must also be assessed to make sure graduates have the right and practical experience needed to be hired.

The study also highlights the importance of critical thinking and communication skills, which enable engineers to analyze problems, evaluate solutions, and effectively communicate with clients and colleagues. These skills are crucial for job performance and career advancement.

Recommendations for BIPSU and other Higher Education Institutions (HEIs) in the Philippines include enhancing curricula to emphasize critical thinking and communication skills, incorporating capstone projects and project-based learning to foster these skills, providing opportunities for experiential learning and industry engagement, and developing faculty through collaborative teaching approaches that model soft skills. Following the proposed policy guidelines is also recommended.

Despite the valuable insights gained regarding the alignment between college curricula and job market demands for Engineering graduates from Biliran Province State University, the study has several limitations that must be addressed.

These include constraints related to sample size and the quality of data collected. Expanding the data collection period and employing additional data-gathering methods could improve future research accuracy since reliance on self-reported data from graduates may introduce bias. The accuracy of the graduates' assessment of their skills and the curriculum's relevance may be subjective and not entirely reflective of actual job performance or employer expectations. Future research related to this study is therefore recommended.

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