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Employability of Biology Graduates of a State University: A Tracer Study

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ABSTRACT

The study aimed to trace the employability and professional development of Bachelor of Science in Biology graduates of a state university in Central Luzon, Philippines. Quantitative research design was utilized in tracing the employability and professional development of the total 97 graduates of BS Biology from 2008 to 2019. The study found that most of the graduates were permanently employed in a local government institution, specifically in the teaching profession, which is aligned with the objectives of the program. They also pursued graduate programs to expand their knowledge and skills needed for their respective careers. Graduates of the program were also satisfied with their current jobs and least likely to resign. Moreover, the study implied that the undergraduate program is relevant to the occupation of the graduates, especially for those who pursued careers in educational settings. The BS Biology undergraduate program of the state university contributes in the development of essential professional skills and competencies which are useful and relevant to the current job of its graduates.

INTRODUCTION

Background of the Study

Program relevance of an academic curricular offering is one of the issues that higher education institutions address. Program relevance is the alignment of the curricular program in academic institutions to the trends and needs of the local and global society. Higher education institutions must prepare their graduates for the challenges of the global workforce despite the drastic change in the labor market, both in local and global society (Naidoo *et al.*, 2011). In addition, the professional competence of a graduate can be determined by the development of relevant academic programs.

To assess the relevance of a curricular program of a higher educational institution is by tracing the employability and performance of their graduates that is suited to the needs of the labor market in a local and global society. Reusia *et al.* (2020) also mentioned that the program relevance of an academic program can be identified through the feedback provided by the graduates. Information given by the graduates of a curricular program is seemingly significant and reliable for they are the ones who obtained the learning experience that they can utilize in their respective chosen profession, thus contributing to the development of a curriculum that improves the quality of instruction (Cuadra, *et al.*, 2019).

Tracer study served as one of the mechanisms in providing feedback regarding the program provided by an academic institution, thus, contributing to the enhancement of curricular offerings (Llego & Banez, 2017). In addition, the tracer study also determined the alignment of the curricular offering of a certain degree program, in a higher education institution, to the needs of local and global organizations. Moreover, this also

contributes to the fast-paced needs of the labor market under the industry 4.0 and Volatile, Uncertain, Complex, and Ambiguous (VUCA) world.

On the other hand, Biology is a science that deals with living organisms. It is also called the science of life. This branch of science is being offered as one of the curricular offerings across the globe- in both graduate and undergraduate programs. In the Philippine context, the undergraduate offering of Biology is governed by the Commission on Higher Education (CHED) through its memorandum No. 39 series of 2017. The guidelines mentioned prescribe requirements in the offering of the program as well as the competencies that the graduates should acquire which include being biological scientists in both public and private agencies, engaging in entrepreneurial activities, becoming biological researchers, teaching biological science and other related fields and may pursue graduate programs (CHED, 2017). Thus, the study aimed to trace the employability of and professional development of Biology graduates of a state university in Central Luzon, Philippines. In addition, the results of this study may serve as a basis for program enhancement.

METHODOLOGY

Design

In determining the employability and professional development of the biology undergraduate program of a state university in Central Luzon, Philippines, descriptive- a quantitative research design was employed. A descriptive research design is suitable for determining and analyzing the problems and issues in society by describing the current social situation (Fox & Bayat, 2007).

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Participants and Setting

Total sampling method, from the 97 graduates of bachelor of science in biology graduates of a state university in central Luzon, Philippines from batch 2008-2019, was employed. Researchers seek approval from the participants before the data gathering. State University is an academic higher education institution governed and mandated by the government through the Commission on Higher Education (CHED).

Research Instrument and Data Analysis

The main instrument employed in attaining the objective of the study is the Graduate Tracer Study Questionnaire aligned to the instrument used by the Commission of Higher Education (CHED) in the

Philippines. This instrument contained questions relative to the demographic profile of the respondents, their employment status, and professional development. The instrument was subjected to content validation by the experts in the field and reliability measures, before data gathering.

Moreover, to describe the respondents' profile, employment status, and professional development, descriptive statistics such as mean, frequency, percentage, and standard deviation were utilized through the SPSS v. 23.

RESULTS AND DISCUSSION

Profile of the Respondents

Presented in Table 1 are the profiles of the respondents.

Table 1: Profile of the Respondents (N=97)

		Frequency	Percent
Age	22 to 25 years old	39	40.63
	26 to 29 years old	31	32.29
	30 to 33 years old	16	16.67
	34 to 39 years old	11	11.46
Sex	Female	55	56.70
	Male	42	43.30
Year Graduated	2005 to 2008	24	24.74
	2009 to 2012	31	31.96
	2013 to 2016	19	19.59
	2017 to 2019	23	23.71
Further studies after college	Doctor's Degree	2	2.06
	Master's Degree	21	21.65
	Master's Degree (On-going)	14	14.43
	Education Units	13	13.40
	Additional Degree	1	1.03
	Not Applicable	46	47.42

The data shown in Table 1 described that the majority of biology graduate respondents are young and recently finished the degree with an age range of 22 to 25 years old, 39 (40.63%). The result can be attributed to the fact that the current graduates are still actively participating in college endeavors and connect to their junior classmates as well as with their teachers often (Hipona, Cuevas, and Martin, 2021; Cuadra, Aure, and Gonzaga, 2019).

Moreover, data revealed that graduates of BS Biology are predominantly female (56.70%) than male (43.30%). The sex disparity in the field of science may be rooted in gender role assignment and belief in our society where women are in the medical field and men are in the industrial sector (Hanson, Westerlund, and Vaughan, 2020).

The number of graduates in BS Biology since its offering in 2005 has been low. This could be a reflection of the low number of secondary students in the Philippines who continue to life sciences in their tertiary education and the high number pursuing engineering and technology field

industries (Rafanan, De Guzman, and Rogayan, 2020). The choice of tertiary course students is highly related to their desire for a tenure after they have finished their tertiary education, hence, their pursuit of industry-lined courses.

Almost half of the students who pursued life sciences and finished BS Biology (52.58%) further their studies either currently enrolled or had finished their Master's and doctorate degrees (Belfield, Boneva, Rauh and Shaw, 2016).

Respondents Reason for Taking Undergraduate and Graduate Degrees

Accordingly, it was revealed in a study that the main driver of students pursuing advance studies is their decision (23.71%) to increase their competitive chance of acquiring tenure (23.71%) and/or getting promoted to higher positions in their respective fields (38.14%; 37.11%) both within and outside the country (23.71%) as seen in Table 2.

Table 2: Reasons for taking the Bachelor’s Degree and/or pursuing Graduate School Degree(s)

	Bachelor's Degree		Graduate School Degree	
	Frequency	Percent	Frequency	Percent
High grades in the course or subject area(s) related to the course	12	12.37	6	6.19
Upliftment from poverty	10	10.31	10	10.31
Personal decision/choice	39	40.21	23	23.71
Influence of parents or relatives	6	6.19	6	6.19
Peer Influence	5	5.15	6	6.19
Inspired by a role model	11	11.34	9	9.28
Strong passion for the profession	14	14.43	8	8.25
Prospect for immediate employment	42	43.30	23	23.71
Status or prestige of the profession	7	7.22	7	7.22
Availability of course offering in chosen institution	12	12.37	6	6.19
Prospect of career advancement	52	53.61	37	38.14
Financial capability	11	11.34	13	13.40
Prospect of attractive compensation	33	34.02	7	7.22
Opportunity for employment abroad	21	21.65	23	23.71
No particular choice or no better idea	6	6.19	3	3.09
Professional development	42	43.30	21	21.65
Requirement for promotion	7	7.22	36	37.11
Others	6	6.19	0	0.00

The results of the current study coincide with the results of other research in that alumni pursue graduate school studies for personal and professional growth as well as increasing their self-esteem and competence (Shellhouse, Spratley, and Suarez, 2020; Gentova, Madrigal, and Bual, 2023).

Respondents’ Employability

In line with the aforementioned results and discussions, the pursuit of graduate studies has ensured the alumni their competitive chance in being hired for work and offered tenure in their job ensuring the employability frequency of BS Biology graduates to 77.32 percent as seen in Table 3.

This signifies that the graduates of BS Biology have higher chances of being employed due to their acquired skills in the program and enhanced by their advanced studies in the field (Camuyong, Decena, Reyes, Malong, Gregorio, Magtala and Adlawan, 2023).

Table 3: Frequency of the Employability of the Graduates

	Frequency	Percent
Yes	75	77.32
No	22	22.68
Total	97	100.00

Reasons for Unemployment

It can be culled from Table 4 that the reasons among the BS Biology graduates for being not yet employed were unavailability of job opportunities (90.91%) and pursuit to advance studies (9.09%). The results of the

unavailability of job opportunities are mainly due to the economic recessions happening within and outside the country as a consequence of the COVID–19 pandemic where the closure of the majority of business enterprises and adamant discharge of employees closing job opportunities to the fresh graduates (Antipova, 2021; OECD, 2021; Gould and Kassa, 2020). Although a steady rise in online employment opportunities has been observed during the pandemic, disadvantaged graduates belonging to the middle to low-income family could not keep up with the technological job requirements as a result of their economic capabilities, hence, the absence of job opportunities for them (Antipova, 2021; OECD, 2021).

Table 4: Reason(s) of Not yet Employed

	Frequency	Percent
Advance or further study	2	9.09
No job opportunity	20	90.91
Total	22	100.00

Respondents’ Period of Employment for the First Job

It can be deemed from the results in Table 5 that the BS Biology graduates were employed within the first year upon their graduation (70.10%) and were hired in less than a month (25.77%). The results of the study coincide with the results of other research that graduates in the Philippines could find and start working within the first year after their graduation, though most of this employment is on a contractual basis and from private sectors that may be unaligned to the degree they had

obtained but were pursued by the graduates while waiting for them to find tenure in their desired sector and or after they had finished their advance graduate studies (Caingcoy, Ramirez, Gaylo, Adajar, Lacdag, and Blanco, 2022; Alemu and Yismaw, 2022).

Table 5: Period of Employability for the First Job

	Frequency	Percent
Less than 1 month	25	25.77
2-5 months	24	24.74
6-12 months	19	19.59
More than a year	7	7.22
Not Applicable	22	22.68
Total	97	100.00

Frequency of Jobs since Graduation

Table 6 depicts the Frequency of Jobs since Graduation of the respondents. Most of the respondents 25 or 19.53% are employed in their first job after graduation; 18.75% were employed in their second and fourth job since graduation; 18 or 14.06% of the graduates were on their third job while 15 or 11.72% were on their fifth job since graduation. There are still 22 or 17.19% of the respondents who were never employed.

In a study conducted by, Cuadra, et. Al (2019), respondents disclosed that they stayed on their first job for three top reasons, which included salaries and benefits related to course program of study, and career challenge. These were also the reasons for switching, changing, and leaving from their first one. Furthermore, employability is a set of achievements, skills, and personal attributes that allow graduates to more easily gain employment, which benefits themselves, their workforce, the community, and the economy. In the study of Mokhtar, et al., (2022), graduates are categorized according to the employability problem if they find it hard to gain employment after six months of their graduation. Employability is the circumstance in which graduates can land their first job, they can keep their employment and, if necessary, find another employment. Additionally, they can move forward in the workforce and upgrade themselves so that they can reach their full potential in a sustainable setting. An individual must possess the necessary information, abilities, and attitudes to secure employment, as well as the know-how to make the most of those resources to market themselves effectively to potential employers. In

Table 6: Frequency of Jobs since Graduation

	Frequency	Percent
1st Job	25	19.53
2nd Job	24	18.75
3rd Job	18	14.06
4th Job	24	18.75
5th Job	15	11.72
Never been employed	22	17.19

related tracer studies, it is found out that the majority landed on the first job-related to their course (Centillas, Lumbay & Larisma, 2017; Chavez et al., 2016).

Graduates' Employment Status

It is also disclosed in Table 7 that the majority of the graduates were employed. Most of the employed respondents are Permanent with 40 or 47.06% of the total employed respondents, 21 or 24.71% were contractual, some graduates were also employed under Job-order and Temporary-Regular with 8 or 9.41% and a few were also Casual employees and self-employed with 3 or 3.53% respectively. The BS Biology graduates are employable and they possess the skills necessary in the workplace. The results are coherent with the study of Camuyong et. al., (2023) which recorded a higher percentage of permanent employment status among graduates. Mokhtal et. al. (2022), claimed that an individual must possess the necessary information, abilities, and attitudes to secure employment, as well as the know-how to make the most of those resources to market themselves effectively to potential employers.

Table 7: Graduates Employment Status

	Frequency	Percent
Job Order	8	9.41
Contractual	21	24.71
Casual	3	3.53
Self-employed	3	3.53
Temporary-Regular	8	9.41
Permanent	40	47.06
Not Applicable	2	2.35

According to the study conducted by Irene and Greif (2022), though the majority of their respondents are employed with permanent status, despite having graduated as scholars, others are holding temporary, casual, and contractual status.

Graduates' Current Job Title

Table 8 displays the graduates' current job titles. The researchers clustered it into two (2) titles: knowledge-based and skill-based on the Occupational Information Network-Standard Occupational Classification (O*NET-SOC) system. According to Slaper T.F. (2017), these are groups of jobs that have similar knowledge, abilities, and other traits, like formal education levels, training, income levels, and benefit availability.

Among the clustered titles, Teacher I under Primary, Secondary, and Vocational Education, Remediation, and Social Services gained the highest frequency at 10 or 10.31%. Most graduate respondents are employed in a teaching position thus confirming the study conducted that in the Philippines, the teaching profession is highly regarded, as teachers are viewed to be catalysts of change and nation-builders (Rogayan, 2018). The majority of the graduates are employed within Zambales implying that

Table 8: Graduates' Current Job Title

	Frequency	Percent
Knowledge-Based Cluster Titles		
Health Care: Medical Practitioners and Scientists		
Head Medic	1	1.03
Emergency Medical Technician	1	1.03
Natural Sciences and Environmental Management		
Mine Environmental Protection and Enhancement Management Assistant Support	1	1.03
Fisheries Regulations Officer 1	1	1.03
Research Production (Buffer Team)	1	1.03
Primary, Secondary and Vocational Education, Remediation and Social Services		
Teacher I	10	10.31
Teacher II	9	9.28
Teacher III	8	8.25
Master Teacher I	1	1.03
Senior High School Teacher	6	6.19
Public School Teacher	3	3.09
Senior High School Teacher II	7	7.22
Special Science Teacher I	5	5.15
Postsecondary Education and Knowledge Creation		
Instructor I	6	6.19
Associate Professor I	1	1.03
Managerial, Sales, Marketing and Human Resources		
Corporate Resolution Specialist	1	1.03
Quality Analyst Manager	1	1.03
Skill-Based Cluster Titles		
Managers and First-Line Supervisors		
Senior Training Specialist	1	1.03
Training Manager	1	1.03
Administration and Office Support		
Administrative Assistant	1	1.03
Administrative Officer II	1	1.03
Executive Secretary	1	1.03
Deputized Barangay Collector/ Barangay Clerk	1	1.03
Sales, Agents, Brokers and Customer Relations, Support		
Customer Service Associate	1	1.03
Customer Service Representative	1	1.03
Operations Associate	1	1.03
Business Communication Instructor	1	1.03
Phone Banker	1	1.03
Technical Support	1	1.03
Not Applicable	22	22.68
Total	97	100.00

they chose to serve their province, opting to be employed locally and near their home residence (Sentilleces & Rungduin, 2013).

Graduates Employment Workplace

Table 9 presents the graduates' employment workplace.

Most graduates are employed locally with a frequency of 73 or 75.26%; 2 or 2.06% work abroad and not applicable with 22 or 22.68%. Most respondents reported that they were employed locally with permanent status, having a job title in line with Postsecondary Education and Knowledge Creation and Administration and Support,

Table 9: Graduates Employment Workplace

	Frequency	Percent
Abroad	2	2.06
Local	73	75.26
Not Applicable	22	22.68
Total	97	100.00

and most reported that they were employed by the government offices.

Graduates contemplating international migration recognize the potential for broader career prospects and exposure to diverse cultures and markets (Szmigiera, 2021). This is also supported by the study of Eslit (2023), as one respondent stated “While international migration is tempting, I believe that staying rooted in my local community is essential. There’s meaningful work to be done right here, and I want to contribute to my region’s development.”

Graduates’ Type of Workplace

Table 10 displays the graduates’ employment type of company/agency/business affiliation. The majority of the respondents are employed in the government with a frequency of 56 or 57.73%; non-government agency employment type of graduates accumulated a frequency of 19 with the equivalent of 19.59% and 22 or 22.68% are unemployed or never been employed. The Organization for Economic Co-operation and Development (OECD) defines “Knowledge-based industries usually refer to those industries which are relatively intensive in their inputs of technology and/or human capital.” It further states that “it is desirable to include other activities that are intensive users of high technology and/or have the relatively highly skilled force that is required to benefit fully from technological innovation.”

Table 10: Graduates Employment Type of Company/ Agency/Business

	Frequency	Percent
Government (employed)	56	57.73
Non-government (employed)	19	19.59
Not Applicable (unemployed or never been employed)	22	22.68
Total	97	100.00

In a government agency, due to a limited number of permanent positions, jobs are given either for contractual or job order employees. Likewise, scholars employed in state universities, usually begin as temporary or provisional until they have finished their master’s degrees.

Graduates Source of Information about Their Current Job

Table 11 shows the BS Biology Graduates’ source of information about their current job. The data shows

Table 11: Graduates’ source of information about their current job

	Frequency	Percent
Walk-in applicant	16	16.49
Arranged by school placement	2	2.06
Employment service	4	4.12
Recommendation	24	24.74
Vacancy notice	19	19.59
Internal promotion	1	1.03
Information from friends	6	6.19
Internet	1	1.03
Response to an advertisement	1	1.03
Job fair	1	1.03
Not Applicable	22	22.68
Total	97	100.00

that recommendation has the highest frequency gaining a response of 24 out of 97 and with a percentage of 24.74%, revealing that most of the respondents obtain the information about their job through recommendations. Similar results were also observed in the study of Camuyong et.al. (2023) where most of their respondents found their first job through someone’s recommendation

Graduates’ Level of Job Satisfaction to Their Current Job

Table 12: Level of Satisfaction of the Graduates’ current job

	Frequency	Percent
Not satisfied	2	2.06
A little satisfied	5	5.15
Much satisfied	46	47.42
Very much satisfied	22	22.68
Not Applicable	22	22.68
Total	97	100.00

Table 12. exhibited the BS Biology Level of satisfaction with the Graduate’s current job. The data revealed that out of 97 respondents, 47.42% of the graduates are very satisfied with their current job, 22.68% are very much satisfied, 5.15% are very little satisfied and only 2.06 are not satisfied with their current job. It is clear from the data that 70.1% of the respondents assessed that they were satisfied with their current jobs.

Graduates’ Intention of Staying in the Same Job

Furthermore, it can be culled in Table 13 that more than half of the respondents are positive about in staying the same job/profession. A study conducted by Lijueraj et. al. (2019), revealed that salaries, benefits related to course program of study, and career challenges are the top three

Table 13: Intention of staying in the same job/profession

	Frequency	Percent
Yes	56	57.73
No	19	19.59
Not Applicable	22	22.68
Total	97	100.00

reasons for graduates to stay on their first job. Similar findings were also gleaned in the study of Macatangay (2013).

Graduates Job Relevance to Course

Table 14 reflects the BS Biology Graduates’ Job Relevance to the Course/Degree completed. The data gleaned that 47.42% of the respondents revealed that the knowledge and skills they acquired during their bachelor’s degree are relevant to their present jobs. While 29.90% of them assessed that their course/degree as having no-relevance and on the other hand 22.68% of the respondents were impartial. The non-relevance of the curriculum is attributed to the graduates whose current jobs are non-aligned to their degree or field of specialization.

Table 14: Graduates Job Relevance to Course / Degree completed

	Frequency	Percent
Yes	46	47.42
No	29	29.90
Not Applicable	22	22.68
Total	97	100

The study conducted by Macatangay (2013), revealed that curriculum, and quality of instruction in both general education and major subjects are relevant in graduates’ employability. The same study also states that Quality of instruction, mastery of the subject matter being taught, and relating the subjects to other fields and other life situations were the top three very relevant factors to employment. This is also supported by Lijueraj et. al. (2019) stating that the degree programs that students pursue help improve their skills and their employment status.

Graduates’ Alignment of Their Course Taken to Their Present Job

Table 15 shows the BS Biology Graduates’ alignment of their course/program taken to their present job. It can be gleaned from the data that Agriculture, Hunting, and Forestry has a frequency of 3 (3.09%); Manufacturing 2 (2.06%); Mining and Quarrying 3 (3.09%); Financial Intermediation 4 (4.12%); Real State, Renting and Business Activities 7 (7.22%); Education 43 (44.33%); Health and Social Work 5 (5.15%); Other Community, Social and Personal Service Activities 6 (6.19%); More than one (1) alignment 2 (2.06%) and; 22 (22.68%) are

neutral. It is clear from the data that 43 (44.33%) or almost half respondents were employed in education. The majority of young Filipinos are inspired to teach to bring positive change, share knowledge and skills, and transform the lives of the younger generation (Rogayan 2018).

Table 15: Graduates’ alignment of their course/ program taken to their present job

	Frequency	Percent
Agriculture, Hunting and Forestry	3	3.09
Manufacturing	2	2.06
Mining and Quarrying	3	3.09
Financial Intermediation	4	4.12
Real State, Renting and Business Activites	7	7.22
Education	43	44.33
Health and Social Work	5	5.15
Other community, Social and Personal Service Activities	6	6.19
Not Applicable	22	22.68
More than one (1) alignment	2	2.06
Public Administration and Defense; Compulsory Social Security, Other community, Social and Personal Service Activities	1	
Transport storage and Communication, Other community, Social and Personal Service Activities	1	

Contribution of Curricular Programs to the Graduate’s Skill Development During College

Table 16 reflects the competencies and skills developed by graduates of BS Biology programs. All the developed skills were comparable, including critical thinking, creativity, collaboration, communication, information literacy, media literacy, flexibility, leadership, initiative, productivity, and social skills. It can be shown that critical thinking or the ability to find a solution to problems was perceived to have the highest contribution among graduates, with a mean of 4.42 (SD=0.775). Critical thinking skills are followed by creativity or the ability to think outside the box, with a mean of 4.37 (SD=0.795). Lastly, Information and media literacy acquires a mean of 4.35 (SD=0,737).

Meanwhile, the results coincide with the study of Nold (2017), in which one of the primary goals of colleges and universities is to develop critical thinking as a necessary skill beyond the classroom. Furthermore, critical thinking involves more than accumulating information rather than identifying, analyzing, synthesizing, and evaluating

Table 16: Contribution of curricular programs to the Graduate’s skill development during college

	Mean	SD
Critical thinking (Finding solutions to problems)	4.42	0.775
Creativity (Thinking outside the box)	4.37	0.795
Collaboration (Working with others)	4.32	0.836
Communication (Talking to others)	4.32	0.785
Information Literacy (Understanding facts, figures, statistics and date)	4.35	0.737
Media Literacy (Understanding the methods and outlets in which information Age possible)	4.35	0.737
Flexibility (Deviating from plans as needed)	4.29	0.816
Leadership (Motivating a team to accomplish a goal)	4.32	0.836
Initiative (Starting projects, strategies, and plans on one's own)	4.27	0.872
Productivity (Maintaining efficiency in an age of distractions)	4.31	0.834
Social Skills (Meeting and networking with others for mutual benefit)	4.34	0.789

information to yield knowledge and higher-order cognition, considered one of the strongest predictors of long-term success in the workplace.

Moreover, the study by Al Zou’bi (2022) indicates that the generation born in the digital age will empower digital competencies to formulate knowledge and produce

information in a digital environment. Thus, all the presented skills are generally needed to meet employment requirements after graduation (Mokhtar *et al.*, 2022).

Usefulness of Those Skills and Competencies in Graduate’s Previous and/or Current Job

Table 17: Usefulness of those skills and competencies in Graduate’s previous and/or current job

	Mean	SD
Critical thinking (Finding solutions to problems)	4.35	0.958
Creativity (Thinking outside the box)	4.38	0.951
Collaboration (Working with others)	4.49	0.868
Communication (Talking to others)	4.47	0.867
Information Literacy (Understanding facts, figures, statistics and date)	4.39	0.861
Media Literacy (Understanding the methods and outlets in which information Age possible)	4.37	0.928
Flexibility (Deviating from plans as needed)	4.37	0.950
Leadership (Motivating a team to accomplish a goal)	4.26	1.034
Initiative (Starting projects, strategies, and plans on one's own)	4.29	0.912
Productivity (Maintaining efficiency in an age of distractions)	1.32	0.884
Social Skills (Meeting and networking with others for mutual benefit)	4.35	0.902

The result exhibited the useful competencies of graduates from previous and current employment. Based on Table 17, the ability to collaborate with others comprises the highest graduates’ competencies with a mean of 4.49 (SD=0.868), similar to the study of Mokhtar *et al.* (2022). In line with the results, collaboration skills impact the BS Biology program graduates to undergo biological research with the help of different agencies.

Aside from this, collaboration skills, communication, and information literacy were also useful to their previous/ current job, which comprises the mean of 4.47 (SD=0.867) and 4.39 (SD=0.861), respectively. The current studies showed that the ability to work with others, communication, and information literacy were the top useful skills acquired by graduates of the BS Biology program, which is comparable with the study of Khoo *et al.* (2020) on teamwork, communication, and problem-solving are the vital standard of employees working in

the science field. Furthermore, the findings offer insights into the extent to which the current situation in education perceived future competencies to enhance support for student learning and employability outcomes.

Relevance of Program’s Curriculum in Previous and/or Current Job in Terms of General Education Subject

Table 18 reflects the degree of relevance in the previous and current job in terms of General Education Subjects, showing extremely relevant (30.93%), moderately relevant (20.62%), very relevant (16.49%), lightly relevant (3.09%); not applicable (22.68%), and not at all (6.19%). The data coincides with the study of Xing *et al.* (2019), which shows the importance of effectively preparing every student to transition to their career and work attainment. Specifically, students need to master adequate academic knowledge and demonstrate critical thinking, problem-

Table 18: Relevance of program’s curriculum in previous and/or current job in terms of General Education Subject

	Frequency	Percent
Not at All	6	6.19
Slightly Relevant	3	3.09
Moderately Relevant	20	20.62
Very Relevant	16	16.49
Extremely Relevant	30	30.93
Not Applicable	22	22.68
Total	97	100.00

solving, social and emotional learning, perseverance, and citizenship skills. This goal assists students in becoming productive citizens and producing globally competitive individuals

Relevance of Program’s Curriculum in Previous and/or Current Job in Terms of Major or Professional Course Taken

Table 19 shows the Relevance of the program’s curriculum in previous and/or current jobs in terms of Major or Professional courses. 7 (7.22%) perceived that their major or professional program’s curriculum in their previous/or current job is not relevant at all and Slightly relevant; 8 (8.25%) is Moderately relevant; Very Relevant has a frequency of 39 (40.21%); Extremely Relevant 14 of (14.43); and not applicable has a frequency of 22 (22.68%); professional courses taken during college were very relevant having 40.21% on their current jobs. The result justifies that offered majors, or professional courses are very relevant to employment and job opportunities related to the BS Biology program (Xing *et al.*,2019).

Table 19: Relevance of program’s curriculum in previous and/or current job in terms of Major or Professional course taken

	Frequency	Percent
Not at All	7	7.22
Slightly Relevant	7	7.22
Moderately Relevant	8	8.25
Very Relevant	39	40.21
Extremely Relevant	14	14.43
Not Applicable	22	22.68
Total	97	100.00

Relevance of Program’s Curriculum in Previous and/or Current Job in Terms of Major or Professional Course Taken

Table 20 depicts the major or professional courses relevant to the previous and/or current job. The research course taken is perceived to be the most relevant program curriculum for the graduates of BS Biology. The research course has a mean of 4.06 (SD=1.289). Followed by

Practice Teaching/ Teaching Assistantship/ Nursing RLE Core/Elective/Major / Professional Subjects, Core / Elective / Major / Professional Subjects with a mean of 4.1 (SD=1.123); 4.04 (SD=1.1241) and 3.81 (SD=1.253) respectively.

In line with the aforementioned results and discussions, the research demand was deemed the most relevant program in terms of the Major Professional course. Thus, scientific research promotes peer development, knowledge, and increased confidence, is a hallmark of research for the community, and contributes to employment (Shaffer *et al.*).

Table 20: Relevance of program’s curriculum in previous and/or current job in terms of Major or Professional course taken

	Mean	SD
Research courses taken	4.06	1.289
On-the-job training course	3.81	1.253
Practice Teaching / Teaching Assistantship / Nursing RLE	4.1	1.123
Core / Elective / Major / Professional Subjects	4.04	1.241

CONCLUSION

Based on the results and discussion of the study, the researchers inferred that most of the graduates of the BS biology were employed locally in a government institution, had a permanent employment status, and pursued graduate programs in order to expand their knowledge and skills needed for their respective careers. For those who weren’t employed is said to be due to poor job opportunities present for them in the locality. The results also implied that most of the graduates pursued a teaching career which is one of the program objectives of biology as stipulated in the guidelines mandated by the CHED. It is also concluded that the most effective source of information about the job opportunity is through recommendation. Graduates are also satisfied and less likely to resign from their current jobs. It is also said that their undergraduate program is relevant to their occupation, especially for those who pursued careers in educational settings, specifically in their general education and professional courses. Lastly, the BS Biology undergraduate program contributes to the development of essential professional skills and competencies that are useful and relevant to their current job.

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