

Readiness of BISU Balilihan Electronics Technology Program to Meet Industry Standard

ERNESTO B. ALIJAY JR.

<http://orcid.org/0000-0002-5933-7359>
ernesto.alijay@bisu.edu.ph
Bohol Island State University
Balilihan Campus, Magsija, Balilihan Bohol
Philippines

EMILIANO C. MARAVILLA

<http://orcid.org/0000-0001-5192-237X>
emiliano.maravilla@bisu.edu.ph
Bohol Island State University
Balilihan Campus, Magsija, Balilihan Bohol
Philippines

ABSTRACT

The study assessed the readiness of the BISU electronics technology program to meet the industry standards. The study utilized a descriptive survey design with the aid of questionnaires and casual interviews. This was conducted and participated by BISU instructors and students, electronics shop proprietors, supervisors, proprietors, at the same time electronics operators in the Province of Bohol. Based on the findings, after a thorough and careful analysis of the study, the researchers arrived at the following conclusions. Almost all the skills undertaken in the electronics shop are commonly performed in the respective daily shop work activities, whether

they are done in the school or the industry. These facilities are indispensable for day-to-day operations in the shops regardless of their types. Hand tools and equipment are both important and needed in the school electronics laboratory and in the electronics shop in the industry of Bohol to carry out the daily hands-on activities. Most of the basic tools and equipment found in the electronic shop industry of Bohol are also available in the electronics shop technology of the school upon which the students acquired the basic operational skills needed in the industry.

KEYWORDS

Readiness, facilities, electronics shop, laboratory, hands-on activities, skills, descriptive research design, Philippines

INTRODUCTION

In light of the growing global competition, especially in the area of electronics shop technology, a standard setting that fits the needs of the industry should be made continually to keep track of technology. Change being part of education should start where it is much needed. The school shop program should be in line with that of the industry itself.

For an educational institution like Bohol Island State University Balilihan Campus tasked to mold the workforce of the electronics industry, this is a challenge. Any educational institution exerts efforts to bridge whatever skills gap there is between the academe and the industry since the academe would have to make sure that its graduates would be able to perform their work well and become more competitive not only in the local industry but in the global arena.

Bohol Island State University Balilihan Campus has been offering a Bachelor of Science in Electronics (BSEIx) program as one of its major fields of specialization.

This may be an important first step that would help electronics graduates meet the standard skills required in the industry.

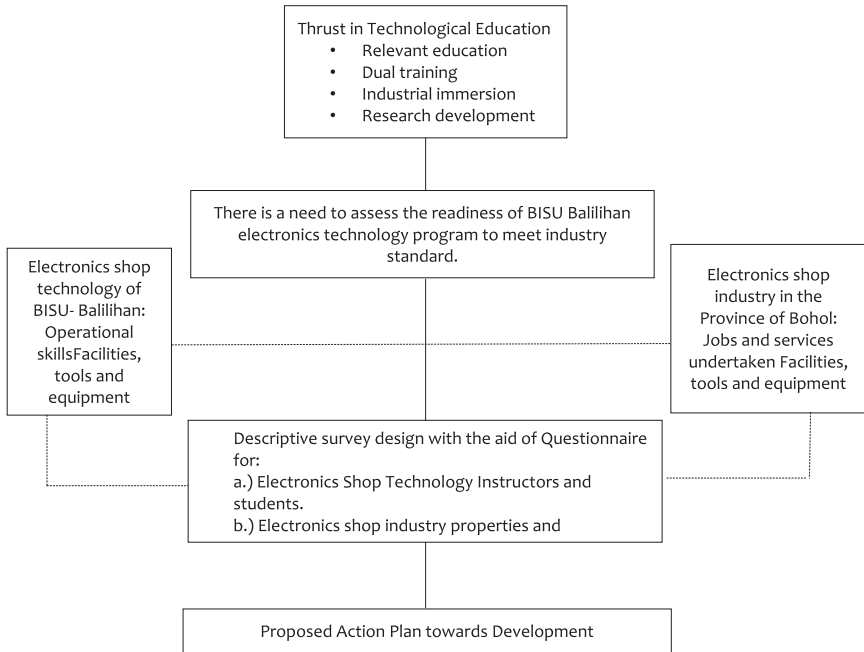
The purpose of this study was to assess the readiness of the BISU Balilihan Electronics Technology Program to Meet Industry Standard.

OBJECTIVES OF THE STUDY

Specifically, this sought to answer the following questions:

1. What is the status of an electronics shop in terms of:
 - a. Type of the ownership of the establishment
 - b. Nature of business/shop
 - c. Tools and accessories, electronics tools, and other equipment
2. What is the profile of the electronics shop respondents as to:
 - a. Position in the establishment
 - b. Number of years in service
 - c. Educational qualification
 - d. Trainings, seminars, workshops attended
3. What are the skills undertaken in the electronics shop in the Province of Bohol?
4. What are the skills done in the electronics shop technology of the school?
5. Is there a significant degree of correlation between the skills undertaken in the electronics shop laboratory of the school and in the electronics shop in the Province of Bohol?
6. What are the tools and equipment available in the electronics shop technology
7. What are the tools and equipment available in the electronic shop in the Province of Bohol?

CONCEPTUAL FRAMEWORK



METHODOLOGY

Design

The research utilizes the descriptive survey method through the aid of questionnaires.

Environment and Participants

The research focused on the electronics shop/laboratory of Bohol Island State University Balilihan Campus and its relevance to the electronics shop industry in the Province of Bohol as a basis to meet the industry standard. The respondents were proponents of the electronics shop technology instruction of Bohol Island State University Balilihan Campus, particularly the students of BS-Electronics II and BS-Electronics III and their shop instructors.

The other groups of respondents were the electronics shop proprietors and supervisors as well as workers in the Province of Bohol. There were 30 electronics shop participants in the Province of Bohol.

Instruments

To gather the data needed for the study, the researchers made use of the questionnaire for both respondents. The questionnaire covered items of the profile electronics shop in the Province of Bohol and its skills undertaken, tools, and equipment available. Another questionnaire asked for the skills undertaken by the students and the instructors as well as the tools and equipment which are available in the school.

Statistical Treatment

To determine the significant degree of correlation between the responses of the electronics shop technology instructors and students of BISU Balilihan Campus and the proprietors and supervisors of an electronics shop in the Province of Bohol, the coefficient of correlation was computed through the Pearson Product-Moment formula.

RESULTS AND DISCUSSION

Table 1. Distribution of Cases

Respondents	Distributed	Returned	Percent (%)
A. Electronics Shop Technology of BISU-Balilihan Campus:			
1. Instructors	2	2	100.00
2. BS-Electronics students	19	19	100.00
B. Electronics shop in the province of Bohol			
1. Proprietors	4	4	100.00
2. Supervisors	1	1	100.00
3. Proprietors at the same time electronics operator	13	13	100.00
4. Electronics operators	12	12	100.00
Total Number of Respondents	51	51	100%

Distribution of cases. Records that two instructors (100.00 percent) and nineteen students (100.00 percent) of the electronics shop technology of BISU Balilihan Campus and four proprietors(100.00 percent), one supervisor (100.00), 13 proprietors at the same time electronics operators (100.00 percent), 12 Electronics operators (100.00) of the electronics shop industry in the Province of Bohol participated in the survey. All of the 51 questionnaires distributed were returned.

Background Information. A questionnaire was distributed to describe the background information of the electronic shop technology instructors and students of the college and electronic shop in the Province of Bohol as gathered and reported in Table 2 and Table 3.

Table 2. Background Information of Electronics Shop Technology Instructors and Students

A. Electronics Shop Technology Instructors					
Number of Instructors	Position	Status	Degree Obtained	Masteral Unit	Years of Experience
2	Instructor 1	Permanent	BSIT-Elx with Ed. units	CAR	8 to 10
B. Electronics Shop Technology Students					
Number of Students	Year Level	Program	Industrial Experience		
			No Experience	One Year Experience	
14	Second Year	BS-Electronics	11	3	
5	Third Year	BS-Electronics	4	1	

A. Electronics Shop Technology Instructors

As stated in Table 2, there are two Electronic Shop Technology Instructors with permanent status. Both instructors obtained a degree of Bachelor of Science in Industrial Technology major in Electronic and completed the academic requirement in Master in Education. One instructor has a teaching experience of eight years, while the other one has nine years.

B. Electronic Shop Technology Students

Table 2 also shows that out of the fourteen second-year BS-Electronic students, eleven (78.57 percent) have no industrial experience; only three (21.43 percent) have industrial experience of one year below. Of the five third year BS-Electronic students, one (20 percent) has one year below, specifically 10-month industrial experience, while four (80 percent) have no industrial experience at all.

Table 3. Background Information of Electronic Shop in Bohol

	Items	Responses N=30	
		F	%
I.	Your position in the business		
a.	Proprietors	4	13.33
b.	Supervisors	2	6.66
c.	Proprietors at the same time supervisors	12	40.00
d.	Electronics operator	12	40.00
II.	Types of ownership of the establishment		
a.	Single proprietorship	16	53.33
b.	Partnership	8	26.66
c.	Corporation	0	0.00
d.	Cooperative	0	0.00
e.	Family owned	6	20.00
III.	Types of shop		
a.	Service shop	8	26.67
b.	General electronics shop	22	73.33
c.	Manufacturing/Fabrication shop	00	0.00
d.	Maintenance shop		

Table 3 reveals the background information of the persons manning the electronic shop in Bohol. Four (13.33 percent) of the respondents are proprietors; two (6.66 percent) are supervisors, twelve (40.00 percent) are proprietors at the time supervisor of their shop, and twelve (40.00 percent) are the ones as electronics operators.

On the types of ownership of the establishment, sixteen (53.33 percent) of the respondents said “single proprietorship” eight (26.66 percent) said “partnership” and six (20.00 percent) answered “family-owned.”

On the type of shop, twelve (40.00 percent) of the respondents claimed “service type;” twenty-two (73.33 percent) claimed “general electronics shop”; nobody (0.00 percent) indicated “maintenance shop.”

Skills Undertaken

The respective respondents described the different skills from basic to complex, which are done by the electronics shop technology instructors and students of the BISU Balilihan Campus and the electronics shop in the Province of Bohol.

The most common tools are available both in the electronics shop technology and electronics shop industry.

Table 4. Multiple Responses

A. Tools and Accessories	Electronics Shop Technology Instructor and Students (21)		Electronics Shop Proprietors, Supervisors and Electronics Operator (30)	
	Available	Not Available	Available	Not Available
1. Long-nosed pliers	21	0	30	0
2. Diagonal side-cutter pliers	21	0	30	0
3. Electrical pliers	21	0	30	0
4. Flat head screw driver	21	0	30	0
5. Philip-head screwdriver	21	0	30	0
6. Soldering iron	21	0	30	0
7. Desoldering pump	21	0	30	0
8. Allen wrench (key)	21	0	30	0
9. Torx screwdriver	21	0	24	6
10. Utility knife	21	0	20	10
11. Wire stripper	21	0	24	6
12. Test jig	21	0	24	6
13. Crimper	21	0	24	6

As reflected in Table 4, 21 (100.00 percent) of the instructors and student respondents significantly claimed that all of the hand tools and accessories mentioned in the said table are available in the school shop laboratory. These hand tools and accessories are basic tools needed both in skills in using test instruments and in the manipulation of different electronics works in the shop.

As of the industry respondents, thirty (100.00 percent) claimed significantly that almost all of the hand tools and accessories are available in their shops. These hand tools and accessories are everyday used in shop works in most of their job.

Hand tools number 9, 11, 12, and 13, which are torx screwdriver, utility knife, wire stripper, test jig, and crimper, respectively, more than twenty percent significantly claimed that these are not available in their shop. This group of respondents belongs to the smaller electronics shops in which these hand tools are not commonly used in their daily shop work activities.

The most common equipment available in the electronics shop technology of the school and the electronics shop industry of Bohol are reflected in Table 5.

Table 5. Multiple Responses

B. Equipment	Electronics Shop Technology Instructor and Students (21)		Electronics Shop Proprietors, Supervisors and Electronics Operator (30)	
	Available	Not Available	Available	Not Available
1. Digital multi-tester	5	0	41	0
2. Analog multi-tester	10	0	45	0
3. Oscilloscope	5	0	5	0
4. Function generator	0	0	3	16
5. High voltage probe	0	0	2	14
6. Magnifying glass with lamp	0	0	11	0
7. Hot air unit	2	0	13	8
8. Signal generator	0	0	3	12
9. Power supplies	2	0	10	0
10. Digital patter generator	0	0	2	16
11. Pulse generator	0	0	6	16

Table 5 shows that all of the 21 (100.00 percent) electronics shop technology instructors and students respondents significantly claimed that all of the equipment mentioned in the said table are available in the school shop laboratory.

On the side of the industry respondents, all 30 of them (100.00 percent) said that their available equipment are five (5) kinds, namely: analog multi-tester, digital multi-tester, oscilloscope, magnifying glass with lamp, and power supplies. These equipment are the most commonly used in a certain electronic shop industry where a variety of works can be rendered to the customer.

Fourteen (46.66 percent) of the industry respondents said that the available equipment are functional generator, digital pattern generator, and pulse generator.

Table 6. Skills undertaken in the electronics shop technology of the school and in the electronics shop in the Province of Bohol

Skills in using Test Instruments	Electronics Shop Industry		Electronic Shop Technology	
	WM	Description	WM	Description
Digital Multi-tester	3.67	Very Useful	2.50	Somewhat Useful
Analog Multi-tester	3.80	Very Useful	2.73	Somewhat Useful
Oscilloscope Analog/Digital	2.60	Somewhat Useful	1.29	Not at all useful
Function Generator	2.07	Not Very Useful	1.29	Not at all useful
High Voltage Probe	2.27	Not Very Useful	1.10	Not at all useful
Magnifying glass with lamp	3.27	Very Useful	2.70	Somewhat Useful
Hot Air Unit	3.20	Somewhat Useful	2.73	Somewhat Useful
Signal generator	3.27	Very Useful	2.53	Somewhat Useful
Power Supplies	3.73	Very Useful	2.77	Somewhat Useful
Digital Pattern Generator	2.60	Somewhat Useful	1.29	Not at all useful
Pulse Generator	2.47	Not Very Useful	1.14	Not at all useful
Frequency Counter	1.47	Not at all Useful	1.10	Not at all useful
Electric and Magnetic Fields (EMF) Meter	2.20	Not Very Useful	1.04	Not at all useful
Tube Tester	2.87	Somewhat Useful	1.04	Not at all useful
Cable Tester	2.93	Somewhat Useful	2.77	Somewhat Useful
Skills in audio frequency amplifier				
Assembling Audio Power Amplifier	3.47	Very Useful	2.70	Somewhat Useful
Repairing Audio power amplifier	3.87	Very Useful	2.77	Somewhat Useful
Modify the circuit of audio power amplifier	3.07	Somewhat Useful	2.73	Somewhat Useful
Skills in Television Receiver				
Repairing different sections of television receiver	3.87	Very Useful	2.20	Not very useful
Repairing CRT type of Television Receiver	3.87	Very Useful	2.07	Not very useful

Skills in using Test Instruments	Electronics Shop Industry		Electronic Shop Technology	
	WM	Description	WM	Description
Repairing LCD type of television receiver	3.73	Very Useful	2.60	Somewhat Useful
Repairing LED type of television receiver	3.73	Very Useful	2.26	Not very useful
Modify the circuit of different type of television receiver	3.20	Somewhat Useful	1.33	Not very useful
Skills in Digital Electronics				
Assembling logic gates circuits	2.47	Not Very Useful	1.30	Not very useful
Repairing logic gates circuits	2.47	Not Very Useful	1.23	Not at all useful
Modifying the logic gates circuits	2.40	Not Very Useful	1.33	Not at all useful
Skills in Microprocessors and Computer Hardware				
Assembling/ Disassembling Computer system	2.33	Not Very Useful	2.63	Somewhat Useful
Repairing different section/parts of computer system	2.40	Somewhat Useful	2.50	Somewhat Useful
Upgrading/Enhance the computer system	2.40	Not Very Useful	2.60	Somewhat Useful
Skills in Computer software and application				
Reformat/Reprogram of Operating (OS) system of computer system	3.00	Somewhat Useful	2.67	Somewhat Useful
Installation of operating system and application program	2.73	Somewhat Useful	2.63	Somewhat Useful
Modifying registry and support programs	2.87	Somewhat Useful	2.23	Not very useful
Skills in VCR,VCD, DVD system				
Repairing VCR,VCD,DVD system	3.37	Very Useful	1.43	Not very useful
Modifying Circuit VCR,VCD,DVD System	2.93	Somewhat Useful	1.27	Not at all useful
Skills in Cellular Communication System				
Reformat/Reprogram of cellular communication unit	2.27	Not Very Useful	2.25	Not at all useful

Skills in using Test Instruments	Electronics Shop Industry		Electronic Shop Technology	
	WM	Description	WM	Description
Repairing hardware components of two way radio/cellular communication unit	2.40	Not Very Useful	2.50	Somewhat Useful
Modifying of hardware and software of cellular communication unit	2.13	Not Very Useful	1.23	Not at all useful
Skills in Industrial Electronics				
Assembling circuit using Thyristor components like SCR, TRIAC, DIAC, UJT, BJT	3.00	Somewhat Useful	2.20	Not at all useful
Repairing Circuits using Thyristor components	2.33	Not Very Useful	1.43	Not very useful
Modifying circuit using Thyristor components	2.00	Not Very Useful	1.30	Not very useful
Assembling/Disassembling of pneumatics system	2.13	Not Very Useful	1.24	Not at all useful
Modifying of pneumatics system	2.33	Not Very Useful	1.24	Not at all useful
Assembling circuit of programmable logic circuit (PLC)	2.13	Not Very Useful	1.20	Not at all useful
Programming/Reprogramming of Programmable Logic Circuit (PLC)	2.33	Not Very Useful	1.20	Not at all useful
Modifying/Editing program of Programmable Logic Circuit(PLC)	2.13	Not Very Useful	1.27	Not at all useful
Assembling circuit of programmable Interrupt Controller (PIC)	2.33	Not Very Useful	1.10	Not at all useful
modifying/editing program programmable interrupt controller (PIC) circuit	2.33	Not Very Useful	1.50	Not very useful
assembling Arduino circuits	2.13	Not Very Useful	2.27	Somewhat Useful
programming/reprogramming of Arduino	2.33	Not Very Useful	2.27	Somewhat Useful
Modifying/editing program of Arduino	2.33	Not Very Useful	2.27	Somewhat Useful

Table 7. Significant difference between the skills undertaken in the electronic shop technology of the school and in the electronic shop in the Province of Bohol

Variables	0.05level of significance		Decision	Interpretation
	t-test	t-tabular		
A. Skills in using Test Instruments	1.11	1.701	Null hypothesis accepted	Insignificant
B. Skills in audio frequency amplifier	5.80	2.132	Null hypothesis rejected	significant
C. Skills in Television Receiver	5.58	1.860	Null hypothesis rejected	significant
D. Skills in Digital Electronics	30.76	2.132	Null hypothesis rejected	significant
E. Skills in Microprocessors and Computer Hardware	-4.38	2.132	Null hypothesis rejected	significant
F. Computer software and application	2.22	2.132	Null hypothesis rejected	significant
G. Skills in VCR,VCD, DVD system	0.83	2.92	Null hypothesis accepted	Insignificant
H. Skills in Cellular Communication System	0.14	1.717	Null hypothesis accepted	Insignificant
I. Industrial Electronics	7.32	1.83	Null hypothesis rejected	significant

The table 7 shows the computed values in Skills in using test instruments, Skills in VCR, VCD, DVD system, and Skills in cellular communication system are 1.11, 0.85, and 0.14 respectively which is within the critical values of 1.701, 2.92, and 1.717 respectively at .05 level of significance with 28, 2, and 4 degrees of freedom. Thus the null hypotheses is accepted. Therefore there is no significance difference in the electronic shop technology of the school and electronic shop in the Province of Bohol.

The finding shows that the skills undertaken of both electronic shop technology of the school and in the electronics shop in the Province of Bohol had no difference. This asserts that both two groups have less skills in using test instruments, VCR, VCD, DVD system and cellular communication system. The level of understanding or knowledge of both two groups are equal and these group of respondents are equally distributed. It shows that there is a need to discuss the topic and insert exercises or experimentation to be

more concrete in understanding the skills.

The table 7 shows the computed values in Skills in television receiver, and Industrial Electronics are 5.58, and 1.83, respectively which is beyond the critical values of 1.860, and 1.83 respectively at .05 level of significance with 8 and 24 degrees of freedom. Thus the null hypotheses is rejected. Therefore there is a significance difference in the electronic shop technology of the school and electronic shop in the Province of Bohol.

There was a significant difference in the skills undertaken of both electronic shop technology of the school and in the electronics shop in the Province of Bohol. It also means that the skills to this both groups are the same level.

The computed values in Skills in audio frequency amplifier, Skills in digital electronics, Skills in microprocessors and computer hardware, and computer software and application are 5.80, 30.76, -4.38, and 2.22 respectively which is beyond the critical values of 2.132 at .05 level of significance with the same degrees of freedom of 4. Thus the null hypotheses is rejected. Therefore there is a significance difference in the electronic shop technology of the school and electronic shop in the Province of Bohol.

The difference between the skills undertaken of both electronic shop technology of the school and in the electronics shop in the Province of Bohol which means that there is a significant difference in the skills between the electronic shop technology of the school and in the electronics shop in the Province of Bohol. It signifies that the skills acquired in the school and the practices in the electronics shops in Bohol were the same level. The students can perform the skills related to electronics shop works.

CONCLUSION

The researchers arrived at the following conclusions.

Almost all the skills undertaken in the electronics shop are commonly performed in the respective daily shop work.

The school and industry respondents indicate the availability of the facilities in their respective electronic shops. These facilities are indispensable for day-to-day operations in the shops regardless of their types.

Hand tools, and equipment are both important and needed in the school electronics technology and in the electronics shop in the industry of Bohol to carry out the daily hands-on activities.

The instructors and students respondents have some difficulties in acquiring skills especially the latest technology. The electronics shop industries are updated on the latest technology, and they are more skillful in manipulating troubleshooting new gadget.

Most of the basic tools and equipment found in the electronic shop industry of Bohol are also available in the electronics shop technology of the school upon which the students acquired the basic operational skills needed in the industry.

RECOMMENDATION

In view of the foregoing findings and conclusion, the following recommendations are offered:

1. The instructors handling electronics shop technology laboratory should attend trainings and seminars related to this field of specialization to equip them with the recent trends of the industry to enable them to effectively transmit the knowledge and skills to the students.
2. Instructors handling electronics technology laboratory should be sent to an in-plant training or industrial immersion or re-tooling to update themselves with the jobs undertaken in the industry for a proper technology transfer.
3. A linkage development program should be further improved in order to establish an effective and close contact with the industrial sector to strengthen on-the-job training and enhance vocational placement of graduates.
4. A follow-up study on the electronics shop industry in the region and its relevance to the electronics technology laboratory of BISU Balilihan Campus will find out the differences and similarities of the present and future studies.

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Gunning Fog Index: 13.61
Flesch Reading Ease: 43.10
Grammar Checking: 93/100
Plagiarism: 14%