Bachelor of Science in Information Technology at Bulacan State University: A Graduate Tracer Study

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Abstract—This study traced the employability of the Bachelor of Science in Information Technology (BSIT) graduates of the Bulacan State University (BulSU) from the batch AY 2015-2016 to AY 2018-2019. The study also aimed to assess the graduates’ perceptions of the University’s contribution to the graduates’ skills development. The Graduate Tracer Study was the primary source of this study. This study used frequency, percentage, and ranking to describe the data gathered from the alumni. The majority of traced alumni were: 20 to 25 years of age, primarily male, single, and are employed. Moreover, most of the employed graduates are regular/permanent, working in the Philippines, found their first job within 1 to 6 months, earning P 10,000.00 to P 20,000.00, and are either professional, technical, or supervisory as their first job level position. I.T. skills were the most acquired and useful skills of the respondents of the College. It implies that I.T. skills were the most useful for the graduates in their job, followed by Problem Solving and Critical Thinking skills. The graduates’ job roles are mostly from the primary job roles of BSIT, mainly Web and Application Developer, as referenced to the CMO No. 25 s. 2015.

Keywords—baccalaureate degree, employability, information technology, tracer study.

1. INTRODUCTION

After one or a couple of years, tracking graduates upon joining the workforce is always the higher education institutions’ (HEIs) responsibility to get necessary data and feedback of graduates’ job-hunting experience and employment status [21]. Employability of graduates is one of the education institutions’ successes, making this an essential component of providing quality education to the community [9]. Faculty researchers regularly do this activity to identify some teaching-learning process areas that need improvement based on industries’ requirements and demands [10, 19,20]. Implementing curriculum and developing work-related values among students is an essential aspect of learning that this study would like to explore among Bachelor of Science in Information Technology (BSIT) graduates [1,23].

Every year, hundreds of thousands of fresh graduates join the labor force and compete for any entry-level positions in the private and public sectors. They possess different levels of the acquired skills from their alma mater that are expected to be relevant and matched to the job requirements like technical skills, Information Technology skills, communication skills, entrepreneurial skills, and the like. These are some of the standard or generic skills that the graduate should master or demonstrate before considering the human resource department’s further assessment.

Bulacan State University (BulSU) is a Higher Education Institution in Central Luzon of the Philippines. BulSU has 13 colleges in its Main Campus and has four external campuses within the same province. The College of Information and Communications Technology (CICT) is one of the colleges in BulSU which accommodates BSIT students. The mission and goal of the University and the College are to produce globally competent and competitive graduates.

Tracing graduates’ employability is an aid to determine how effective the current curriculum being offered by the
College in producing BSIT graduates. With the help of a tracer study, enhancing the curriculum may address the industry sector’s needs and have a better employability result.

II. OBJECTIVES

The study’s main objective is to trace and determine the employability of Bachelor of Science in Information Technology graduates of BulSU Main Campus from 2015 to 2019.

In order to determine the performance of the graduates, specific objectives were considered:

1. To determine the demographic profile of the respondents in terms of:
   1.1. Age;
   1.2. Gender;
   1.3. Civil Status;
   1.4. Educational Attainment; and
   1.5. Nature of Employment;

2. To determine the employment profile of the respondents in terms of:
   2.1. Employment Status;
   2.2. Location of Current Work;
   2.3. How Long Did the Graduate Find Their First Job;
   2.4. Gross Monthly Rate; and
   2.5. First Job Level Position;

3. To identify the most acquired skill in the College that the respondents able to apply from their work; and

4. To relate the respondents’ job roles in congruence with the CHED Memorandum Order No. 25 s. 2015.

III. METHODS AND DESIGN

The conceptual framework presented in Fig. 1 displays the variables of the study. The independent variables include the traced graduates’ demographic profile such as age, sex, and civil status. These characteristics may impact employment decisions, according to International Labour Organization [17].

The employment profile is treated as the dependent variable. Employment data includes employment status, current work location, duration of finding a job, gross monthly rate, and first job level position. They are designed to be based on an applicant’s or employee’s demographic characteristics and qualifications. In addition, the skill and distinguishing characteristics of BulSU-CICT BSIT graduates are determinants of the graduates’ attractiveness to employers [25].

The descriptive survey method was used to achieve the study’s goals. This study’s primary source is the Graduate Tracer Study (GTS). The researchers used the Commission on Higher Education (CHED) Tracer Questionnaire [8] and the BulSU - Office of Alumni Affairs to create an adaptive questionnaire. Traced graduates are from batches A.Y. 2015-2016 to A.Y. 2018-2019. The data collection phase began in February 2020. The Office of Alumni Affairs issued a list of BSIT graduates. After receiving the list, the researchers used every available method to contact the alumni. Social media were used to reach the majority of graduates. The researchers also asked College students if they knew someone on the list who could give them the questionnaire.

The researchers used statistical treatment to quantify and explain the data gathered after collecting all relevant documentation. The information collected was tallied, processed, and interpreted. The data collected from the graduates were described using frequency, percentage, and ranking in this report.

Random sampling was used as the sampling technique in the study. Through random sampling, respondents were selected randomly from the population. The graduates from batches A.Y. 2015-2016 to A.Y. 2018-2019 are covered in the study with a total population of 2,143 graduates. The graduates from batches A.Y. 2019-2020 were not included in the survey due to the difficulty of data gathering because of the effects of the Corona Virus 2019 (COVID-19) pandemic. The study’s respondents are presented in Table 1.

Table 1: Respondents of the Study

| Year Graduated | Frequency | Percentage |
|----------------|-----------|------------|
| 2016           | 130       | 15.48%     |
| 2017           | 152       | 18.10%     |
Using Slovin’s formula, the computed sample size with a 3% margin of error is 732. The total number of respondents of the study is 840 graduates from the batch A.Y. 2015-2016 to A.Y. 2018-2019. The total number of traced graduates is within the computed sample size.

IV. RESULTS AND DISCUSSION

According to the order and sequence of the problem statement’s questions, the data was divided into four parts. The first part includes the demographic profile of the respondents. The second part presents the employment data of the respondents. The third part discusses the most acquired skills in the College that the graduates can apply from their work. Lastly, the fourth part discusses the graduates’ job roles’ relationship in congruence with the CHED Memorandum Order No. 25 s. 2015 [7].

4.1 Demographic Profile of the Respondents

4.1.1 Age. Table 2 shows the different age ranges of the respondents.

| Age       | Frequency | Percentage |
|-----------|-----------|------------|
| Below 20  | 23        | 2.74%      |
| 20-25     | 785       | 93.45%     |
| 26-30     | 28        | 3.33%      |
| 31-35     | 3         | 0.36%      |
| 36-40     | 1         | 0.12%      |
| Above 40  | 0         | 0%         |
| Total     | 840       | 100.00%    |

Most BulSU-CICT respondents were between the ages of 20 and 25, with a percentage of 93.45%.

4.1.2 Gender. Table 3 shows the distribution of gender of the respondents of BulSU-CICT.

| Gender | Frequency | Percentage |
|--------|-----------|------------|
| Male   | 509       | 60.60%     |
| Female | 331       | 39.40%     |

Most of the respondents are single which has a percentage of 97.98%. Since most graduates are only between the ages of 20 and 30, they are mostly singles [25].

4.1.3 Civil Status. Table 4 shows the distribution of civil statuses of the respondents of BulSU-CICT.

| Civil Status | Frequency | Percentage |
|--------------|-----------|------------|
| Single       | 823       | 97.98%     |
| Married      | 16        | 1.90%      |
| Separated/Divorced/Single Parent | 0 | 0.00% |
| Widow        | 1         | 0.12%      |
| Total        | 840       | 100.00%    |

Most of the respondents of BulSU-CICT are college graduates, which has a percentage of 98.57%. It shows that most of the respondents were able to find a job having only a baccalaureate degree. In addition, 12 graduates are pursuing their graduate studies and acquired Units in their Master’s Degree. Most of the graduates who pursue their post-graduate studies are in the field of education, which requires them to have a master’s degree based on CHED’s minimum requirement. Also, this number could be higher, if not because of the pandemic, as the number of enrollees declined in the Philippines [22]. Magsambol [22] reported and quoted the statement of the Philippine Association of...
State Universities and Colleges (PASUC) President, Dr. Ronquillo, which states that “common reasons are fear of contamination, financial problem, lack of gadgets, and their residence relative to the university.”

4.1.5 Nature of Employment. Table 6 shows the distribution of the respondents of BulSU-CICT, whether they are employed or unemployed.

| Nature of Employment | Frequency | Percentage |
|----------------------|-----------|------------|
| Employed             | 676       | 80.48%     |
| Self-Employed        | 39        | 4.64%      |
| Unemployed           | 125       | 14.88%     |
| **Total**            | **840**   | **100.00%**|

As shown from the table above, overwhelming graduates of the BSIT program could find a job with an outstanding percentage of 80.48% in a span of four years. It also demonstrates that most graduates found a job because they are single [5]. In addition, a total of 4.64% of graduates are self-employed or entrepreneurs. However, 14.88% of the graduates found difficulty in employment because of the current pandemic situation. According to Philippine Statistics Authority (PSA), on their February 2021 release of the unemployment rate, 4.2 million Filipinos were reported jobless, or an 8.8% unemployment rate in the Philippines [6].

4.2 Employment Data of the Respondents

4.2.1 Employment Status. Table 7 presents the Employment Status of the respondents of BulSU-CICT.

| Employment Status   | Frequency | Percentage |
|---------------------|-----------|------------|
| Regular/Permanent   | 409       | 60.50%     |
| Temporary           | 74        | 10.95%     |
| Casual              | 29        | 4.29%      |
| Contractual         | 164       | 24.26%     |
| **Total**           | **676**   | **100.00%**|

This result is a testament to the quality or employability of BSIT graduates because in a span of 4 years, more than 60% have been placed to permanent/regular status, and 10.95% are in temporary status, which is on their way to permanency, resulting to a total of 71.45%.

4.2.2 Location of Current Work. Table 8 shows the Location of the Current Work of the respondents of BulSU-CICT.

| Location | Frequency | Percentage |
|----------|-----------|------------|
| Local    | 659       | 97.49%     |
| Abroad   | 17        | 2.51%      |
| **Total**| **676**   | **100.00%**|

Most of the respondents of BulSU-CICT responded that they are currently working locally, 97.49% and 2.51% working abroad. This result indicates that most BulSU-CICT graduates work in the Philippines, but not limited to locally, as some work in other countries. The number of BSIT graduates working abroad may be limited due to travel restrictions implemented by the Philippine government [26]. However, others are grabbing opportunities they find here, as working abroad has pros and cons [24]. Moreover, some I.T. companies are already accommodating international clients in the Philippines [13].

4.2.3 The Duration for the Graduate to Find Their First Job. Table 9 shows how long it takes for BulSU-CICT respondents to find their first job.

| Duration          | Frequency | Percentage |
|-------------------|-----------|------------|
| Less than a month | 279       | 41.27%     |
| 1 to 6 months     | 343       | 50.74%     |
| 7 to 11 months    | 27        | 3.99%      |
| 1 year to less than 2 years | 22 | 3.25% |
| 2 years to less than 3 years | 5 | 0.74% |
| above 3 years     | 0         | 0.00%      |
| **Total**         | **676**   | **100.00%**|

The majority of BulSU-CICT respondents, or 50.74%, had to wait for 1 to 6 months before being hired. It indicates that the respondents get hired few months right after they graduated. The table shows that most of the BSIT graduates, or almost 92%, have found their first job within six months, which is a manifestation of the employability of graduates. Additionally, BSIT graduates can find a job within six months after graduation as there are many job.
opportunities, specifically in IT-related jobs, accounting for 28% of job opportunities in the Philippines, according to JobStreet [18]. Grit [14] also listed the top 10 most in-demand jobs in the Philippines, and it shows that five out of the top 10 are IT-related jobs, ranging from developers to consultants.

4.2.4 Gross Monthly Rate. Table 10 shows the BulSU-CICT respondents’ gross monthly rate on their first job.

Table 10: Frequency Distribution of the Respondents Rating in terms of Gross Monthly Rate

| Gross Monthly Rate | Frequency | Percentage |
|--------------------|-----------|------------|
| Below P 10,000.00  | 69        | 10.21%     |
| P 10,000.00 – P 20,000.00 | 486 | 71.89% |
| P 21,000.00 – P 30,000.00 | 108 | 15.98% |
| P 31,000.00 – P 40,000.00 | 8 | 1.18% |
| P 41,000.00 – P 50,000.00 | 0 | 0.00% |
| P 51,000.00 – P 60,000.00 | 0 | 0.00% |
| P 61,000.00 – P 70,000.00 | 1 | 0.15% |
| P 71,000.00 and above | 4 | 0.59% |
| **Total** | **676** | **100.00%** |

According to ASEAN Briefing [2], the average minimum wage in the Philippines is P8,061.06, to which 486 of BSIT graduates are overwhelmingly earning above the minimum wage ranging from P10,000.00 to P20,000.00. Moreover, 108 of the graduates earn P21,000.00 to P30,000.00, which is within the Philippines’ average salary of P28,106.00 [3].

4.2.5 First Job Level Position. Table 11 shows the first job level position of the BulSU-CICT respondents.

Table 11: Frequency Distribution of the Respondents Rating in terms of First Job Level Position

| First Job Level Position | Frequency | Percentage |
|--------------------------|-----------|------------|
| Rank or Clerical         | 273       | 40.38%     |
| Professional, Technical, or Supervisory | 373 | 55.18% |
| Managerial or Executive  | 8         | 1.18%      |

The table shows that more than half or 55.18% of the BSIT graduates fall under either professional, technical, or supervisory as their first job level in the span of four years. In addition, 1.18% of the BSIT graduates are managers and executives despite the requirements to be promoted to higher positions [15] and have limited surveyed graduates in a span of four years. Others are in a rank or clerical job [4], while others are considered self-employed.

4.3 Most Acquired Skills in the College that the Graduates able to Apply from their Work

Table 12 shows the Most Acquired Skills in the College that the BulSU-CICT respondents applied from their work.

Table 12: Frequency Distribution and Descriptive Measure of the Respondents Rating in terms of Most Acquired Skills

| Skill                      | Frequency | Mean | Descriptive Interpretation |
|----------------------------|-----------|------|----------------------------|
| Communication Skills       | 198       | 3.39 | Highly Useful              |
| Human Relations Skills     | 251       | 3.56 | Very Highly Useful         |
| Entrepreneurial Skills     | 93        | 3.04 | Highly Useful              |
| Information Technology Skills | 276   | 3.62 | Very Highly Useful         |
| Problem-Solving Skills     | 257       | 3.57 | Very Highly Useful         |
| Critical Thinking Skills   | 254       | 3.57 | Very Highly Useful         |
| **Total**                  | **3.14**  |      | Highly Useful              |

According to CHED, as a BSIT graduate, it is common to have I.T. Skills as the most useful skills. The survey results to the BSIT graduates showed that I.T. skills received a mean of 3.62 with a descriptive rating of Very High Useful. The result indicates that the graduates found that having an I.T. skill as its top priority has been deemed helpful in their workplace, and it received the highest rating among the BSIT graduates.

Both Problem-Solving and Critical Thinking Skills received a mean of 3.57% with a Very Highly Useful rating.
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Descriptive rating and are two of the highest among the most acquired and useful skills. Doyle [12] of The Balance Careers stated that:

“problem-solving skills help you solve issues quickly and effectively. It is one of the key skills that employers seek in job applicants, as employees with these skills tend to be self-reliant.”

Moreover, Higgins [16] of the University of Dundee mentioned that:

“critical thinking is imperative for students who will seek a career in technology, regardless of which end of the tech experience and skills spectrum they sit...some will embark on a more technical path while others will take a business-focused path.”

4.4 Graduates’ Job Roles’ Relationship in Congruence with the CHED Memorandum Order No. 25 s. 2015

Table 13 shows the Job Roles of the BulSU-CICT respondents.

Table 13: Frequency Distribution of the Respondents Rating in terms of Job Roles

| Job Roles                      | Frequency | Percentage |
|--------------------------------|-----------|------------|
| **Primary Job Roles**          |           |            |
| Web and Application Developer  | 125       | 18.49%     |
| Jr. Database Administrator     | 8         | 1.18%      |
| System Administrator           | 9         | 1.33%      |
| Network Engineer               | 5         | 0.74%      |
| Jr. Information Security       | 4         | 0.59%      |
| Administrator                  |           |            |
| Systems Integration Personnel  | 6         | 0.89%      |
| IT Audit Assistant             | 0         | 0.00%      |
| Technical Support Specialist   | 103       | 15.24%     |
| **Total Primary Job Roles**    | 260       | 38.46%     |
| **Secondary Job Roles**        |           |            |
| QA Specialist                  | 38        | 5.62%      |
| System Analyst                 | 58        | 8.58%      |
| Computer Programmer            | 93        | 13.76%     |
| **Total Secondary Job Roles**  | 189       | 27.96%     |
| **Job Roles**                  |           |            |
| Frequency                      | Percentage|
| Underemployed                  | 227       | 33.58%     |
| **Total**                      | 676       | 100.00%    |

Primary Job Roles received a total of 38.46%, which is the highest among I.T. graduates’ job roles based on CHED Memorandum Order No. 25 s. 2015 [7]. The result shows that the BulSU-CICT offers a curriculum that would land the graduates to the Primary Job Roles for I.T. Specifically, from the Primary Job Roles, Web and Application Developer received 18.49%, which is the highest among the Primary Job Roles, followed by the Technical Support Specialist with a percentage of 15.24%, which is thesecondtothe highest among the Primary Job Roles. This result indicates that the subject offered by the BulSU-CICT concerning Web and Application development such as Web Systems and Technologies and Mobile Application Development. Other technical subjects related to hardware, software, and computer networking [11], such as Hardware Systems and Servicing, Platform Technologies, Networking, and the like, are highly effective and very useful in the industry. The result also shows that Web and Application Developer and Technical Support Specialist require problem-solving and critical thinking skills [16]. They both received the second-highest rating of useful skills in a job next to I.T. skills. In addition, the Computer Programmer job roles received 13.76%, which is under the Secondary Job Roles for I.T. Graduates based on CHED Memorandum Oder No. 25 s. 2015. Computer Programmer is very similar to Web and Application Developer in terms of responsibilities and technicalities, dependent on problem-solving and critical thinking skills [16]. In addition, the other job roles which are not on the list of CHED’s Primary and Secondary Job Roles for BSIT graduates based on CMO No. 25 s. 2015 received a total percentage of 33.58%, which can be considered underemployed for I.T. graduates, such as customer service representatives, data encoders, graphic artists and designers, office staffs, 3-dimensional model artists, and the like.

V. CONCLUSION

After all the data have been collected, presented, analyzed, and interpreted, this study found that the traced graduates have different perceptions or views on what skills or competencies helped attain a high position/ranking. In addition to this, the researchers also found out that:

1. The demographic profile of the traced graduates was not the basis for professional development. Moreover, it is accepted that as a person grows, he/she may develop qualities needed in a specific profession.
2. The respondents’ educational background was necessary, especially if they want to attain a higher position/ranking.
3. The employment data of the respondents showed different things a graduate can gain after graduation. Moreover, it showed that a position/rank was directly proportional to the salary; as the position/rank becomes high, the salary increases.

4. I.T., problem-solving, and critical thinking skills were the most acquired skills of the traced BSIT graduates. It implies that these skills were the most useful for the graduates in their workplace.

5. The graduates’ job roles are mostly from the primary job roles of Bachelor of Science in Information Technology, mainly Web and Application Developer, as referenced to the Commission on Higher Education Memorandum Order No. 25 series of 2015.

VI. RECOMMENDATIONS

Based on the findings and conclusions, this study forwards the following recommendations:

1. Trace as many graduates of the Bachelor of Science in Information Technology of the Bulacan State University to have more accurate results.

2. The institution should continue to endorse periodic tracking of graduates through tracer studies to track their jobs and productivity, which can be used to enhance the curriculum and instruction to produce more successful graduates.

3. The College may consider forming an Industry Board to evaluate and monitor any potential curriculum enhancement program concerning professional industry needs.

4. Develop a personalized tracer study for CICT based on the CHED Tracer Questionnaire.

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