

EMPLOYABILITY OF THE BACHELOR OF SCIENCE IN BIOLOGY GRADUATES

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ABSTRACT: The goal of this research is to track down graduates of Surigao del Sur State University's Bachelor of Science in Biology degree. It can properly provide important information for evaluating and improving its curriculum. One of the goals of this research was to determine the employment status of program graduates. In this study, data was gathered using a descriptive survey method and a standardized questionnaire from the Commission on Higher Education (CHED). A total of 105 graduates responded to this research. Out of the 105 respondents, 58 were employed and it was found out in this study that most of the respondents agreed that the curriculum was relevant to the first job they had after college. High grades in the course or subject areas connected to the course are one of the motivations for taking BS Biology. Communication and human – relation skills are the competencies that a BS Biology graduate acquired in college that will come in handy in his first job. This study also indicated that the respondent's initial gross monthly wages in their first job after graduation ranged from P5,000.00 to P10,000.00. The respondents suggested to reduce the number of courses in the curriculum and teaching should be more on competencies.

Keywords: employability; graduates

I. INTRODUCTION

The primary objective of this study is to establish the present employment status of graduates of Surigao del Sur State University's BS in Biology program from 2015 to 2019. The institution undertakes a tracer study to determine the employability of its graduates and to ensure the accountability of the programs it provides. Tracer studies gave a comparison in evaluating its graduates what they have acquired in terms of capabilities and skills which lead them to have a permanent job from the moment they have graduated. The findings of this tracer study will serve as a foundation for the university to improve the Bachelor of Science in Biology curriculum and eventually it would help its graduates find a good job.

Tracer study is a method utilized by most organizations, particularly educational institutions, to track and keep track of their students after they have graduated. It is the continuation of higher education graduates. Its goal is to assess a person's progress up until the moment he or she gets a job. This study evaluates the availability and quality of graduates. It is a significant tool for educational planners since it can provide valuable information for assessing the outcomes of higher education and training institutions. This information can be utilized to minimize any potential deficiencies in a given educational program in terms of content, delivery, and relevance, as well as to improve the institution's development in the framework of quality assurance.

Tracer studies are documentary requirements of accrediting bodies in higher education, such as the Accrediting Agency of Chartered Colleges and Universities of the Philippines (AACCUP). Data that can be generated from this study could evaluate the factors affecting and contributing to the status of the employment of the graduates.

One of the university's units is the College of Arts and Sciences, and one of the majors offered there is the Bachelor of Science in Biology. The BS in Biology has been producing graduates for four years and aspires to continue producing better and quality graduates through its enhanced and strengthened curriculum.

The findings of this study have the potential to help the college improve its responsiveness to the needs of its public and community. Its effectiveness should be evaluated on a regular

basis to ensure its continuous relevance. The quality of the college's program can be measured by the graduates' occupational options, current positions, and the nature of the jobs they earned shortly after graduation.

Conceptual Framework

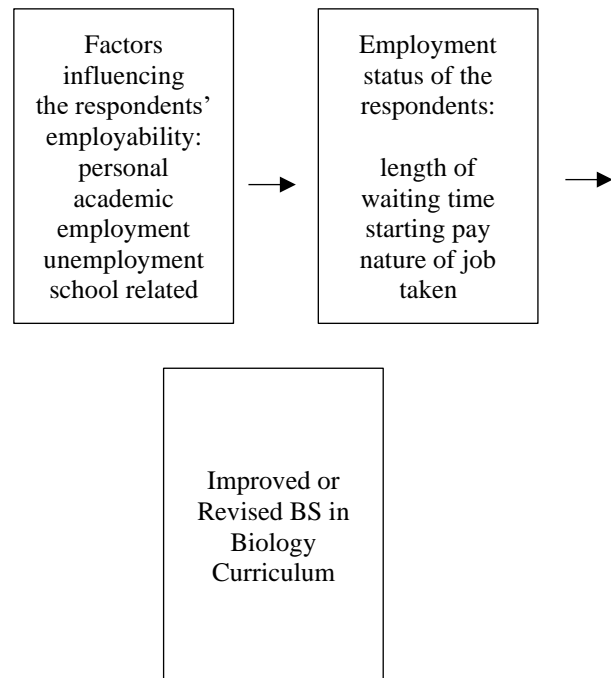


Figure 1 Schematic Diagram

Significance of the Study

This study is significant to the subsequent recipients: Administration – it would tell them of the employability of their graduates. It would also help them in crafting an improved and enhanced curriculum through the suggestions and feedback of the respondents that is attuned to the present time and is suitable to the employers.

Instructors of the Program – the findings of this study give a guidance to instructors in the program to plan out activities in order to meet the demands of biology as a discipline.

Students enrolled in the Program – it would deliver inspiration to the students in the program to study harder since good grades would mean a better chance of landing a job. This study would also provide them with the idea of what are the different job opportunities that a BS Biology graduate would have.

Objectives of the Study

The objective of this tracer study is to identify the employability of Bachelor of Science in Biology graduates and how to improve the curriculum. It aimed to answer the following questions in particular:

1. What are the factors that influence the graduate's employability in terms of;
 - 1.1 personal factors
 - 1.2 academic factors
 - 1.3 employment factors
 - 1.4 unemployment factors
 - 1.5 school related factors
2. What are the employment status of the graduates with respect to;
 - 2.1 length of waiting time
 - 2.2 starting pay
 - 2.3 nature of job taken
 - 2.4 relevance of training to the job
 - 2.5 job satisfaction

II. REVIEW OF LITERATURE

Janiel King P. Aguilar and company [1] traced the BS Biology graduates of Cebu Doctor's University in Cebu City. It was found out in this study that the BS Biology course was used mainly by the respondents as a means to proceed to a post graduate degree mainly medicine. The respondents of this study who took up medicine all passed thus making the BS Biology curriculum of the university an effective preparatory course. This study also found out that those who did not proceed to medicine, most of them landed their first job within a span of one to six months. Most of the jobs taken were related to BS Biology course, like teaching and research. With this information, the researchers concluded that the program offered by the Biology Department of the College of Arts and Sciences under the umbrella of the Cebu Doctor's University is sufficient in providing training and producing flexible graduates who can cope with the ever-changing environments and demands of our times.

Another study was conducted by Dr. Jocelyn L. Gagalang and company [2] entitled "A tracer study on the graduates of Bachelor of Science in Psychology of University Rizal System Pililla AY 2010–2013". The purpose of this study was to determine the amount to which course contributory variables helped graduates develop; the extent of the course on the overall college life experience; and the level of life satisfaction among BS Psychology graduates.

According to the findings of this study, the majority of BS Psychology graduates are offered jobs in private institutions or establishments due to numerous vacant positions related to the course; are engaged in contractual or casual status due to a lack of available permanent positions in both private and public institutions.

Editha G. Cagasan [3] did a tracer study on the graduate degree programs at Visayas State University. The respondent of this study were those who completed the program through distance education and they pointed out that they finished the

program without leaving their homes.

III. METHODOLOGY

The descriptive research approach was used in this tracer study, and the respondents were drawn from the entire population of graduates. From 2015 to 2019, there were 113 BS in Biology graduates, but only 105 completed the survey questionnaires, yielding a 93 percent retrieval rating.

Data was gathered using a standardized form from the Commission on Higher Education (CHED). It is divided into four sections: general information, post-college educational background, training, and advanced studies employment data. This study concentrated on the curriculum's connection to the job respondents' positioning. The instrument was administered through personal encounter or electronic communications. It was the most efficient and convenient method of sending notes, letters, and messages over the Internet. The fact that the majority of the graduate respondents utilized computers at work made communicating with them about their involvement in the study easier. The statistical techniques employed in the study were percentage, weighted mean, and rank.

IV. RESULTS AND DISCUSSION

This part of the study answers the problems posted in the objectives of the study. An actual respondents of 105 or 92% of the targeted 113 graduates responded. The first objectives are the factors influencing graduates employability such as:

Personal Factors:

Table 1. Sex of the Respondents

Sex	Frequency	Percentage
Female	42	40
Male	63	60
Total	105	100

Table 1 presents the sex of the respondents. The table shows that there are more males with 63 or 60% while 42 or 40% are females.

Table 2. Civil Status of the Respondents

Civil Status	Frequency	Percentage
Single	101	96.2
Married	4	3.8
Total	105	100

The data in table 2 presents the civil status of the respondents which is considered another personal factor. It is shown in this table that majority of the respondents are single with 101 or 96.2%. Only 4 or 3.8% are married.

Table 3. Age of the Respondents

Age Group	Frequency	Percentage
21-23	61	59.1
24-26	36	34.3
27-29	3	2.8
30-32	5	4.8
Total	105	100

Table 3 is the age as a personal factor of the respondents. It can be noted that 61 or 58.1% are in the 21 – 23 years old group which imply that most of the respondents belongs to the youth category.

Table 4. Location of Residence of the Respondents

Location of Residence	Frequency	Percentage
City	19	18.1
Municipality	86	81.9
Total	105	100

The location of the Respondents is also considered as one of the personal factor in this study. It can be noted in table 4 that of the 105 respondents, 86 or 81.9% are located in the different municipalities of Surigao del Sur. The table also showed that 19 or 18.1% of the respondents are located in the cities.

Academic factors:

Table 5. Year of Graduation of the Respondents

Year Graduated	Frequency	Percentage
2015	4	3.8
2017	8	7.6
2018	51	48.6
2019	42	40
Total	105	100

Table 5 presents the year of graduation of the respondents. This is considered as one of the academic factors. It can be observed that most of the respondents graduated in 2018 with 51 or 48.6% and in 2019 with 42 or 40%. It is because of the free tuition and BS Biology was considered by the Commission of Higher Education (CHED) as one of the priority programs. It can be noted also that in the year 2016, there was no respondents since it was on this year that K - 12 has commenced.

Table 6. Awards Received by the Respondents

Academic & Non-Academic Awards Received	Frequency
Cum Laude	1
Academic Performance	8
Best in Research	1
Best in Practicum	1
Leadership	1
Service	10

Awards Received by the Respondents is considered as one of the academic factors in this study. It is revealed in table 6 that 10 respondents received service award and 8 of them are academic performance awardees. It can be noted that one of the respondents graduated as cum laude.

Table 7. Reasons why the Respondents took up BS in Biology

Responses	Frequency
High grades in the course or subject area (s) related to the course	92
Good grades in high school	90
Influence of parents or relatives	87
Strong passion for the profession	81
Prospect for immediate employment	77
Availability of the course offering	77

in chosen institution

Peer Influence	71
Inspired by a role model	74
Status or prestige of the profession	75
Prospect of career advancement	70
Affordable for the family	75
Prospect for attractive compensation	75
Opportunity for employment abroad	66
No particular choice or no better idea	71

Table 7 shows the different reasons why the respondents took up BS in Biology. The key reason for pursuing a BS in Biology, according to 92 percent of respondents, is strong marks in the course or topic area (s) relevant to the course. This item is followed by “good grades in high school” with 90 of the respondents agreed while 87 respondents said that they have a strong passion of the profession as the reason for taking BS in Biology.

Employment factors:

Table 8. Respondents’ employment record

Are you presently employed?	Frequency	Percentage
No	47	44.8
Yes	58	55.2
Total	105	100

Table 8 presents an answer on the question on whether the respondents is presently employed or not. Of the 105 respondents, 58 or 55.2% are presently employed and 47 or 44.8% are not presently employed. This implies that more than half of the graduates are employable.

Table 9. Respondents’ employment status

Present Employment Status	Frequency	Percentage
Casual	6	10.3
Contractual	26	44.9
Regular or permanent	8	13.8
Self-employed	4	6.9
Temporary	14	24.1
Total	58	100

The present status is one of the employment factors considered in this study. This can be observed in table 9 that out of 58 respondents who signified that they are presently employed, 26 said that they are on contractual basis. Fourteen are working as temporary. Only 8 of the 58 are working as regular or on permanent status.

Table 10. Nature of the Present Occupation of the Respondents

Present Occupation	Frequency
Official of Gov’t & Special Interest Org., Corporate Exec., Managers, Managing Proprietors & Survivors	11
Clerk	6
Professionals	5

Service Worker on Shop and Market Sales Worker	4
Special Occupation (Cashier)	3
Trades and Related Workers	2
Special Occupation (Research Assistant)	2
Special Occupation (Call Center Agent)	2
Technicians and Associate Professionals	1
Special Occupation (Laboratory Staff)	1
Special Occupations (Supply Officer)	1

Table 10 presents the nature of the present occupation of the respondents. It is revealed in this table that 11 of the 58 respondents who said that they are presently employed are working as officials of the government and special interest organizations, corporate executives, managers or managing proprietors and supervisors. Six respondents work as clerks and 5 are professionals.

Table 11. Place of Work of the Respondents

Place of Work	Frequency
Abroad	1
Local	57
Total	58

The data in table 11 shows the respondent’s place of work. It can be noted that majority of them or 57 of the 58 who signified that they are employed are working locally. Only one is working abroad.

Table 12. Line of Business of the Company where the Respondents are employed

Line of Business of the Company you are Presently Employed	Frequency
Health and Social Work	9
Wholesale and Retail	8
Hotel and Restaurants	6
Agriculture, Hunting and Forestry	6
Manufacturing	3
Transport Storage and Communication	3
Financial Intermediation	3
Other Community, Social & Personal Service Activities	3
Education	2
Public Administration and Defense	1
Private Households with Employed Persons	1

Table 12 shows the line of business of the company where the respondents are employed. It can be observed that 9 respondents are connected in the health and social work. The table further shows that 8 respondents are working in the wholesale and retail business. It can also be observed that 6 respondents are working in hotel and restaurants and 6 respondents are in agriculture, hunting and forestry.

Table 13. Is this your first job after College?

Responses	Frequency	Percentage
No	6	10.3
Yes	52	89.7
Total	58	100

The data in table 13 are the responses of the respondents on

the question: Is this your first job after college? The table shows that most of the respondents who said that they are presently employed or 52 or 89.7% said yes while 6 or 10.3% said no or that this is not their first job after college.

Table 14. Is your first job related to the course you took up in College?

Responses	Frequency	Percentage
No	9	15.5
Yes	49	84.5
Total	58	100

Table 14 presents the responses of the respondents on the question: Is your first job related to the course you took up in college? 49 people, or 84.5%, replied yes, while 9 people, or 15.5%, indicated their first employment is unrelated to the course they studied in college.

Table 15. How long did you stay in your first job?

Responses	Frequency	Percentage
1-6 months	21	36.2
7-11 months	9	15.5
1 year - less than 2 years	28	48.3
Total	58	100

The data in table 15 are the responses of the respondents on the question: How long did you stay in your first job? Twenty eight respondents or 43.8% said that they stayed 1 year to less than 2 years in their first job while 21 respondents or 36.2% said that they stayed 1 to 6 months in their first job.

Table 16. Job Level Position of the Respondents

Job Level Position	First Job Freq.	First Job %	Present Job Freq.	Present Job %
Managerial or Executive	1	2.3	1	2.6
Professional, Technical or Supervisory	5	11.6	11	28.9
Rank or Clerical	37	86.1	26	68.5
Total	43	100	38	100

The data in table 16 shows the job level position of the respondents. It is shown in this table that 37 or 86.1% are working in the level of rank or clerical in nature in their first job and 26 or 68.5% in their present job.

Table 17. Was the curriculum you had in college relevant to your first job?

Responses	Frequency	Percentage
No	16	31.4
Yes	35	68.6
Total	51	100

The data in table 17 are the responses of the respondents on the question: Was the curriculum you had in college relevant to your first job? It is reflected in this table that 35 or 68.6% agreed that the curriculum they have in college is relevant in their first job.

Unemployment factors:

Table 18. Reasons why you are not yet employed?

Responses	Frequency
No job opportunity	22
Advanced or further study	19
Lack of work experience	11
Family concerns and decided not to find a job	8
Health-related reasons	5
Did not look for a job	8

The data in table 18 are the responses of the respondents on the question: What are the reasons why you are not yet employed? It is reflected in this table that 22 of the respondents said that there is no job opportunity in this place while 19 said that they are enrolled in advanced or further study so they are not yet employed. Lack of work experience according to 11 respondents is also one of the reasons why they are not yet employed.

School related factors:

Table 19. Competencies learned in college used in your first job?

Competencies	Frequency
Communication Skills	30
Human Relation Skills	30
Science Laboratory Technical Management Skills	16
Entrepreneurial Skills	2
Problem-solving Skills	5
Critical Thinking skills	8

Table 19 present the different competencies they have learned in college. It is observed that 30 respondents agreed that communication and human relation skills are useful in their first job and 16 of the respondents said that science laboratory technical management skills is also useful.

Table 20. Suggestions to improve the course curriculum

Responses
Theses of the students should be patentable.
Let the students participate in the learning processes
Lessen the courses in the curriculum
Teaching should be more on competencies
Remove calculus as a course in the curriculum
Lessen the number of units in the curriculum

The data in table 20 are the suggestions to improve the BS in Biology curriculum. It can be noted that a respondent suggested that students' theses should be repackaged into a patentable one.

The second objective is the employment status of the graduates considering the following criteria.

Length of waiting period:

Table 21. How long did it take to land your first job?

Responses	Frequency	Percentage
Less than a month	6	10.3
1-6 months	37	63.8
7-11 months	3	5.2
1 year – less than 2 years	9	15.5
2 years – less than 3 years	2	3.5

3 years – less than 4 years	1	1.7
Total	58	100

The data in table 21 are the responses of the respondents on the question: How long did it take to land you first job? It is shown in the table that 37 or 63,8% agreed that they were employed 1 to 6 months of looking for a job.

Starting pay:

Table 22. Initial gross monthly earnings in the 1st job after college

Responses	Frequency	Percentage
below 5,000.00	5	8.6
5,000.00 – less than 10,000.00	33	56.9
10,000.00 – less than 15,000.00	11	19
15,000.00 – less than 20,000.00	9	15.5
Total	58	100

The data in table 22 are the responses of the respondents on the question: What is the initial gross monthly earnings in your first job after college? Thirty three respondents said that they are earning between 5,000.00 to less than 10,000.00.

Table 23. How did you find your job?

Responses	Frequency
Response to an advertisement	2
As walk-in applicant	16
Recommended by someone	18
Information from friends	12
Arranged by school's job placement officer	1
Job fair or Public Employment Service Office	19

The data in table 23 are the responses of the respondents on the question: How did you find your job? The table shows that 19 respondents said that they find their job through Job fair or Public Employment Service Office (PESO). Eighteen respondents said that they have found their job through somebody's recommendation.

V. CONCLUSIONS

1. Majority of the respondents of this study are males, young, single and lives in the different municipalities of Surigao del Sur.
2. Graduates of BS in Biology program are employable meaning they can easily get a job as evidenced by the respondents' response that in one to 6 months, they were able to find their first job after college.
3. On the average, the respondent is earning less than 10,000.00 a month.
4. Communication and human relations are abilities obtained in college that respondents find valuable in their first job.

V. RECOMMENDATIONS

In this study, the following conclusions were drawn:

1. Every five school years, institute a system-wide tracer study that includes not only graduates but also employers

as respondents.

2. A work skills training program should be implemented into the BS in Biology curriculum to provide graduates a head start in the job market or to provide them with more marketable skills and capacities.
3. An Employer Expectations Study should be conducted to collect input from employers on University results or contributions. The findings would be used to analyze the needs of new graduates and to aid in the proposed curriculum reform.
4. A large-scale curriculum review that is oriented on Philippine social concerns and contemporary labor market demands is required. The outcomes of this curriculum review would be used to develop new courses that are responsive to labor market demand. This should encompass both course material and teaching methods being revised.

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