



## INDUSTRY EMPLOYABILITY ICT SKILLS VIS-À-VIS ICT SKILLS OF THE INFORMATION AND COMMUNICATION TECHNOLOGY PROGRAM OF SENIOR HIGH CURRICULUM

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### ABSTRACT

*This research was conducted to determine whether the skills and competencies of the ICT strand's Senior High School Curriculum match the ICT skills needed by the various industries in Zamboanga City for employability. The findings serve as a source of information for other senior high schools in the Philippines from different regions. In this analysis, a Descriptive Quantitative method of research was adopted. The results showed that the respondents highly needed (Computer Systems Servicing NC II), (Computer Programming .net Technology NC III) and (Broadband Installation Fixed Wireless Systems NC II) in terms of the industry's required ICT skills. In addition, management in both industry and academia needs an advanced and competent level of competence, as shown in their average response to an entry-level role in both common and core competencies (Computer System Servicing NC II). The T-test result also showed that there is no substantial difference in the level of competence of the Senior High School Curriculum's Computer System Servicing as required for an entry-level role in the IT Department, indicating that the program provided by the Zamboanga City Senior High School agrees with what the industry needs.*

*Keywords: ICT Competencies, Employability ICT Skills, Senior High Graduates, Senior High Curriculum*

### INTRODUCTION

Over the last decade, the exponential growth of industries fueled by emerging technologies such as Information and Communication Technology (ICT) has accelerated dramatically. In the last ten years, various business sectors in the Philippines and abroad have incorporated Information and Communication Technology (ICT) into their core systems of operations. As a result, the educational sector must align its curricular offerings, particularly in Information and Communication Technology (ICT) programs, to meet the industry's demand for employability ICT skills for new graduates.

As cited by (Acuña, 2014), curriculum is the totality of curricular content and learning experiences the learner goes through to achieve intended educational purposes or outcomes against which his progress will be evaluated. However, the study of (Lopez, 2016) curriculum could have different meanings for different people depending on how it used. He delineates curriculum in terms of scope and organization classified as macro or generic and micro or specific. This Macro curriculum is the general course of studies mandated for all Philippine schools made up of subject areas required of students to complete and earn credentials corresponding to a school level, for instance, basic education. In the context of this study, the Macro



curriculum is given an emphasis which is referred to as the Senior School Curriculum of the 2012 Enhanced Basic Education K to 12 Curriculum.

Other terminologies, such as educational reforms, growth and innovation, are used for curriculum improvement. Whereas innovation refers to the implementation of entirely new elements of the curriculum, growth and reform imply a general enhancement of what Fullan already has, as stated in (Amimo & Role, 2014). Since education is a major tool for shaping society, according to Otunga, Odero, and Barasa, there will never be a perfect curriculum for all ages, simply because society continues to evolve from time to time. At three stages, curriculum changes may occur: minor, medium, and major, as cited by Tolmen (2014).

As the study of (Harmse, 2018) the ICT industry also shifted, leading to new job criteria and new career opportunities that are constantly implemented. ICT graduates entering the industry are therefore expected to have acquired appropriate knowledge and skills. The evolution of digital technology is in its all-time high and even faster than the quality of ICT graduates is producing.

In connection with this, the Philippine Qualifications Framework was developed by the Government of the Philippines through Republic Act No. 10968 in order to meet the higher employability requirements. Specifically, the Framework will resolve job incompatibility and align employee training and education with business demands and expectations. School curricula should therefore be adapted to developments in technology and job creation, especially in industries with communication and information technology needs (Terrazola, 2017).

Now comes the Senior High School Program, which is now part of the Philippine Educational Program that according to (Sarmiento & Orale, 2016) is an entry point for business and industry or college or university life. In different parts of the world, this program is offered to prepare students for jobs in the industry or to pursue their academic life.

The spread of Information and Communication Technologies (ICTs) across all sectors of the economy puts new demands on the

skills of workers. Both expanding job possibilities and imposing new demands are the changing skill set. For people joining the workforce and for those looking to find a better career, basic ICT skills are deemed important in today's job market. The economic well-being of a nation depends on the productive use of ICT for industries and industrial processes (Garrido, Sullivan, & Gordon, 2012).

Thus, it is for these reasons that the researcher would like to undertake this research endeavor to evaluate if the skills and competencies of the Senior High School Curriculum of the ICT Strand under the TVL Track meet the employability ICT skills required by the industries in Zamboanga City. The researcher would also like to identify the skills and competencies as approved to be required by the management of the industries in several industry sectors in Zamboanga City specifically in the IT department.

## OBJECTIVES OF THE STUDY

This study was conducted to evaluate if the skills and competencies of the Senior High School Curriculum of the ICT Strand under the TVL Track meet the employability ICT skills required by the different industries in Zamboanga City. Specifically, it aimed to: 1) Identify the ICT skills required for employment by the different industries in Zamboanga City; 2) Determine the level of proficiency or competency of the Computer System Servicing NC II of the TVL Track-ICT Strand in Senior High School as required for an entry-level position in the IT Department; 3) Assess the significant difference in the level of proficiency of the Computer System Servicing of the Senior High School as required for an Entry-Level Position in the IT Department as rated by the Academic Sector and the Industry.

## METHODOLOGY

The study made use of descriptive-quantitative method since it is intended to identify the ICT skills and competencies as approved to be required by the management of the different sectors of the industries in Zamboanga City and



evaluate if the ICT skills and competencies of the Senior High School Curriculum of the ICT Strand under the TVL Track match the ICT skills required for employment by different sectors of the industries Zamboanga City.

The total number of respondents for both Industry Sector and Academic Sector were forty-four (44). In which Forty (40) respondents came from Industry Sector and four (4) respondents came from Academic Sector.

The respondents of the study were the selected employees in the middle level management and low-level management. Consequently, includes one IT manager for the middle level management and one IT personnel for the lower-level management in the fourteen fishing, canning, and manufacturing industries: agricultural, transportation, economic, finance, and electrical industry in Zamboanga City. The researcher also included two ICT teachers in Ayala National High School Senior High School Program and two administrative staff or the non-teaching staff to be included as respondents for the level of proficiency or competency of the Computer System Servicing of the Ayala National Senior High School as required for an entry-level position in the IT Department.

Parallel with this, the study adopted the purposive non-random sampling technique in the selection of respondents. The researcher made used of this type of sampling techniques because based on the judgment of the researcher, only selected employees who have knowledge and skills on ICT can provide appropriate responses to the survey questionnaire.

The questionnaire was divided into three (3) parts. Part I was intended to gather data about the respondents, such as name (optional), and type of industry. Part II was consisted of the ICT skills required for employment by the different industries in Zamboanga City. The respondents were to indicate a check mark (✓) in the appropriate column for each item to determine if the ICT skills offered as specializations in the Senior High School Curriculum of the TVL Track – ICT Strand were also the required or needed ICT Skills for employment in the different industries in Zamboanga City.

However, Part III consists of the common and core competencies of Computer Systems Servicing (NC II) offered in the TVL Track-ICT Strand of Senior High School Curriculum. The respondents or participants will rate the level of proficiency or competencies of Computer System Servicing NC II as required for an entry-level position by the different industries in Zamboanga City by indicating a check mark (✓) on the corresponding score.

The result of the data gathered in Part III were tabulated for comparison in order to meet the objective of this study, that is, to assess the significant difference in the level of proficiency of the Computer System Servicing of the Senior High School as required for an Entry-Level Position in the IT Department as rated by the Academic Sector and the Industry in Zamboanga City.

For the validity and reliability of instrument, the indicators of the instruments were adopted from the curriculum of Senior High School ICT strand. However, the instruments were given to experts for validity of its contents and construct.

To be able to gather the data needed, the researcher was first and foremost sought the permission from the Management of the fishing, canning, and manufacturing industry as well as in the agricultural industries such as the Philippine Coconut Authority (PCA); in transportation industry such as the Land Transportation Office (LTO); economic industry such as the Zamboanga City Special Economic Zone Authority (ZAMBOECOZONE); electrical industry such as the Zamboanga City Electric Cooperative (ZAMCELCO); and finance industry such as the One Network Bank (ONB) and Micro-Entrepreneurs Multi-Purpose Cooperative (MEMPCO) so that the researcher will be able to gather the data from the selected employees of the middle level management and lower level management. The approved letter from the top management industry was presented to the selected employees of the middle level management and lower-level management for the collection of the data through survey questionnaires. The scheduled distribution and retrieval were arranged with the top management of the fishing, canning, and manufacturing industries, agricultural, transportation, economic,



financial, electrical industries and academic sector in Zamboanga City.

To facilitate the analysis of data, the Weighted Mean and T-test for Independent Samples. Weighted Mean was used as statistical tools to determine the ICT skills required for employment in the different industries in Zamboanga City as well as to evaluate the proficiency level of the common and core competencies of the Computer Systems Servicing (NC II) offered as the specialization of the TVL Track-ICT Program in Senior High School as perceived to be required for an entry-level position in the different industries in Zamboanga City. While T-test For Independent Samples were used since the study evaluates the significant difference in the level of proficiency of the Computer System Servicing NC II of the Senior High School as required for an Entry-Level Position in the IT Department as rated by the Academic Sector and the Industry.

## RESULTS AND DISCUSSION

This section presents, analyzes and interprets the data collected and tabulated from the IT Managers of the middle level management and IT Personnel of the lower-level management as the respondents of this research study from the different industries in Zamboanga City to include the fishing, canning and manufacturing industries, as well as from the finance, economic, transportation, agriculture, electrical and academic sector.

### 1. ICT skills required for employment by the different industries in Zamboanga City

Table 1 shows for the ICT Skills required by the different sectors of Industry in Zamboanga City from the Senior High School ICT Graduates, the respondents Highly Required Computer Systems Servicing (NC II) with a mean response of 4.08 (HR), followed by Computer Programming (.net Technology) (NC III) a mean response of 3.85 (HR), and Broadband Installation (Fixed Wireless Systems) (NC II) with a mean response of 3.43

(HR) from the applicants since it is very important to the different industries.

**Table 1**  
*ICT Skills required by the different sectors of Industry in Zamboanga City from the Senior High School ICT Graduates.*

		Mean Response	Remarks
1	Animation (NC II)	2.43	LR
2	Broadband Installation (Fixed Wireless Systems) (NC II)	3.43	HR
3	Computer Programming (.net Technology) (NC III)	3.85	HR
4	Computer Programming (Java) (NC III) updated based on the TESDA Training Regulations published December 28, 2013	3.35	MR
5	Computer Programming (Oracle Database) (NC III) updated based on the TESDA Training Regulations published December 28, 2013	3.28	MR
6	Computer Systems Servicing (NC II) updated based on the TESDA Training Regulations published December 28, 2013	4.08	HR
7	Contact Center Services (NC II)	2.75	MR
8	Illustration (NC II)	2.53	LR
9	Medical Transcription (NC II)	1.93	LR
10	Technical Drafting (NC II)	3.03	MR
11	Telecom OSP and Subscriber Line Installation (Copper Cable/POTS and DSL) (NC II)	3.35	MR
12	Telecom OSP Installation (Fiber Optic Cable) (NC II)	3.35	MR
	<b>Grand Mean</b>	<b>3.11</b>	<b>MR</b>

LR – Less Required  
MR – Moderately Required  
HR – Highly Required

It is very important because as graduates of ICT program, it is expected that they are knowledgeable of the skills and most of the



respondents are requiring these skills that the Senior High School graduates should possessed.

According to (Martinez, 2018), as a student, one needs to build skills in computer programming and operation that meet the current and future needs of the industries more specifically the manufacturing industries.

However, they moderately require from applicants the skills on computer programming oracle Database with a mean response of 3.28 (MR) Telecom OSP and Subscriber Line Installation (Copper Cable and Fiber Optic Cable) with both the same mean response of 3.35 (MR); computer programming (Java) with a mean response of 3.35 (MR); Technical Drafting with a mean response of 3.03 (MR); and Contact Center Services with a mean response of 2.75 (MR); The mentioned skills are expected of an applicant when applying for employment to be at par with other applicants.

Least in the requirement is the skill on Illustration with a mean response of 2.53 (LR), Animation with a mean response of 2.43 (LR), and Medical Transcription (NCII) with a mean response of 1.93 (LR) from the applicant. The skill in a specific type and/or medium of drawings like realistic or cartoon drawings, using poster colors, pencil, etc. Using traditional or digital or combination of digital and traditional methods and the skill to produce cleaned-up and in-between drawings in both production and post-production stages also the use of other animating programs like adobe flash and 3D's Max and to transcribe dictated recordings made by physician and other health care professionals and transcribe them into medical reports is less required in the west coast area as assessed by the respondents.

It could be inferred from these results that the Senior High Curriculum of the ICT Strand under Technical-Vocational-Livelihood (TVL) Track of Ayala National High School meet the ICT Skills required by the different industries in Zamboanga City because based from the result from the gathered data and what the school had offered and its curriculum have met the ICT skills required by the different industries since the Ayala National High School have offered Computer System Servicing NC II as one of the highly required ICT skills in Zamboanga City.

The result of this study may as well provide insights to the school head of Ayala National High School to also offer broadband installation and Computer Programming as one of the specializations for the ICT Strand under the TVL Track.

**2. Level of proficiency or competency of the Computer System Servicing NC II of the TVL Track-ICT Strand in Senior High School as required for an entry-level position in the IT Department**

**Table 2**  
*Rated by the Industry*

	<b>Common Competencies</b>	<b>Mean Response</b>	<b>Remarks</b>
1	Apply Quality Standards (AQS)	3.50	A
2	Perform Computer Operations (PCO)	3.70	A
3	Perform Mensuration and Calculation (PMC)	3.38	I
4	Prepare and Interpret Technical Drawing (PITD)	3.08	I
5	Use Hand Tools (UHT)	3.65	A
6	Terminate and Connect Electrical Wiring and Electronics Circuit (TCEW)	3.48	A
7	Test Electronic Components (TEC)	3.65	A
	<b>Grand Mean</b>	<b>3.49</b>	<b>A</b>
	<b>Core Competencies</b>	<b>Mean Response</b>	<b>Remarks</b>
1	Install and Configure Computer Systems (ICCS)	4.20	A
2	Setting-Up Computer Networks (SUCN)	4.05	A
3	Setting-Up Computer Servers (SUCS)	4.15	A
4	Maintain and Repair Computer Systems & Networks (MRCN)	4.03	A
	<b>Grand Mean</b>	<b>4.10</b>	<b>A</b>
	<b>Overall Grand Mean</b>	<b>3.79</b>	<b>A</b>

A – Advanced

I – Intermediate



Table 2 and 3 exhibits for the level of proficiency or competency as rated by both industry and academic sector of the Computer System Servicing (NC II) of the Ayala National High School Senior High School as required for an entry-level position in the IT Department that both required a high level of proficiency remarked as an Advance Level of Proficiency or Competency as rated by Industry with an overall grand mean response of 3.79 (A) for both common and core competencies, likewise an Expert Level of Proficiency or Competency as rated also by Academic Sector with an overall grand mean response of 4.69 (E) for both common and core competencies. The candidates or the applicants at the Advance Level of Proficiency or Competency can perform the actions associated with this skill without assistance. He is certainly recognized within his immediate organization as “a person to ask” when difficult questions arise regarding this skill.

**Table 3**  
*Rated by the Academic Sector*

	Common Competencies	Mean	Remarks
1	Apply Quality Standards	4.50	E
2	Perform Computer Operations (PCO)	4.75	E
3	Perform Mensuration and Calculation (PMC)	4.50	E
4	Prepare and Interpret Technical Drawing (PITD)	4.75	E
5	Use Hand Tools (UHT)	4.75	E
6	Terminate and Connect Electrical Wiring and Electronics Circuit (TCEW),	4.75	E
7	Test Electronic Components (TEC)	4.50	E
	<b>Grand Mean</b>	<b>4.64</b>	<b>E</b>
	Core Competencies	Mean	Remarks
1	Install and Configure Computer Systems (ICCS)	4.75	E
2	Setting-Up Computer Networks (SUCN)	4.75	E
3	Setting-Up Computer Servers (SUCS)	4.75	E
4	Maintain and Repair Computer Systems & Networks (MRCN)	4.75	E
	<b>Grand Mean</b>	<b>4.75</b>	<b>E</b>
	<b>Overall Grand Mean</b>	<b>4.69</b>	<b>E</b>

E – Expert

Likewise, the candidates or the applicants at the Expert Level of Proficiency or Competency, is known as an expert in this area. He can provide guidance, troubleshoot, and answer questions related to this area of expertise and the field where the skill is used. That is why the graduates of the Senior High School program are encouraged to take a National Assessment in TESDA to earn a National Certificate (NC) for them to be employed for an entry level position in the Industry. Companies in Makati City are ready to hire SHS graduates as regular employees in their company for entry level positions as cited in the study of (Noche, Guinto, Paulo, & Sahagun, 2017) entitled “The Views of Twelve (12) Companies in Makati City on Hiring Senior High School Graduates”.

**3. Level of proficiency of the Computer System Servicing of the Senior High School as required for an Entry-Level Position in the IT Department as rated by the Academic Sector and the Industry**

**Table 4**  
*Level of proficiency of the Computer System Servicing of the Senior High School*

Variable	Mean Response	t-value	p-value	Remarks	Decision on Ho
Academic sector	4.69	-1.682	0.100	Not Significant	Accept Ho
Industry	3.79				

Table 4 indicates the significant difference in the level of proficiency of the Computer System Servicing of the Senior High School as required for an Entry-Level Position in the IT Department as rated by the Academic Sector and the Industry. T-test for independent samples was used to establish difference between variables for the objective number three (3) regarding the significant difference in the level of proficiency of the Computer System Servicing of the Senior High School as required for an Entry-Level Position in the IT Department as rated by the Academic Sector and the Industry. When both data were compared, it yielded a t-value of -1.682 with a P-value of 0.100. Since the p-value is greater than 0.05 level of significance, this means that there is no significant difference in the level of proficiency of the computer system servicing of the Senior High



School as required for an Entry-Level Position in the IT Department as rated by the academic sector and the industry.

This can be inferred further that the rating of the industry and academic sector are more or less the same. It only signifies that both groups agreed to what is the required entry-level position in the IT Department in terms of the level of proficiency or competency of the applicants or graduates of a Computer System Servicing NC II Program of the Senior High School.

## CONCLUSIONS

To conclude, the skills and competencies of the Senior High School Curriculum of the ICT Strand under the TVL Track have met the employability ICT skills required by the different industries in Zamboanga City and the level of proficiency or competency for both Industry and Academic Sector are high since they require an advance and expert level of proficiency or competency for both common and core competencies of Computer System Servicing NC II for an Entry-Level Position in the IT Department. This only means that a graduate of Computer System Servicing must have earned a National Certificate from TESDA to be fully competent and can be hired for a Job in an IT industry.

Correspondingly, it also revealed that there is no significant difference in the level of proficiency of the Computer System Servicing of the Ayala National High School Senior High School that offers Computer System Servicing as required for an Entry-Level Position in the IT Department. This can be inferred further, that the rating of the industry and academic sector are more or less the same which means that the program offered by Ayala National High School Senior High School agrees to what is required by the industry.

## RECOMMENDATIONS

It is recommended that the Senior High School Curriculum of Zamboanga City particularly in Ayala National High School should continue to offer Computer System Servicing NC II and the school is recommended to also offer Broadband Installation (Fixed Wireless Systems) (NC II) and

Computer Programming (.net technology) (NC III). The school head of Ayala National High School could also decide to provide different options for the students to choose from according to their needs and demands in the industries. The school head should conduct monitoring and class observations to see to it that the ICT teachers are giving emphasis and concentrating more on the competencies which the industries noted as highly required and encourage students to take a National Certificate or NC from TESDA to be fully competent for a greater chance of employment as an entry-level position in the industry.

This study should also be conducted in other Senior High Schools and other industries in Zamboanga City Peninsula or another Region.

## REFERENCES

- Acuña, G. V. (2014). Learner-centered approaches to teaching hospitality education . *Vocational Training Curriculum*, 4.
- Amimo, C., & Role, E. (2014). Universities in Kenya at crossroads with academic calendar: An evaluation of the change from quarter to semester at a private university with implications for collaboration. *Baraton Interdisciplinary Research Journal* , 22-34.
- Garrido, M., Sullivan, J., & Gordon, A. (2012). Understanding the Links Between ICT Skills Training and Employability: An Analytical Framework. *Information Technologies & International Development*, 17-32.
- Harmse, A. (2018). Epository webpage. <http://repository.nwu.ac.za/handle/10394/31628>
- Lopez, M. (2016). Point of view and nature of curriculum development. <https://www.scribd.com/document/320379452/Curriculum-Development-1>
- Martinez, J. M. (2018). *Mesacc Education*. <https://www.mesacc.edu/programs/manufacturing>
- Noche, Y. K., Guinto, M. B., Paulo, D. M., & Sahagun, C. M. (2017). The Views of twelve (12) companies in Makati city on hiring senior high school graduates . *International Conference on Law, Business,*



*Education and Corporate Social Responsibility*, 151-155.

Republic Act No. 10968. An act institutionalizing the Philippine qualifications framework (POF), establishing the PQF-national coordinating council (NCC) and appropriating funds. [https://www.lawphil.net/statutes/repacts/ra2018/ra\\_10968\\_2018.html](https://www.lawphil.net/statutes/repacts/ra2018/ra_10968_2018.html)

Sarmiento, D. H., & Orale, R. L. (2016). Senior high school curriculum in the Philippines, USA, and Japan. *Journal of Academic Research*, 17-18.

Terrazola, V. E. (2017). *Manila Bulletin*. <https://news.mb.com.ph/2017/12/12/senate-approves-proposed-philippine-qualifications-framework-act-of-2017/>

Tolmen, P. S. (2014, December). Exploring the experiences of foundation phase educators within a context of curriculum change in english literacy. natal.

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