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A tracer study of Bachelor of Science in computer science graduates of Negros oriental state university-Guihulngan city campus, Philippines

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Abstract
The main concern of this study is to examine the employment status of the Bachelor of Science in Computer Science Graduates of Negros Oriental State University-Guihulngan City Campus, Philippines from 2014 to 2018. It also sought to determine the respondents' sex, employment sector currently connected, and type of employment in relation to their academic preparation. The descriptive method was used in this study. It includes the entire population of graduates from 2014 to 2018. Findings reveal that majority of the respondents are male, majority (54.30 %) of the respondents are not employed while almost one half (45.70%) are employed. The results further show that most of the employed respondents are working in private agencies. There is a relatedness of respondents' academic preparation and work. Hence, the findings suggest that the employability of the graduates needs more improvement by evaluating the current curriculum of the Bachelor of Science in Computer Science geared to cater the current and future needs of societies undergoing social and economic change. Furthermore, the results also implies the need to assess the current on the job training programs and choose partner industries which can further provide competent and competitive on the job training skills to the students.

Keywords: Tracer study, employment, computer science

Introduction
The colleges and universities annually produce new graduates to the society who are ready to go out into the real world in addition to the current workforce of the country (Almejas, Marasigan, Morante, Lim. & Catuday, 2017) [1]. These academic institutions have the responsibility to keep track of the employability of their graduates to determine accountability and whether or not their degree programs have impacted on the person, the institution, or the country (Hazaymeh & Dela Peña, 2016) [6]. The occupational opportunities and the nature of the job obtained by these graduates after graduation can clearly speak of their employability (Hazaymeh & Dela Peña, 2016) [6].

The alumni are considered as the best proofs of a program's effectiveness in terms of employment and positions held. They are a good source of feedback regarding the program's relevance in the current labor market (Aquino, Punongbayan, Macalaguim, Bauyon, Rodriguez, & Quezon, 2015. Moreover, the effectiveness of the college programs can be claimed according to the success or failure of the graduates to make use of their acquired skills and training for economic progress (Hazaymeh & Dela Peña, 2016) [6].

This is the basis for the CHED's mandate on the Higher Educational Institutions to conduct tracer studies of their graduates. According to CHED Graduate Tracer Study Manual (as cited in SunStar Pampanga, 2018) [11] that a tracer study is usually conducted for ensuring quality graduates in the higher education institutions. Further, it includes looking at the employability skills of the graduates needed in the demand of workplace and their chosen career.

Verona (2011) [13] defined a tracer study as a method which is basically envisioned to trace graduates of an academic institution, in order to provide feedback mechanism of the graduates and their alma mater. This establishes the connection of the quality of graduates of universities and colleges molded by their standards of curriculum and instruction imposed by Commission on Higher Education (CHED) on them (Rojas & Rojas, 2016) [9].

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Moreover, a tracer study is very important in nation building. It is conducted to understand graduates' capabilities in helping the country in the human resource aspect (Sun. Star Pampanga, 2018) [11]. Moreover, it constitutes one form of empirical study which provides valuable information for evaluating the results of the education and training of a certain institution of higher learning (Hazaymeh &Dela Peña, 2016) [16] This information may be utilized for further development of the institution in the context of quality assurance (Schomburg, 2003) [10]. Further, a tracer study is a basis to develop new policy on admission and accreditation of the higher education institutions (Sun. Star Pampanga, 2018) [11].

It is in this view that this tracer study was conducted to assess the employability of the Bachelor of Science in Computer Science Graduates of Negros Oriental State University – Guihulngan City Campus as basis for curricular development and enhancement of the on the job training program, and further raise the educational standards of the institution. This study also aimed to determine the respondents' sex, employment sector currently connected, and the type of employment in relation to their academic preparation.

Methodology
This is a descriptive study utilizing the survey method in the gathering of data. The survey questionnaire were sent to the respondents through email and social media. The respondents were the entire population of Bachelor of Science in Computer Science graduates from 2014 to 2018

in Negros oriental State University-Guihulngan Campus, Philippines. There were 221 respondents of this study. Frequency count and percentage were used as statistical tools.

Table 1 below reveals the distribution of the respondents according to year they graduated.

Table 1: Distribution of respondents according to year graduated

Year Graduated	Frequency	Percentage
2018	53	23.98
2017	38	17.20
2016	49	22.17
2015	35	15.84
2014	46	20.81
Total	221	100

Results and Discussions

Table 2: Sex of the respondents

Sex	Frequency	Percentage
Male	114	45.25
Female	107	54.30
Total	221	100

As disclosed in table 2, majority of the respondents are male. This indicates that males are more inclined in Computer Science. This is supported by the tracer study of Hazaymeh and Dela Peña (2016) [6] among La Salle University College of Engineering graduates which reveals that majority of the respondents are male.

Table 3: Employment status of the respondents

Year Graduated	Employed		Unemployed		Total (N)
	Frequency	Percentage	Frequency	Percentage	
2018	14	26.42	39	73.58	53
2017	21	55.26	17	44.74	38
2016	15	30.61	34	69.39	49
2015	22	62.86	13	37.14	35
2014	29	63.04	17	36.96	46
Total (N)	101	45.70	120	54.30	221

Table above reveals that majority of the respondents (54.30%) are unemployed while almost one half (45.70%) are employed. This is an indication of the scarcity of available jobs for computer science graduates. Moreover, the graduates' skills may not match with the available job vacancies.

The result of this study is contrary to the findings of Orejana and Resurreccion (2010) [7] which show that a large majority of the graduates Bachelor of Science In Business management are employed. However, the tracer study of Rocaberte (2016) [8] in University of Pangasinan reveals that new graduates are challenged by the lack of job opportunities, which reasonably takes them a longer time to wait because of lack of experience. This is also supported by findings of Verona (2011) [13] that government needs to reckon on issues regarding labor mismatch.

Table 4: Employment Sector of the respondents

sector	Frequency	Percentage
Government Agency	14	
Non-Governmental Agency	207	
Total	221	100

As presented in table 4, large majority of the respondents are working in non-governmental agencies. This indicates that more job vacancies in the private sectors need computer science skills This is contrary to the findings of Almejas *et al*. (2017) [1] that majority of the respondents are working in government agencies.

Table 5: Type of employment in relation to respondents' college degree

Type of Employment	Frequency	Percentage
Course-related job	210	95.02
N0n-course related job	11	4.98
Total	221	100

As shown in table 5, most of the jobs of the respondents are related to their Bachelor of Science in Computer Science Degree. This is confirmed by the findings of the University of Trinidad and Tobago (2015) [12] that 71% of employed graduates were in jobs related to their field of study and 64% believed that their program curriculum was relevant to the job. Further, this suggests the relatedness of Respondents' academic preparation and work.

Conclusion

This study reveals that male graduates dominated the Bachelor of Science in Computer Science program. The employability of the graduates needs more improvement. Further, the private sectors employed more computer science graduates compared to government agencies. There is a relatedness of respondents' academic preparation and work.

Recommendations

The findings suggest that the employability of the graduates needs more improvement by evaluating the current curriculum of the Bachelor of Science in Computer Science geared to cater the current and future needs of societies undergoing social and economic change. Furthermore, the results also implies the need to assess the current on the job training programs and choose partner industries which can further provide competent and competitive on the job training skills to the students.

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