

A Tracer Study On The Bs Mathematics Graduates Of Batch 2014-2018 Of The College Of Arts And Sciences Main Campus Iof Batangas State University

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Abstract: This tracer study was conducted to determine the employment status of the Bachelor of Science in Mathematics graduates from SY 2013-2014 until SY 2017-2018 of the College of Arts and Sciences of Main Campus I Batangas State University. Specifically, it determined the profile of the graduates in terms of age, gender, civil status, region of origin, highest degree earned, professional examination passed, present occupation, employment status, first job after graduation, manner of finding a job, and the reason for taking the course or pursuing the degree. It also determined the respondents' job searching period from the date of graduation as well as the relevance of the BS Mathematics curriculum in their workplace, their reasons for staying in the job, the skills they learned which are relevant to their present job. Findings of the study revealed that there is balance as to the gender of the graduates of the BS Mathematics program; the graduates considered the availability of the chosen academic institution in pursuing their degree; BS Mathematics curriculum is relevant in the jobs that the BS Mathematics graduates acquired; the salaries and financial benefits were the most important considerations why the graduates stayed in their jobs and skills learned by the respondents were found relevant to their present jobs.

Keywords: employability, employment status, graduate tracer, BS Mathematics

Introduction

Institutions involved in developing human resources through long and short term programs have the duty to keep track of the performance of their graduates to determine accountability and whether or not their programs have impacted on the individual, the institution, or the country. Tracer study constitutes one form of empirical study which provides valuable information for evaluating the results of the education and training of a specific institution of higher education. This information may be used for further development of the institution in the context of quality assurance^[1]. In addition Schomburg (2003) cited that a tracer study sometimes called as "alumni survey" or "follow-up survey" should enable the institution of higher education to get information to indicate possible deficits in a given educational program and to serve as basis for future planning activities. Mathematics has been referred to as the Queen of the Sciences by Carl Friedrich Gauss, one of the most brilliant mathematicians of all time. It is a universal discipline with a rich, diverse and dynamic theory that spans a wide range of applications. Mathematics was borne out of the need to systematically solve real problems. It continues to evolve today because the abstractions generated for solving these problems lead not only to their applications in everyday life but also to further expansions of the abstractions. Mathematics can be divided into two branches, pure and applied mathematics. Pure mathematics involves the study of structures, their components and the relationships among them. Applied mathematics relates mathematical knowledge to other disciplines. Consequently, the undergraduate major in mathematics and applied mathematics can be a vital and engaging part of the preparation for many careers and for a well-informed and

responsive citizenship^[2]. Bachelor of Science in Mathematics (BS Math) is a four year degree program designed to give students a background in mathematical modelling, scientific computing and the various modern applications of mathematics^[3]. At present, students in the college level are slowly turning into the BS Mathematics program instead of opting to take a course in Engineering as entry level to the program is lighter and more accessible as compared to the entry level requirements for other mathematics related courses. As a result, graduate of the said program increased in number and their access to jobs related to their course gave them the advantage of ease in admission to jobs they are employed in at present. College of Arts and Sciences of Batangas State University has been offering BS Mathematics since 1989 with its first batch in 1993 of three graduates. Specifically, this tracer study looked into the employment status vis-a-vis the skills acquired by the 22 BS Mathematics graduates from AY 2013 – 2018 of Batangas State University during their course of enrolment in the university. The proponents conducted this study believing that this can provide useful information about the whereabouts of the BS Mathematics graduates which might help to broaden perspectives among administrators, faculty and students of the college and of the university.

OBJECTIVES OF THE STUDY

This tracer study was conducted to determine the employment status of the Bachelor of Science in Mathematics graduates from SY 2013-2014 until SY 2017-2018 of the College of Arts and Sciences of Main Campus Iof Batangas State University. Specifically, it determined the profile of the graduates in terms of age, gender, civil status, region of origin, highest degree earned, professional

examination passed, present occupation, employment status, first job after graduation, manner of finding a job, and the reason for taking the course or pursuing the degree. It also determined the respondents' job searching period from the date of graduation as well as the relevance of the BS Mathematics curriculum in their workplace, their reasons for staying in the job, the skills they learned which are relevant to their present job.

MATERIALS AND METHODS

Research Design

The research design used in the tracer study conducted is descriptive in nature. The said design was used in describing the employment status of the participants of the study as well as the items as first job after graduation, manner of finding a job, job searching period, reasons for taking the course, relevance of the BS Mathematics curriculum, reasons for staying in the job, and the skills learned by the participants that are relevant to their present job.

Participants of the Study

The study surveyed 22 of the BS Mathematics graduates from SY 2013-2014 until SY 2017-2018 of the College of Arts and Sciences of Batangas State University. The number of respondents should have been 23 but only 22 had been part of the survey since the supposed 23rd participant of the tracer study died due to an electrocution accident.

Instrument

The descriptive method of research was utilized in assessing the employment profile of the participants of the study. The graduate tracer questionnaire from the Commission on Higher Education (CHED) [4] was used as basis by the proponents in constructing the questionnaire in order to extract the needed information from the respondents of the study. The questionnaire was of three parts which revealed the following inputs: profile of the respondents, educational background and other information related and the data on the employment status of the respondents.

Procedure

The list of officially enrolled BS Mathematics graduates for AY 2014 – 2018 was acquired from the Registrar's Office of the university. The respondents were then informed of the purpose and objective of the tracer study being done. The questionnaires were administered personally to those who can be reached via a face to face manner of eliciting individual responses while the rest were reached either through email and other social networking sites.

Statistical Tool

Data collected from the used questionnaire were tabulated and analyzed. Frequency count and percentage were the tools utilized in the interpretation of the data extracted from the survey conducted.

RESULTS AND DISCUSSIONS

Table 1: Frequency and Percentage Distribution of the Respondents According to Age

| Age | Frequency | Percentage |
|--------------|-----------|-------------|
| 21-30 | 22 | 100% |
| 31-40 | 0 | 0% |
| Total | 22 | 100% |

Table 1 presents the frequency and percentage distribution of the respondents according to age. It may be gleaned from the table that all or 22 BS Mathematics graduates fell between the ages of 21 – 30 when the questionnaire was administered. This implies that the respondents are still young as they just graduated from baccalaureate their degree.

Table 2: Frequency and Percentage Distribution of the Respondents According to Gender

| Year Graduated | Male | | Female | | Total |
|----------------|-----------|------------|-----------|------------|-----------|
| | Frequency | % | Frequency | % | |
| 2013-2014 | 1 | 5 | 0 | 0 | 1 |
| 2014-2015 | 2 | 9 | 2 | 9 | 4 |
| 2015-2016 | 1 | 5 | 1 | 5 | 2 |
| 2016-2017 | 2 | 9 | 3 | 14 | 5 |
| 2017-2018 | 5 | 22 | 5 | 22 | 10 |
| Total | 11 | 50% | 11 | 50% | 22 |

Twenty-two (22) or 100% of the BS Mathematics graduates from AY 2013 – 2018 were tapped as respondents of the study. From the total number of participants, eleven (11) male or 50% of the respondents participated in the survey and eleven (11) female or 50% of the respondents were tapped to answer the data gathering instrument used in the study.

Table 3: Frequency and Percentage Distribution of the Respondents According to Civil Status before the First Job

| Civil Status | Frequency | Percentage |
|--------------|-----------|-------------|
| Single | 21 | 96% |
| Married | 1 | 4% |
| Total | 22 | 100% |

Out of the 22 respondents of the tracer study, twenty-one (21) or 96% are single before being employed on their first job while one (1) or 4% is married already before being employed.

Table 4: Frequency and Percentage Distribution of the Respondents According to Region of Origin

| Region of Origin | Frequency | Percentage |
|------------------|-----------|-------------|
| Region IV-A | 22 | 100% |
| Others | 0 | 0% |
| Total | 22 | 100% |

Based from Table 4, all the 22 participants of the study were from the municipalities and cities from Region IV-A.

Table 5: Frequency and Percentage Distribution of the Respondents According to Highest Educational Attainment

| Highest Educational Attainment | Frequency | Percentage |
|--------------------------------|-----------|-------------|
| College Degree | 17 | 77% |
| With Master's units | 5 | 23% |
| Master's Degree | 0 | 0% |
| With Doctorate units | 0 | 0% |
| Doctorate Degree | 0 | 0% |
| Total | 22 | 100% |

Table 5 presents the frequency and percentage distribution of the respondents according to the highest educational attainment earned by the participants of the study. The table further shows that 17 of the respondents or 77% did not study further after graduating from college. The rest of the respondents totaling to 5 or 23% are at present enrolled in the Master's Program for Mathematics. From the five (5) participants, two (2) of the respondents are currently enrolled in Cavite State University in Cavite and Ateneo de Manila University in Quezon City.

Table 6: Frequency and Percentage Distribution of the Respondents According to Eligibility

| Eligibility | Frequency | Percentage |
|---------------------------|-----------|-------------|
| Board (LET) | 1 | 5% |
| Civil Service Examination | 4 | 18% |
| Non-Board Takers | 17 | 77% |
| Total | 22 | 100% |

Table 6 shows the frequency and percentage distribution of the respondents according to eligibility. The tracer study was able to extract the following information: one (1) or 5% of the participants is a passer for the Licensure Examination for Teachers (LET) Board, four (4) or 18 % are Civil Service Examination passers while seventeen (17) or 77% are still non-board takers.

Table 7: Frequency and Percentage Distribution of Respondents According to Present Occupation

| Present Work / Occupation | Frequency | Percentage |
|---------------------------|-----------|-------------|
| Teacher | 4 | 18% |
| Employee (private) | 12 | 55% |
| Employee (public) | 1 | 4% |
| Unemployed | 5 | 23% |
| Total | 22 | 100% |

Table 7 illustrates the frequency and percentage distribution of the respondents according to present occupation. Aside from the five (5) or 23% of the most recent graduates of the BS Mathematics programs, the rest of the alumni of the course are employed in specific places of occupation as teachers which comprised four (4) or 18% of the participants, private company employees which numbered to twelve (12) or 55% of the respondents and one (1) or 4% being employees of the public sector. This only proves that the employability status of the BS Mathematics program of the College of Arts and Sciences of Batangas State University for AY 2014 – 2018 is commendable bearing the truth that most of the graduates of the program are active members of the workforce.

Table 8: Frequency and Percentage Distribution of Respondents According to Status of Employment

| Status of Employment | Frequency | Percentage |
|----------------------|-----------|-------------|
| Contractual | 17 | 77% |
| Permanent | 0 | 0% |
| Unemployed | 5 | 23% |
| Total | 22 | 100% |

Table 8 reveals the frequency and percentage distribution of the respondents according to status of employment. It was gleaned from the data presented in the table that seventeen (17) or 77% of the participants were employed as the contractual workers while the remaining number of respondents still remain unemployed. Out of the twenty-two (22) participants, five (5) are still unemployed while no one has yet been given any status of permanency on the job at present.

Table 9: Frequency and Percentage Distribution of Respondents According to First Job after Graduation

| First Job After Graduation | Frequency | Percentage |
|----------------------------|-----------|-------------|
| No Job | 5 | 23% |
| Private Sector | 12 | 54% |
| Government Sector | 5 | 23% |
| Total | 22 | 100% |

The table above reflects the frequency and percentage distribution of the respondents according to first job employability after graduation. The results tell that twelve (12) or 54% had their first jobs under the private sector; five (5) or 23% of the respondents were first connected with the government sector while the remaining five (5) or 23% were still jobless at the moment. Still, data revealed that the BS Mathematics graduates of the College of Arts and Sciences of Batangas State University of AY 2014 – 2018 are commendably employable even during the first stages of their acceptance to their first jobs after graduation.

Table 10: Frequency and Percentage Distribution of Respondents According to Manner of Finding a Job

| Manner of Finding a Job | Frequency | Percentage |
|---------------------------|-----------|-------------|
| Job orientation in school | 10 | 45% |
| Friends' recommendation | 5 | 23% |
| Walk-in application | 7 | 32% |
| Total | 22 | 100% |

The data on Table 10 discloses the frequency and percentage distribution of respondents according to the manner of finding a job. The data revealed that job orientation in school was the foremost reason why the graduates of the BS Math program landed in their present jobs; seven (7) or 32% acquired their jobs through walk-in application while five (5) or 23% were employed through recommendations of friends. With these facts, the information presented clearly revealed the high percentage of employability of the programs' graduates as indicated by the different manners as to how they were able to successfully land on their first jobs and as members of the workforce.

Table 11: Frequency and Percentage Distribution of the Respondents as to their Reasons for Taking the Course or Pursuing the Degree

| Reasons | Frequency | Percentage |
|--|-----------|-------------|
| High grades in the course or subject areas related to the course | 0 | 0% |
| Good grades in high school | 5 | 23% |
| Influence of parents or relatives | 0 | 0% |
| Peer influence | 5 | 23% |
| Inspired by a role model | 0 | 0% |
| Strong passion for the profession | 0 | 0% |
| Availability of course offering in chosen institution | 8 | 36% |
| Prospect of career advancement | 0 | 0% |
| Affordable for the family | 4 | 18% |
| Prospect of attractive compensation | 0 | 0% |
| Opportunity for employment abroad | 0 | 0% |
| Others | 0 | 0% |
| Total | 22 | 100% |

Table 11 discloses the frequency and percentage distribution of the respondents as to the reasons for taking the course or pursuing the degree. It may be gleaned from the table that out of the 22 participants, eight (8) or 36% stated that the reason of the choice of the course was its availability as to being offered in a chosen institution, five (5) or 23% said that the reason was about achieving good grades while in high school, five (5) or 23% stated that the reason for taking the course was about peer influence; the last four (4) participants or 18% of the respondents claimed that the motive as to pursuing the program was because of its affordability to the financial means of the family.

Table 12: Frequency and Percentage Distribution of Respondents According to Job Searching Period

| Job Searching Period After Graduation | Frequency | Percentage |
|---------------------------------------|-----------|-------------|
| 6 months to 1 year | 17 | 77% |
| 1 year to 2 years | 5 | 23% |
| Total | 22 | 100% |

Table 12 reflects the waiting period for the graduates to land on a job. The graduates took a short period of time in landing on a job with 5 graduates who were able to land on a job for a longer period which was 1 to almost 2 years. It can be noted that most of the respondents after graduation still need to take the licensure or other professional examinations in order to land on a permanent job.

Table 13: List of Employers and the Type of Establishment or Place of Employment of BS Mathematics Graduates

| Place of Employment | Address of Employer | Type of Establishment/ Place of Employment |
|---------------------------------|--|--|
| Paharang National High School | Barangay Paharang, Batangas City | National high school |
| Torch Restaurant | San Juan, Metro Manila | Food chain/restaurant |
| Pandayan Bookshop, Inc | P. Burgos St., Batangas City | Merchandising company |
| Batangas State University | Rizal Avenue, Batangas City | State university |
| Cavite State University | Cavite | State university |
| RCD Land, Inc | Roxas Boulevard, Paranaque, Metro Manila | Holdings company |
| Z8 Eleven Corp. SMJ Pawnshop | Manila | Holdings company |
| Philippine Statistics Authority | PSA Complex, East Avenue, Diliman, | Government institution |

| Quezon City | | |
|--|--|------------------|
| Starlite Ferries, Inc. | Rizal Avenue corner P. Dandan St., Batangas City | Holdings company |
| House Research and Development Singapore PTE, LTD. | Singapore | Holdings company |
| Aruze Global Shared Services Philippines | Sto. Tomas, Batangas | Holdings company |
| The Results | Lipa City, Batangas | Holdings company |

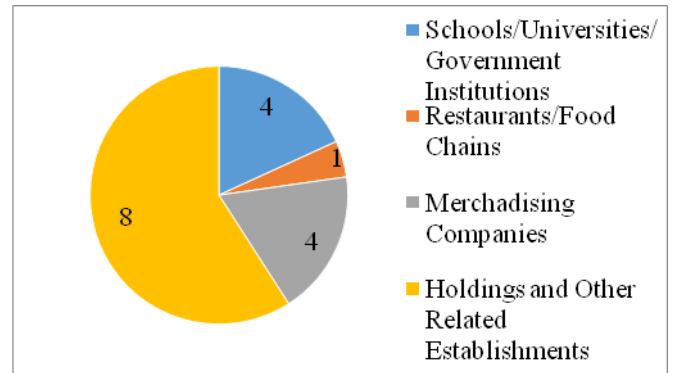


Figure 1: Present Employers of BS Mathematics Graduates According to Type of Establishment where the Graduates are Employed

From the figure presented and as deciphered from the tabular presentation of the present employers and the type of establishment where the graduates of BS Mathematics are employed from AY 2014 – 2018, eight (8) or 36% of the BS Mathematics graduates are employed at holdings companies and other establishments, four (4) or 18% are working in schools, universities and government institutions, another four (4) or 18% are employed at merchandising companies, one (1) or 4% is working in a food establishment while the remaining five (5) from the graduates of AY 2017 – 2018 are still out looking for work. Still, it may be gleaned that majority of the graduates of the program are presently working in employment establishments related to their field of specialization.

Table 14: Frequency and Percentage Distribution of the Respondents' Reasons for Staying in the Job

| Reasons | Frequency | Percentage |
|---------------------------------------|-----------|-------------|
| Salaries and Financial Benefits | 8 | 36% |
| Career challenge | 2 | 9% |
| Related to special skill | 6 | 26% |
| Related to course or program of study | 4 | 18% |
| Proximity to residence | 1 | 5% |
| Peer influence | 1 | 5% |
| Family influence | 0 | 0% |
| Others | 0 | 0% |
| Total | 22 | 100% |

The reasons of the respondents for staying in the job are reflected in Table 14. It reflects that the foremost reason as claimed by 36 percent of the respondents was for financial benefits and being related to special skill as claimed by 27 percent of the respondents. Other reasons given were being related to course or program of study by 18 percent of the respondents, and 9 percent considered it as a career

challenge. Proximity to residence and peer influence were the reasons for 5 percent of the respondents. The reason which was not considered significant by the respondents was family influence.

Table 15: Skills Learned by the Respondents which are Relevant to their Present Job

| Skills | Frequency | Percentage |
|--------------------------|-----------|-------------|
| Communication skills | 4 | 18% |
| Human relations skills | 8 | 36% |
| Problem solving skills | 4 | 18% |
| Entrepreneurial skills | 2 | 10% |
| Critical Thinking skills | 4 | 18% |
| Other Skills | 0 | 0% |
| Total | 22 | 100% |

Table 15 presents that BS Mathematics graduates were trained to be equipped of several skills as their weapon to compete in the global market for employment. The human relations skills was considered to be the most relevant as disclosed by the respondents. Furthermore, their communication skills, problem-solving skills and critical thinking skills were also relevant in their present job. It was further claimed that they easily adjusted themselves in their respective jobs because of the skills possessed.

FINDINGS

The results of the study are the following:

1. There is an observed balance as to the gender of the graduates of the BS Mathematics program of the College of Arts and Sciences of Batangas State University for AY 2014 – 2018. All falling under the 21 – 30 age range at present, most of the respondents are still single except for one who is already married. Since Batangas State University is an institution of higher learning in Region IV-A, all the participants are residents of cities and municipalities within the said region. Most of the respondents have not pursued post baccalaureate education except for five (5) who are already pursuing their master's degree in prestigious local universities. As to eligibility, most of the participants of the study have not taken any board or licensure examinations yet except for five (5), one (1) being a Licensure Examination for Teachers Board passer and the remaining four (4) being Civil Service Examination passers. Out of the 22 respondents, most are employed in private companies; status of employment still being on contractual basis. The respondents also are able to acquire their first jobs in different manners as job orientation in school, walk-in application and through recommendations from friends. With regard to the reasons of BS Mathematics graduates for taking the course or pursuing the degree, most of the participants took into consideration the availability of the chosen academic institution which they would want to enroll in as BS Mathematics students.
2. Most of the graduates took a shorter period of time in landing on a job while a few hurdled for a longer period which was 1 to almost 2 years.
3. As to the relevance of the BS Mathematics curriculum in the jobs acquired by the graduates of the program, it may be concluded that because of the diverse nature of the employability market of BS Mathematics graduates, almost all of the respondents of the study were employed to careers relevant to the curriculum these graduates took

in college which equipped them with the necessary tools of being effective and efficient members of the workforce.

4. Several reasons for staying in the job were identified from the data presented in deciphering the information needed which revealed that apart from the salaries and financial benefits that the job would be able to give them, one of the most important considerations was the relevance of their skills to the job they are employed in at the moment being BS Mathematics graduates.
5. Lastly, in relation to the skills learned by the respondents of the study which were deemed relevant to their present jobs, it was gleaned that human relations skills proved to be the most relevant which also helped the participants much in terms of easy access to employment.

CONCLUSIONS

From the findings of the study, the following conclusions are drawn:

1. That there is balance as to the gender of the graduates of the BS Mathematics program of the College of Arts and Sciences of Batangas State University for AY 2014 – 2018.
2. That the graduates considered the availability of the chosen academic institution in pursuing their degree.
3. That BS Mathematics curriculum is relevant in the jobs that the BS Mathematics graduates acquired as proven by the high percentage of employability of the program graduates of batch 2014-2018.
4. Apart from the salaries and financial benefits that the job would be able to give them, one of the most important considerations was the relevance of their skills to the job they are employed in at the moment being BS Mathematics graduates.
5. The skills learned by the graduates are relevant to their present job.

RECOMMENDATIONS

On the basis of the findings and conclusions, the following are hereby recommended:

1. Tracer study should also be conducted to all graduates of the BS Mathematics program.
2. Yearly update of the employment status of the graduates should be made to determine their status.
3. The Guidance Office of the university should help graduates seek for employment to minimize underemployment of its graduates.

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Author Profile



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