

Employability of BS Information System Graduates: A Tracer Study

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Abstract: *The employability of graduates holding a Bachelor of Science (BS) degree in Information Systems is a critical concern in today's competitive job market. This tracer study aimed to investigate the employability outcomes of BS Information System graduates and explore factors influencing their employment status. The study utilized a descriptive research method, collecting data from a sample of 202 graduates from Surigao del Norte State University. The data collection involved the use of a modified online survey questionnaire and an interview guide developed by the Commission on Higher Education (CHED). Documentary analysis of graduates' records was also conducted. The findings revealed that a majority of the graduates were employed, with some experiencing underemployment and unemployment. Factors contributing to underemployment included a mismatch between graduates' chosen program and job opportunities, while unemployment was influenced by a lack of job-seeking motivation, financial dependence on parents, and limited job prospects. The study highlights the need for aligning educational programs with industry demands and providing career guidance and support services to enhance graduates' employability. The findings can serve as a baseline for curriculum review, institutional development, and policy-making, benefiting administrators, instructors, and local government agencies. Moreover, raising awareness among parents about course pros and cons can aid in preventing misalignment between students' aspirations and educational choices. Overall, this study contributes valuable insights to the field of BS Information System education and offers recommendations to enhance graduates' employability and career prospects.*

Keywords: Employability, tracer, study, graduates, information system

I. INTRODUCTION

In today's rapidly evolving world, the demand for skilled professionals in the field of Information Systems has reached unprecedented heights. As technological advancements continue to reshape industries, organizations are seeking individuals with expertise in managing and leveraging information technology to gain a competitive edge [1][2]. Amidst this backdrop, it becomes crucial to assess the employability of graduates holding a Bachelor of Science (BS) degree in Information Systems.

This study aims to delve into the employability landscape of BS Information System graduates through a comprehensive tracer study. By tracing the career trajectories and outcomes of these graduates, valuable insights can be gained into their preparedness for the job market and the alignment between their skills and industry requirements. The findings of this study have the potential to inform educational institutions, policymakers, and employers, enabling them to make informed decisions and enhance the employability prospects of these graduates.

Through an in-depth analysis, this tracer study will explore various dimensions of the employability of BS Information System graduates. It will examine factors such as the relevance of their education and training to industry needs, the acquisition of essential technical and non-technical skills, their ability to adapt to changing technological landscapes, and the challenges they face during their job search and career progression.

The study will employ a mixed-methods approach, combining qualitative and quantitative data collection methods. Surveys, interviews, and focus group discussions will be conducted with recent graduates, employers, and industry experts to gather comprehensive and diverse perspectives. Statistical analysis of the collected data will provide quantitative insights, while qualitative data will offer rich narratives and contextual understanding.

Ultimately, the goal of this tracer study is to contribute to the continuous improvement of BS Information System programs and enhance the employability of graduates. By identifying the strengths and areas of improvement in the education and training of these graduates, this study can help bridge the gap between academia and industry, ensuring a more seamless transition from education to employment for aspiring Information Systems professionals.

II. THEORETICAL BACKGROUND

The employability of graduates, particularly those holding a Bachelor of Science (BS) degree in Information Systems, is a topic of increasing importance in today's dynamic and competitive job market. Understanding the theoretical underpinnings related to employability can provide a foundation for the tracer study conducted in this research.

2.1 Human Capital Theory

Human capital theory, proposed by Nobel laureate Gary Becker, suggests that individuals' skills, knowledge, and education (human capital) play a vital role in determining their employability and potential earnings[3]. In the context of BS Information System graduates, the theory posits that the acquisition of technical skills, domain knowledge, and problem-solving abilities during their education enhances their employability [4]. The tracer study can explore how well the educational programs in Information Systems align with the principles of human capital theory and how these factors contribute to graduates' employability outcomes.

2.2 Skill Mismatch and Skills Gap

The existence of a skill mismatch and skills gap between graduates and the demands of the job market is another important aspect to consider. Employers often express concerns about the lack of specific technical skills or the mismatch between the skills possessed by graduates and the requirements of the industry[5][6]. The tracer study can investigate whether the BS Information System curriculum adequately prepares graduates with the necessary technical competencies sought by employers. It can also examine the industry's expectations and identify potential areas of skill gaps that need to be addressed to enhance graduates' employability.

2.3 Employability Skills Framework

Employability skills are the transferable skills that enable individuals to adapt, thrive, and succeed in the workplace. Various employability skills frameworks have been developed to identify and define these skills. Examples include the SCANS (Secretary's Commission on Achieving Necessary Skills) framework and the Employability Skills Framework by the UK Department for Education[7]. The tracer study can utilize such frameworks to assess the extent to which BS Information System graduates possess and demonstrate these employability skills, such as communication, teamwork, problem-solving, and adaptability, and their impact on securing employment[8][9].

2.4 Technological Change and Adaptability

The field of Information Systems is continuously evolving due to rapid technological advancements. Graduates need to be equipped with the ability to adapt and learn new technologies to remain relevant in the job market[10]. The tracer study can explore how well the BS Information System programs prepare graduates for technological change and whether they have the adaptability skills necessary to keep up with emerging trends and innovations[11][12]. It can also examine the relationship between graduates' adaptability and their employability outcomes.

2.5 Career Development Theories

Career development theories, such as Holland's Theory of Vocational Personalities and Super's Developmental Theory, provide insights into individuals' career choices, aspirations, and career progression[13][14]. These theories emphasize the importance of self-assessment, occupational fit, and career planning. The tracer study can incorporate elements of these theories to explore how well BS Information System graduates navigate their career paths, whether their career aspirations align with their educational background, and whether they engage in proactive career development practices to enhance their employability[15][16][17].

By considering these theoretical perspectives, the tracer study on the employability of BS Information System graduates can provide a comprehensive understanding of the factors influencing their employment outcomes. The insights gained can contribute to the improvement of educational programs, inform career counseling services, and support policy initiatives aimed at enhancing the employability of graduates in the Information Systems field.

III. OBJECTIVES OF THE STUDY

The main problem of this study was to assess the employability status of the Bachelor of Science in Information Technology (BSIS) graduates of the Surigao State College of Technology, from year 2017-2021.

Specifically, this research work sought to answer the following questions:

1. What is the profile of the BS Information Technology graduates from 2017-2021 in terms of:
 - 1.1 sex
 - 1.2 civil status
 - 1.3 place of origin; and
 - 1.4 place of work
2. What is the employability status of the BSIS graduates from 2017-2021 in relevance to their field of specialization?
3. What is the present employment status of the BSIS graduates?
4. What intervention plan can be proposed based on the findings of the study?

IV. SIGNIFICANCE OF THE STUDY

The study findings hold significant value as a foundational dataset for multiple purposes, including curriculum review, institutional development, and policy-making by administrators. Additionally, the results can contribute to addressing the employment concerns of the Local Government. This research offers valuable insights that can assist instructors and professors in designing curricular revisions, as well as planning diverse curricular and co-curricular activities aimed at enhancing students' competencies and preparing them for global competence.

Furthermore, the findings have the potential to prevent wastage of time, effort, and financial resources. By raising awareness among parents about the advantages and disadvantages associated with specific courses that their children intend to pursue, informed decisions can be made regarding enrollment choices. This proactive approach helps to prevent potential mismatches between students' interests, aptitudes, and the requirements of the chosen course, thus ensuring a more purposeful and rewarding educational journey for the students.

V. RESEARCH METHODOLOGY

This tracer study employed a descriptive research method to comprehensively examine the employability of graduates holding a Bachelor of Science (BS) degree in Information Systems (IS). A sample of 202 BS Information System graduates from Surigao State College of Technology willingly participated in the study, providing honest responses to a modified online survey questionnaire and an interview guide developed by the Commission on Higher Education (CHED). The research aimed to gather detailed and comprehensive data to determine the employability status of the graduates.

The survey questionnaire and interview guide were designed to collect information pertaining to various aspects of employability, including job placements, career transitions, and employment outcomes. Additionally, documentary analysis of graduates' records was conducted to supplement and validate the survey data. The records provided valuable insights into the graduates' educational background, academic performance, and relevant skills acquired during their BS Information System program.

To determine the employability status of the graduates, a simple percentage calculation was employed, allowing for a quantitative analysis of the data collected. The descriptive research method, combining survey data, interviews, and documentary analysis, aimed to provide a comprehensive understanding of the graduates' employment outcomes and factors influencing their employability.

By utilizing a variety of research methods, this study sought to offer a holistic view of the employability of BS Information System graduates. The data collected through the survey, interviews, and documentary analysis provided nuanced insights into the graduates' career paths, job prospects, and skills acquired during their education. These

insights formed the basis for drawing meaningful conclusions and formulating practical recommendations to enhance the employability of future BS Information System graduates.

VI. RESULT AND DISCUSSION

A. Number of BSIS Graduate Respondents per year

Table 1. Number of graduate respondents per year

Year Graduated (BS Information System)	Number of Graduates	Number of Respondents
2021	38	30
2020	65	48
2019	96	63
2018	71	50
2017	59	39
Total	291	202

Table 1 shows the number of graduates who responded and answered the survey questionnaire. There were a total of 291 BS Information System graduates from year 2017-2021. A total of 202 graduates answered survey questionnaire for recording and treatment. It can be noticed that the highest number of respondents are graduates of 2019. Perhaps, most of them are fresh graduates the find jobs already and are proud to notify their alma mater.

Percentage of BSIS Respondents per year

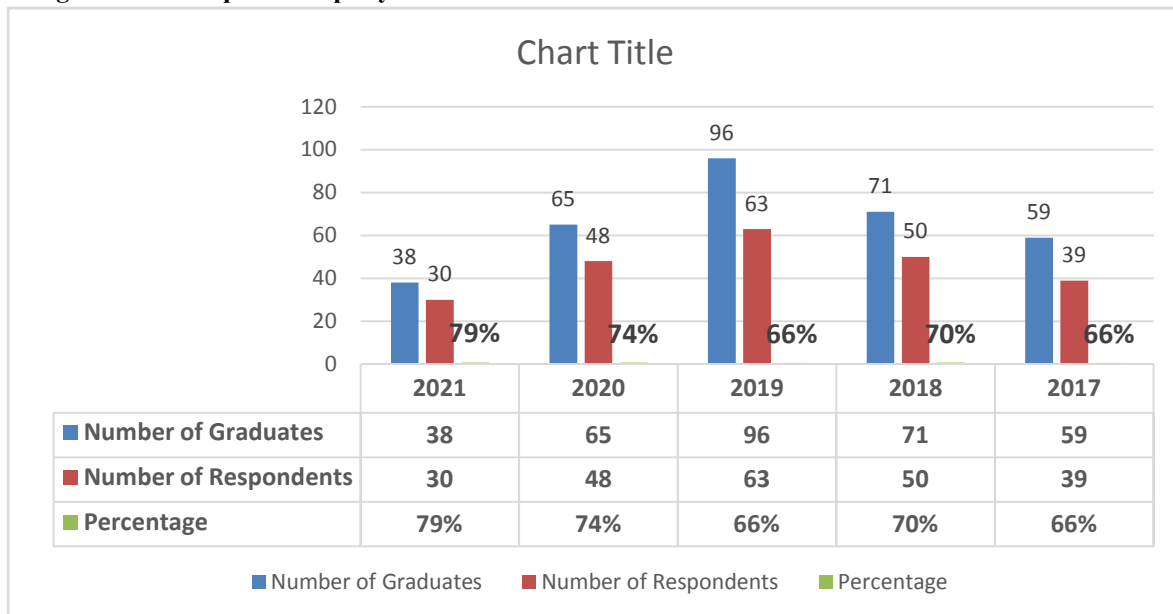


Figure 1. Percentage of BSIS Respondents per year

B. Sex and Civil Status Profile of the Graduates from 2017-2021

Table 2. Sex and Civil Status Profile of the Graduates

Year Graduated	Sex		Civil Status	
	Male	Female	Single	Married
2021	16	22	27	11
2020	21	44	38	27
2019	22	74	63	30
2018	21	50	35	36
2017	13	46	30	29

Table 2 presents the sex and civil status profile of the graduate respondents. It can be seen that most of the respondents are females and are still single in status. Since graduates of 2019 are the most in number, it has also the highest number of female respondents, has the highest number of single respondents and have the highest number of respondents but 2019 graduates have the highest number of respondents who are married. It only shows that many of them are earning already and can support a family.

Percentage of the Sex and Civil Status Profile of the Graduates

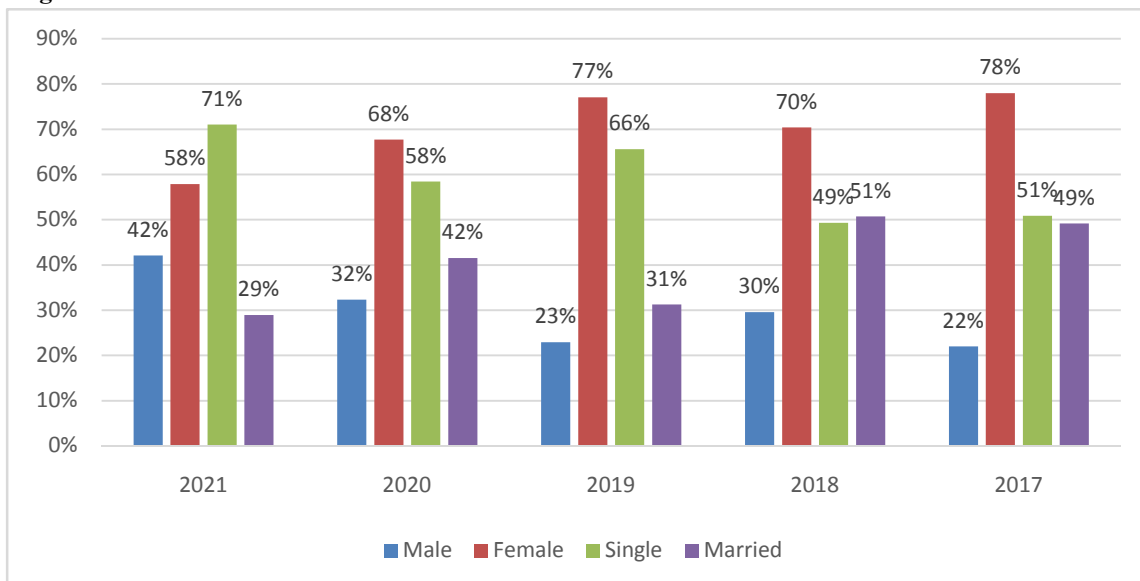


Figure 2. Percentage of the Sex and Civil Status Profile of the Graduates

C. Place of Origin and Place of the Present Work of the Graduates

Table 3. Place of Origin and Place of the Present Work of the Graduates

Year Graduated	Place of Origin		Place of Work	
	Rural	Urban	In the PH	Abroad
2021	11	27	38	0
2020	21	44	65	0
2019	74	22	95	0
2018	21	50	36	0
2017	45	13	59	1

Table 3 provides insights into the hometowns of the graduates and the locations of their current employment. The data reveals that the majority of the graduates originate from rural areas, accounting for 99% of the total number, while only 1% come from urban areas. Furthermore, the table indicates that only one graduate secured a job overseas, representing a mere 1% of the total. It is noteworthy that a significant proportion of the graduates are employed in their hometowns, which aligns with the well-known adage, "there's no place like home."

Percentage of the Graduates' Place of Origin and Place of the Present Work

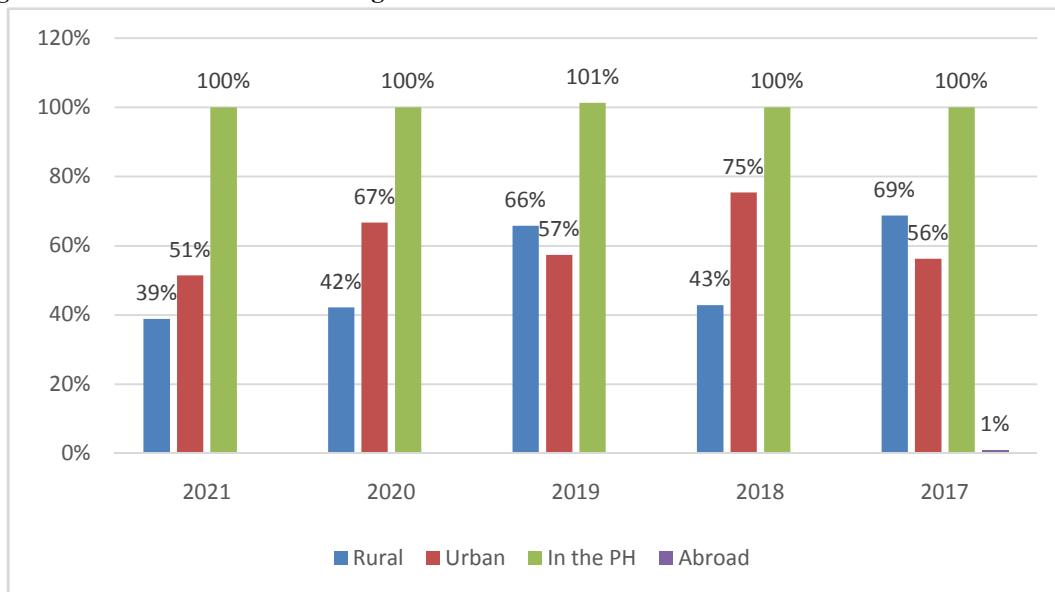


Figure 3. Percentage of the Graduates' Place of Origin and Place of the Present Work

Employability Status of the Graduates from 2017-2021

Table 4. Employability Status of the Graduates from 2016-2021

Year Graduated (BS InfoTech)	No. of respondents employed	Percentage	No. of respondents Unemployed	Percentage	No. of Graduates with no response	Percentage	Total
2021	18	60%	8	27%	5	13%	100%
2020	45	69%	17	26%	8	5%	100%
2019	76	79%	13	14%	7	7%	100%
2018	49	69%	14	20%	8	11%	100%
2017	32	54%	18	31%	9	15%	100%

The data presented in Table 4 highlights that a significant majority of graduates from the years 2017-2021 are currently employed, constituting an average percentage of 76%. Notably, the graduates from the year 2017 exhibit the highest number of unemployed respondents, potentially due to their recent graduation and limited work experience. Furthermore, it is worth mentioning that some respondents in the dataset identify as self-employed or engaged in their own small businesses, although they may not consider it as their primary occupation.

Percentage of the Employability Status of the Graduates from 2017-2021

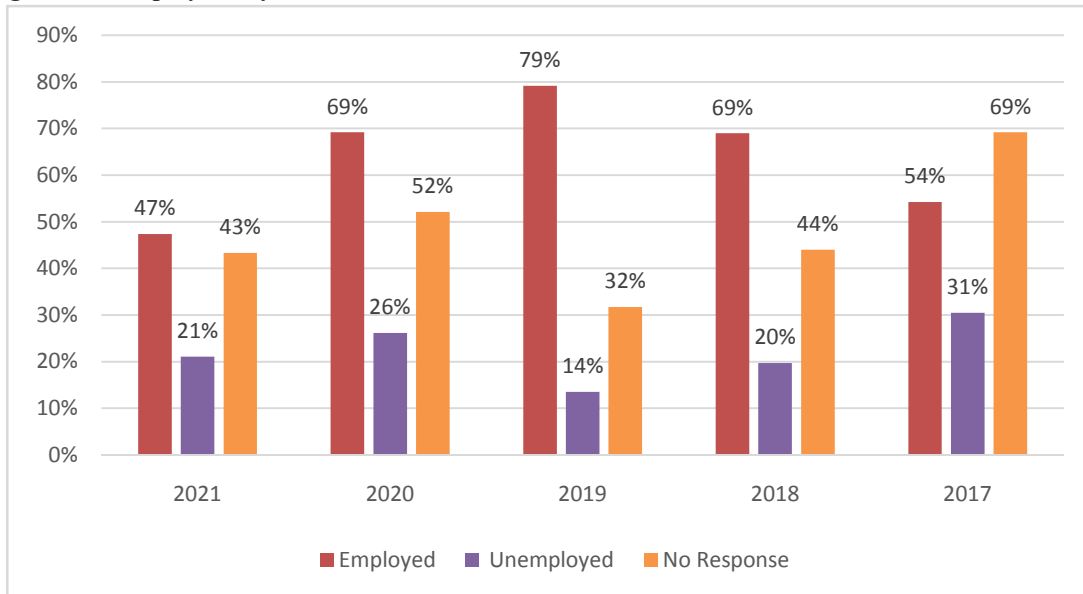


Figure 4. Percentage of the Employability Status of the Graduates from 2017-2021

G. Present Employment Status of Graduates from 2017-2021

Table 5. Present Employment Status of Graduates from 2017-2021

Employment Status					
Year Graduated (BS InfoTech)	Permanent/Regular	Temporary	Casual/Contractual	Self-employed	Unemployed
2021	1	5	5	7	8
2020	5	17	15	8	17
2019	28	21	19	8	13
2018	16	10	15	8	14
2017	11	7	8	5	13

Table 5 presents the current employment status of graduates from the BS Information Systems (BSIS) program. The data reveals that the 2019 graduates have a higher proportion of permanent employment compared to other categories. Additionally, upon examining the table, it becomes evident that a significant portion of graduates holds casual or contractual positions, constituting an average percentage of 48%. While this indicates that they are employed, it is important to note that there are still some graduates who remain unemployed. Possible reasons for their unemployment could be attributed to a lack of job-seeking motivation, financial dependence on their parents, early marriage, or a scarcity of job opportunities in their field.

Percentage of the Present Employment Status of Graduates from 2016-2020

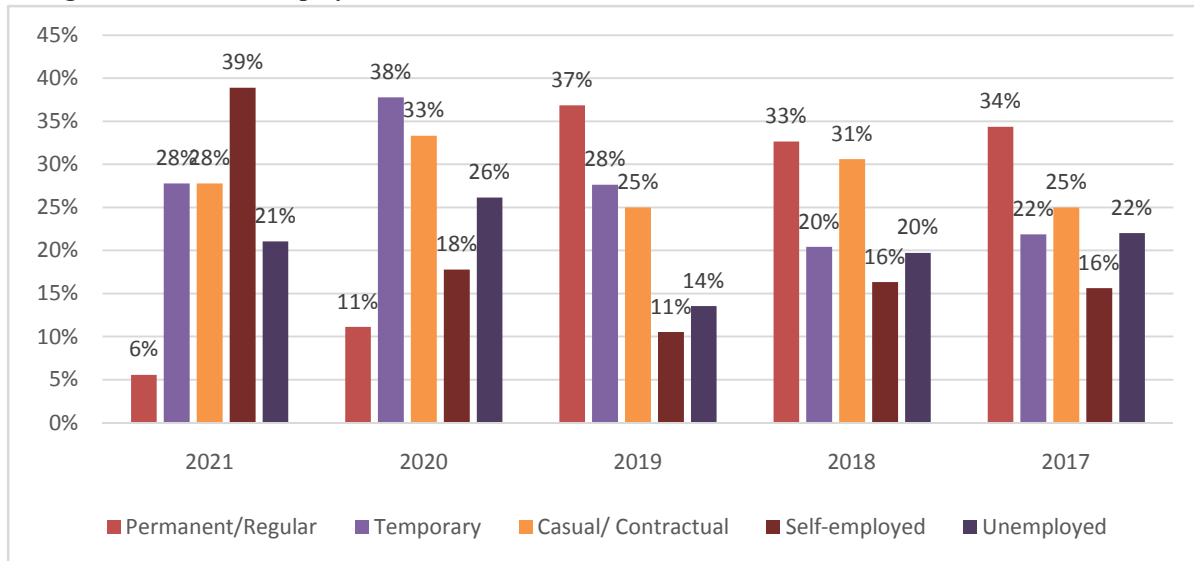


Figure 5. Percentage of the Present Employment Status of Graduates from 2017-2021

VII. SUMMARY OF FINDINGS

Based on the results, the following findings were made:

- Out of 291 BSIS graduates from 2017-2021, 202 graduates responded and answered the survey questionnaire for this study which is 69% of the total graduates.
- Most respondents were females and are still single in status. Most are single status respondents were graduates of 2019.
- Majority of the graduates came from the rural places and are presently employed here in the Philippines. Only one was employed abroad.
- Majority of the graduates are already employed which accounts for an average percentage of 76%.
- Majority of the graduates of 2019 are already employed.

VIII. CONCLUSION

Based on the findings, the following conclusions were drawn:

- Graduates of computer-related courses, such as BS Information System, are highly sought after in the job market, indicating a strong demand for their skills and expertise.
- Underemployment among graduates can be attributed to a mismatch between their chosen program of study and the actual job opportunities available. This suggests that some graduates may have chosen a program that does not align well with the prevailing job market needs, resulting in a lack of suitable employment options.
- Unemployment among graduates can be attributed to various factors, including a lack of motivation to actively seek employment, financial dependency on parents, and a limited number of job opportunities available in their field. It is possible that some graduates may prioritize factors other than securing employment immediately, while others may face challenges related to a lack of available job opportunities.
- These conclusions highlight the importance of aligning educational choices with labor market demands to enhance graduates' employability. Efforts should be made to provide career guidance and support services to help students make informed decisions about their choice of program. Additionally, addressing the factors contributing to underemployment and unemployment, such as promoting job creation and fostering a culture of job-seeking motivation, can help improve the overall employment outcomes for graduates.

REFERENCES

- [1]. Javalgi, R. R. G., Gross, A. C., Joseph, W. B., & Granot, E. (2011). Assessing competitive advantage of emerging markets in knowledge intensive business services. *Journal of Business & Industrial Marketing*, 26(3), 171-180.
- [2]. Bhatt, G. D., & Grover, V. (2005). Types of information technology capabilities and their role in competitive advantage: An empirical study. *Journal of management information systems*, 22(2), 253-277.
- [3]. Becker, G. S. (2009). *Human capital: A theoretical and empirical analysis, with special reference to education*. University of Chicago press.
- [4]. Gorgone, J., Davis, G. B., Valacich, J. S., Topi, H., Feinstein, D. L., & Longenecker, H. E. (2003). IS 2002 model curriculum and guidelines for undergraduate degree programs in information systems. *Communications of the Association for Information Systems*, 11(1), 1.
- [5]. Archer, W., & Davison, J. (2008). Graduate employability. *The council for industry and Higher Education*, 1(20).
- [6]. Kavanagh, M. H., & Drennan, L. (2008). What skills and attributes does an accounting graduate need? Evidence from student perceptions and employer expectations. *Accounting & Finance*, 48(2), 279-300.
- [7]. Young, J., & Chapman, E. (2010). Generic competency frameworks: A brief historical overview. *Education Research and Perspectives*, 37(1), 1-24.
- [8]. Ayalew, Y., Renken, J., Mgaya, K. V., & Nkgau, T. Z. (2012). Developing a contextualized information systems curriculum for an emerging economy. *The Electronic Journal of Information Systems in Developing Countries*, 54(1), 1-19.
- [9]. Balah, K. O. (2023). AB Psychology Graduates' Employment Outcomes: A Tracer Study of Batches 2017-2020: Effects Of Pandemic and Basis For Program Enhancement. *International Journal of Humanities and Education Development (IJHED)*, 5(3), 73-85.
- [10]. Bhagra, A., & Sharma, D. K. (2018). Changing paradigm of employability skills in the global business world: A review. *IUP Journal of Soft Skills*, 12(2).
- [11]. Macatangay, L. (2013). Tracer study of BSCS graduates of Lyceum of the Philippines University from 2004-2009. *Academic Research International*, 4(5), 361.
- [12]. Lutwama, E., & Kigongo-Bukenya, I. M. (2004). A tracer study of the East African School of Library and Information Science graduates 1995-1999 working in Uganda. *South African journal of libraries and information science*, 70(2), 99-109.
- [13]. Osipow, S. H. (1968). Theories of Career Development. A Comparison of the Theories.
- [14]. Chen, C. P. (2003). Integrating perspectives in career development theory and practice. *The Career Development Quarterly*, 51(3), 203-216.
- [15]. Roberts, N., Galluch, P. S., Dinger, M., & Grover, V. (2012). Absorptive capacity and information systems research: Review, synthesis, and directions for future research. *MIS quarterly*, 625-648.
- [16]. Legris, P., Ingham, J., & Collette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information & management*, 40(3), 191-204.
- [17]. Pajares, F. (1997). Current directions in self-efficacy research. *Advances in motivation and achievement*, 10(149), 1