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## Competency Needs of Electronic Technicians for Effective Maintenance and Repairs of Digital Video Disk Players in Minna Metropolis

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### ABSTRACT

*The study was conducted to ascertain the competency needs of electronic technicians for effective maintenance and repairs of digital video disk players in Minna metropolis. The study was a survey research in which data were collected through a 20-item questionnaire administered on 50 respondents which were purposely sampled. 15 electronic teachers, from Federal University of Technology Minna, Niger State College of Education, Minna and Government Technical College Minna and 35 registered electronic technicians from Chanchaga, Tunga, Kpakungu, Hospital road and Bosso in Minna, Niger state. Data collected were analyzed using mean, standard deviation and t-test. Findings of the study revealed the competency needs of electronic technicians to include: Ability to Assemble the DVD home theatre players, Ability to Disassemble the DVD home theatre players among others. It further revealed the challenges associated with electronic technicians in the use of modern tools and equipment in maintenance and repair of DVD players. The study suggested that Government should open skill acquisitions centers for training and retraining of electronic technicians to equip them with the requisite skills to enable them cope with modern challenges in new technological innovations in domestic appliances.*

**Keywords:** Competency needs, electronic technicians, electronic teachers, effective maintenance, DVD player.

### INTRODUCTION

The importance of competency in any country's educational and technological system cannot be over emphasized. Technicians and craftsmen know that they have to build a wide range of interdisciplinary skills that give them maximum flexibility and preparation for the future. Kinniburgh, Blaustein, Spinazzola, & Van der Kolk, (2017), explained that Competency is a combination of practical and theoretical knowledge, cognitive skills, behavior and values used to improve performance, or as the state or quality of being adequately or well qualified, having the ability to perform a specific role.

Competencies include all the related knowledge, skills, abilities, and attributes that form a person's job, Competencies are also what technicians need to be successful in their jobs (Okoro, 2010). The National Board for Technical Education (NBTE 2011) talk of the competency of graduates of Electrical/Electronic Technology from technological institutions (Technical Colleges, Colleges of Education (Technical) and Polytechnics) should among others

be able to inspect, identify problems, test, diagnose or troubleshoot, and completely repair any fault on electronic appliances like television, refrigerator, digital versatile disk or digital video disk (DVD) players, etc

A DVD player is a device that plays discs produced under both the DVD-video and DVD-Audio technical standards, two different and incompatible standards. Some DVD players will also play audio CDs. DVD players are connected to a television to watch the DVD content, which could be a movie, a recorded TV show, or other content. The importance of a DVD player in our day to day activities are too numerous to mention, for instance, DVD player plays educational program for parents and kids at homes through the television, the television is used to receive signals and display the pictures. DVD players have become more technically complex from the control side recently with the introduction of the various Energy labeling rules across the world. This has meant that the appliance has become more and more efficient leading to more accurate controls in order to meet the regulations. Modern DVD players are made of integrated circuits; these integrated circuits are made up of microchips. Thus, making the appliance to be more sophisticated and delicate to handle. As the electronics industry moves from the simple technology of the conventional transistorised electronic appliances to the present stage of digital electronics technology, it goes beyond the capacity of most of the electronics technicians in the urban and rural areas in developing countries to maintain the new high technology electronic appliances (Silas, 2015). He maintained that whereas faults in the conventional analogue appliances can be diagnosed by mere visual inspection, the digital types require scanning equipment for their trouble shooting. In addition, most of this high technology equipment are not available to the informal sector electronics technician and even when provided, their knowledge base will not suffice for the use of the equipment. Furthermore, Alio (2006) posited that most of the electronics technician seem to possess low level of formal education and they have poor background knowledge in theoretical concepts which limits their scope for improvement and servicing of new products. Alio specifically noted that most of the electronics technician have difficulty in servicing newer electronic appliances because of their inability to interpret circuit diagrams and use modern testing equipment such as digital multimeters, oscilloscope and function generators.

Silas (2015) observed that most of the electronic technician in Niger State who were trained through the apprenticeship system, with the conventional, analogue appliances encounter problems when attempting to repair electronics appliances different from those used during their training. This creates a situation aptly described as skill obsolescence which, according to Beaudry, Green, & Sand (2016), occurs when skills become less valuable or depreciates due to changes in workers themselves or due to changes in production technology and technological improvements. This problem of skills obsolescence of electronics technician is more pronounced with newer digitalized models of electronic appliances such as television sets, audio amplifiers, video signal decoders and DVD players. As a result of their low level of technical competencies, the electronics technician resort to trial and error method which is sometimes risky as it could lead to further damage of the appliances they may attempt to repair. Silas (2015) reported that there is a significant difference between the performance of electronics technician in the rural and urban areas of Niger state. This would obviously affect their competency skill for effective maintenance of electronic appliances.

In today's electronic workshops, the expected maintenance practice has changed from manual method of diagnosing faults to the use of diagnostic scan tools, equipment and machines to enhance accuracy in fault diagnosis and repairs Onoh & Onyebuenyi (2015). The change in the expected maintenance practices is due to the various technological innovations in modern electronic appliances like DVD players which is intended to increase high output, safety, and improved comfort to the users. The emergence of these new innovations due to technological dynamism have however made the DVD players more sophisticated. Hence the need of expertise is required in maintenance and repair practice. The demand for DVD players in Minna Metropolis has continued to increase rapidly, assorted brands of modern DVD players are today abounded in Minna Metropolis. For example, DVD player such with advance configuration are replacing the tube operated television. These new assorted brands of DVD players have some changed configurations and made their maintenance a more complex task.

The Nigerian Educational Research and Development Council (NERDC, 2015) defined maintenance as any action taken on anything in order to keep it working or to restore it to a good working condition. NERDC maintained that if an equipment or tool is not properly maintained, it may breakdown abruptly causing a lot of inconveniences and sometimes, loss of life. The maintenance of electronic appliances in Nigeria is mostly done by electronics technician most of whom are found in the informal sector of the economy. According to Alio (2006), the informal sector electronics technician are the major stakeholders in the servicing and maintenance of electronics appliances. It is worthy to note that the last two decades have witnessed a significant revolution in the electronics industry the world over. This is evident in the trend of changes in the principle of operation of most electronics appliances which has shifted from analogue to digital electronics technology (Brewster, 2009). For instance, the conventional cathode ray tube (CRT) television is gradually being phased out by newer types of television such as the LCD (liquid crystal display), plasma, and DLP (digital light processing) television technology (Goldwasser, 2009), LED (light emitting diode) and OLED (organic light emitting diode) television technology (Laughlin, 2014). Similarly, solar powered radio receivers are gradually replacing the conventional battery powered radio receivers (Atkins, 2009).

As the electronics industry moves from the simple technology of the conventional transistorised electronic appliances to the present stage of digital electronics technology, the maintenance requirements has moved from the old traditional method to modern method enhanced with modern equipment for accuracy (Silas, 2015). This source maintained that whereas faults in the conventional analogue appliances can be diagnosed by mere visual inspection, the digital types require scanning equipment for their trouble shooting. In addition, most of this high technology equipment are not available to the informal sector, electronics technician and even when provided, their knowledge base will not suffice for the use of the equipment. Maintenance of this device is supposed to be carried out at regular interval by a well-equipped electronics technician.

Electronics technicians are persons who are trained to help design, develop, test, manufacture, install, and repair electrical and electronic equipment such as communication equipment, medical monitoring devices, navigational equipment, and computers. The incompetency associated in the maintenance skills, among electronic technicians, resulting from the inadequacy of the curriculum content in technical and technological institutions have resulted to the production of unskilled electronic technicians who are incompetent in

carrying out the required maintenance in the modern electronic appliance Allo & Uzor, (2013). As a result, measures to keep educating and training in tune with the knowledge and skills needed in the world of work, school courses and curricula must be reviewed, enriched and updated regularly in line with changes that are taking place in the electronics industries. Omofonmwan & Chukwuedo (2013) is of the view that unless electronic technician, periodically undergo training and retraining courses in the handling and repairs of modern electronic equipment to enhance their performance skills, their practices will grow poorer and will continue to negatively affect and threaten human lives, materials and the general universe. Therefore, it is paramount for electronic technicians to possess adequate practical and theoretical knowledge of the working principle of modern domestic appliances to enable effective handling, maintenance and repairs of DVD players. The teaching of modern maintenance practices is usually carried out in technical institutions by electronic teachers. Electrical installations trade is taught by Electricity/Electronic teachers (Okoro, 2010).

Electricity/Electronic teachers are personnel trained in Colleges of Education (Technical), Polytechnics and Universities in order to teach electrical installation, electronics, radio and television work competently among others. Products of colleges of education (Technical) and polytechnics are referred to as non-graduate teachers while products of University are regarded as graduate teachers. Technical teachers from Universities and other institutions that have undergone educational training are termed as qualified teachers. The function of training, therefore, proceeds from the assumption that the gap between the required and actual performance, which calls for a bridge via training, is the result of inadequacies in knowledge, skills and attitudes (Okorie, 2000). The skill gap created between the curriculum and the new technological innovations have made the needed skills for effective maintenance of the new breed of DVD players to continue to elude the graduate of Nigeria Technical and Technological Institutions. Okoye (2013), revealed that most modern electronics suffer disrepair (poor repairs) in the hands of these maintenance personnel out of ignorance, minor faults are complicated to cause further damage in the domestic appliances these among several other reasons call for the competency needs of electronic technicians for effective maintenance and repairs of DVD players in Minna Metropolis.

### ***Purpose of the Study***

The purpose of this study is to ascertain the competency needs of electronic technicians for effective maintenance and repair of DVD players in Minna metropolis, specifically the study sought to:

1. Determine the competencies needed by electronic technicians for effective maintenance and repairs of DVD players.
2. Identify challenges associated with electronics technicians in the use of modern tools and equipment in the maintenance and repairs of DVD players.

### ***Research Questions***

1. What are the competencies needed by electronic technicians for effective maintenance and repairs of DVD player?
2. What are the challenges associated with electronic technicians in the use of modern tools and equipment in the maintenance and repair of DVD player?

### Research Hypothesis

There following null hypothesis were formulated and tested at 0.05 level of significance

**Ho<sub>1</sub>:** There is no significant difference between the mean responses of electronic teachers and electronic technicians on the competencies needed by electronic technicians for effective maintenance and repairs of DVD players.

**Ho<sub>2</sub>:** There is no significant difference between the mean response of electronic teachers and electronic technicians on the challenges associated with the use of modern tools and equipment in the maintenance and repair of DVD players by electronic technicians.

### METHODOLOGY

The study adopted a descriptive survey research design. The design was used to gather opinion on the competency needs of electronic technicians for effective maintenance and repair of a DVD player in Minna metropolis. Olaitan and Nwoke (1999) defined survey research design as one in which a group of people or items in studied by collecting and analyzing data from people or items considered to be representative of the entire group. A purposive sampling techniques was used to select the study area which are Chanchaga, Tunga, Kpangugu, Hospital road and Bosso in Minna metropolis. These areas were considered because they have high concentration of electronic technicians and workshops.

A Structured questionnaire containing 20 items on a 4-point rating scale was used to collect data from the respondents, the questionnaire was structured to indicate the degree to which respondents agree to each item as Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) the response category was assigned numeral values as 4 3 2 and 1 respectively.

The questionnaire was validated by three experts from FUT Minna, COE Minna and GTC Minna. Corrections and observations made by experts were affected before the administration of the instrument. The weighted mean (X) and Standard Deviation (SD) were used to answer the research questions. Therefore, items with mean score below 2.50 were considered as disagreed while those with score at 2.50 and above were considered as agreed. The t-test statics was used to test the hypothesis at 0.05 level of probability. The t-critical (t-table) value of accepting or rejecting the null hypothesis was  $\pm 1.98$ .

**Research Question 1:** What are the competencies needed by electronic technicians for effective maintenance and repairs of DVD players?

**Table 1:** Mean and standard deviation of respondents on competency needs required of electronic technician for effective maintenance and repairs of DVD players

S/N	ITEM	Electronic Technicians		Electronic Teachers		Averages		Remarks
		X <sub>1</sub>	SD <sub>1</sub>	X <sub>2</sub>	SD <sub>2</sub>	X <sub>A</sub>	SD <sub>A</sub>	
1	Ability to Assemble the DVD home theatre players	3.00	.76	2.93	.59	2.97	.68	Required
2	Ability to Disassemble the DVD home theatre players	3.34	.63	3.00	.53	3.17	.58	Required
3	Ability to test capacitors, diode,	2.94	.76	3.07	.59	3.01	.68	Required

	transistors with multimeter							
4	Ability to Remove and replace diode, resistors, transistors, ICs	3.03	.70	3.07	.70	3.05	.70	Required
5	Ability to Fix the DVD player lens problems	3.00	.70	3.27	.70	3.14	.70	Required
6	Ability to Fix faults in USB compartment	3.23	.69	2.80	.94	3.02	.82	Required
7	Ability to Fix wireless faults in speakers	3.14	.64	3.13	.74	3.14	.69	Required
8	Ability to Fix faults in Bluetooth sensitivity	3.20	.63	3.13	.64	3.17	.64	Required
9	Ability to Fix no picture/image transmission problem	3.09	.65	3.27	.79	3.18	.72	Required
10	Ability to set up ARC and HDMI control settings to TV	2.94	.72	2.87	1.06	2.90	.89	Required

$X_1$  = Mean of Electronics technicians,  $X_2$  = Mean of Electronics teachers,  $X_A$  = Average Mean,  $SD_1$  = Standard deviation of Electronics technicians,  $SD_2$  = Standard deviation of Electronics teachers,  $SD_A$  = Average Standard deviation.

Analysis on table1 shows that 10 of the items presented had their weighted mean values ranged from 2.90- 3.18. These values are above the cut of point of 2.50 who implies that the respondent agreed with the competency needs required of electronics technician for effective maintenance and repairs of DVD players.

**Research Question 2:** What are the challenges associated with electronic technicians in the use of modern tools and equipment in the maintenance and repairs of DVD player?

**Table 2:** Mean and standard deviation of respondents on the challenges associated with electronic technician in the use of modern tools and equipment in the maintenance and repairs of DVD player.

S/N	ITEM	Electronic Technicians		Electronic Teachers		Averages		Remarks
		$X_1$	$SD_1$	$X_2$	$SD_2$	$X_A$	$SD_A$	
11	Electronic technicians have challenges in identification and selections of appropriate tools for maintenance and repair of DVD players	3.06	.72	2.87	.64	2.96	.68	Agreed
12	Electronic technicians have inadequate knowledge of modern tools and equipment.	3.00	.68	3.33	.72	3.17	.70	Agreed
13	Electronic technicians have inadequate knowledge to interpret readings on the meter	2.80	.86	2.93	.59	2.85	.73	Agreed
14	Electronic technicians have inadequate knowledge of	2.77	.90	2.73	.79	2.75	.85	Agreed

	diagnostic trouble code (DTC)								
15	Electronic technicians have inadequate knowledge of correct procedures for maintained and repair of DVD players	2.57	1.00	2.87	.74	2.72	.87		Agreed
16	Electronic technicians are more conversant with analogue meters than digital meters	2.86	.73	2.73	.88	2.80	.81		Agreed
17	Electronic technicians have inadequate knowledge of modern tools to read ratings on faulty component of DVD players	3.06	.76	2.67	.61	2.87	.69		Agreed
18	Electronic technicians have inadequate knowledge in identified and including of integrated circuit (IC) in DVD players	2.77	.97	3.00	.53	2.89	.75		Agreed
19	Electronic technicians have shortage of modern tools and equipment.	3.11	.71	3.07	.45	3.09	.58		Agreed
20	Electronic technicians use wrong tools and equipment for maintenance and repair.	3.40	.60	2.53	.64	2.97	.62		Agreed

$X_1$  = Mean of Electronics technicians,  $X_2$  = Mean of Electronics teachers,  $X_A$  = Average Mean,  $SD_1$  = Standard deviation of Electronics technicians,  $SD_2$  = Standard deviation of Electronics teachers,  $SD_A$  = Average Standard deviation.

The data analyzed in table 2 revealed that all the items had their mean values ranged from 2.72 – 3.17. Since the cut off value is 2.50, it indicates that the respondents agreed to all the challenges associated with electronic technicians in the use of modern tools and equipment in the maintenance and repair of DVD player.

### Research Hypothesis 1

**Ho<sub>1</sub>** There is no significant difference between the mean responses of electronic teachers and electronic technicians on the competency needs by electronic technicians for effective maintenance and repairs of DVD player.

**Table 3:** t-test analysis of mean responses of respondents on competency need of electronic technicians for effective maintenance and repair of DVD player.

S/N	ITEM	Electronic Technicians		Electronic Teachers				Remarks
		$X_1$	$SD_1$	$X_2$	$SD_2$	t_cal	t-tab	
1	Ability to Assemble the DVD home theatre players.	3.00	.76	2.93	.59	0.44	1.98	NS
2	Ability to Disassemble the DVD home theatre player.	3.34	.63	3.00	.53	.33	1.98	NS

3	Ability to test capacitors, diode, transistors with multimeter.	2.94	.76	3.07	.59	.66	1.98	NS
4	Ability to Remove and replace diode, resistors, transistors, ICs.	3.03	.70	3.07	.70	0.82	1.98	NS
5	Ability to Fix the DVD player lens problems.	3.03	.74	3.27	.70	1.00	1.98	NS
6	Ability to Fix faults in USB compartment.	3.23	.69	2.80	.94	0.78	1.98	NS
7	Ability to Fix wireless faults in speakers.	3.14	.64	3.13	.74	.53	1.98	NS
8	Ability to Fix faults in Bluetooth sensitivity.	3.20	.63	3.13	.64	0.79	1.98	NS
9	Ability to Fix no picture/image transmission problem.	3.09	.65	3.27	.79	0.56	1.98	NS
10	Ability to set up ARC and HDMI control settings to TV.	2.94	.72	2.87	1.06	.055	1.98	NS

$X_1$  = Mean of Electronics technicians,  $X_2$  = Mean of Electronics teachers,  $SD_1$  = Standard deviation of Electronics technicians,  $SD_2$  = Standard deviation of Electronics teachers,  $t$ -cal = calculated  $t$  value,  $t$ -tab = table  $t$

The t-test analysis from table 3 revealed that all the items had their t-calculated (t-cal) values less than the t-table (t-tab) values of  $\pm 1.98$ . This implies that there was no significant difference in the mean rating of the responses of the responded of electronic technicians and electronic teachers on the competency need of electronics technicians for maintenance and repair of DVD player.

### Research Hypothesis 2

**Ho<sub>2</sub>** There is no significant difference between the mean response of electronic teachers and electronic technicians on the challenges associated with the use of modern tools and equipment in the maintenance and repair of DVD player by electronic technicians.

**Table 4:** T-test of mean responses of respondents on the challenges associated with the use of modern tools and equipment in the maintenance and repair of DVD player by electronic technicians.

S/N	ITEM	Electronic Technicians		Electronic Teachers				Remarks
		$X_1$	$SD_1$	$X_2$	$SD_2$	t-cal	t-tab	
11	Electronic technicians have challenges in identification and selections of appropriate tools for maintenance and repair of DVD player	3.06	.72	2.87	.64	0.82	1.98	NS
12	Electronic technicians have inadequate knowledge of modern tools and equipment	3.00	.68	3.33	.72	0.67	1.98	NS
13	Electronic technicians have	2.80	.86	2.93	.54	0.83	1.98	NS



	inadequate knowledge of modern to interpret readings on the meter									
14	Electronic technicians have inadequate knowledge of diagnostic trouble code (DTC)	2.77	.91	2.73	.79	1.24	1.98	NS		
15	Electronic technicians have inadequate knowledge of correct procedures for maintenance and repair of DVD player	2.57	1.00	2.87	.79	1.22	1.98	NS		
16	Electronic technicians are more conversant with analogue meters than digital meters	2.86	.73	2.73	.88	0.88	1.98	NS		
17	Electronic technicians have inadequate knowledge in the use of modern tools to read rating of faulty components of DVD player	3.06	.76	2.67	.61	0.34	1.98	NS		
18	Electronic technicians have inadequate knowledge in identification and handling of integrated circuits (I.C) of DVD player	2.77	.97	3.00	.53	0.77	1.98	NS		
19	Electronic technicians have shortage of modern tools and equipment	3.11	.71	3.07	.45	0.63	1.78	NS		
20	Electronic technicians use wrong tools and equipment for maintenance and repair.	3.40	.60	2.53	.64	0.82	1.98	NS		

$X_1$  = Mean of Electronics technicians,  $X_2$  = Mean of Electronics teachers,  $SD_1$  = Standard deviation of Electronics technicians,  $SD_2$  = Standard deviation of Electronics teachers,  $t$ -cal = calculated  $t$  value,  $t$ -tab = table  $t$

The t-test analysis from table 4 revealed that the items had their  $t$  -calculated ( $t$ -cal) values less than the table ( $t$ -tab) value of  $\pm 1.98$ . Thus, implies that items have no significant difference in the means rating of the response of the respondent of electronics technicians and electronics teachers on the challenge associated with the used of modern tools and equipment in the maintenance and repair of DVD player.

### FINDINGS OF THE STUDY

The following are the findings of the study on the competency needs of electronic technicians for effective maintenance and repair of DVD players.

1. Ability to Assemble, Disassemble, test capacitors, diode, transistors with multimeter, remove and replace diode, resistors, transistors, ICs, fix the DVD player lens problems, fix faults in USB compartment, fix wireless faults in speakers, fix faults in Bluetooth sensitivity, fix no picture/image transmission problem of a DVD player and to set up ARC and HDMI control settings to TV, among others are the competency needs required by Electronics technicians in Minna metropolis for effective maintenance and repair of DVD

- players. the challenges associated with electronic technicians in the use of modern tools and equipment in the maintenance and repairs of DVD player
2. inadequate knowledge of modern tools and equipment, inadequate knowledge to interpret readings on the meter, inadequate knowledge of diagnostic trouble code, inadequate knowledge of correct procedures for maintenance and repair of DVD players, more conversant with analogue meters than digital meters, inadequate knowledge of modern tools to read ratings on faulty component of DVD players, inadequate knowledge in identified and including of integrated circuit (IC) in DVD players, shortage of modern tools and equipment., use wrong tools and equipment for maintenance and repair among others are the challenges associated with Electronics technicians in the maintenance and repair of DVD player,
  3. There was no significant difference between the mean responses of electronic teachers and electronic technicians on the competency needs by electronic technicians for effective maintenance and repairs of DVD player.
  4. There was no significant difference between the mean response of electronic teachers and electronic technicians on the challenges associated with the use of modern tools and equipment in the maintenance and repair of DVD player by electronic technicians.

## DISCUSSION OF FINDINGS

Results presented on the competency needs required of electronic technicians for effective maintenance and repairs of DVD players revealed that Ability to Assemble, Disassemble, test capacitors, diode, transistors with multimeter, remove and replace diode, resistors, transistors, ICs, fix the DVD player lens problems, fix faults in USB compartment, fix wireless faults in speakers, fix faults in Bluetooth sensitivity, fix no picture/image transmission problem of a DVD player and to set up ARC and HDMI control settings to TV, among others are the competency needs of electronics required for effective maintenance and repair of DVD player. The finding agrees with the findings of Kinniburgh, Blaustein, Spinazzola, & Van der Kolk, (2017) which explained that Competency is a combination of practical and theoretical knowledge, cognitive skills, behavior and values used to improve performance, or as the state or quality of being adequately or well qualified, having the ability to perform a specific role. The findings also agrees with the National Board for Technical Education (2011) on the competency of graduates of Electrical/Electronic Technology from technological institutions (Technical Colleges, Colleges of Education (Technical) and Polytechnics) should among others be able to inspect, identify problems, test, diagnose or troubleshoot, and completely repair any fault on electronic appliances like television, refrigerator, digital versatile disk or digital video disk (DVD) players. Furthermore, the t-test analysis for the test of significant difference between mean responses of electronic teachers and electronic technicians on the competency needs by electronic technicians for effective maintenance and repairs of DVD player revealed no significant difference.

These finding is in-line with the findings of Silas (2015) who found no significant difference between the mean responses of electronic teachers and electronic technicians on the competency needs by electronic technicians for effective maintenance and repairs of DVD player. Results presented on the challenges associated with electronic technicians in the use of modern tools and equipment in the maintenance and repairs of DVD player revealed that inadequate knowledge of modern tools and equipment, inadequate knowledge to interpret

readings on the meter, inadequate knowledge of diagnostic trouble code, inadequate knowledge of correct procedures for maintenance and repair of DVD players, more conversant with analogue meters than digital meters, inadequate knowledge of modern tools to read ratings on faulty component of DVD players, inadequate knowledge in identified and including of integrated circuit (IC) in DVD players, shortage of modern tools and equipment., use wrong tools and equipment for maintenance and repair among others are the challenges associated with Electronics technicians in the maintenance and repair of DVD player.

The finding also agrees with the findings of (Silas, 2015) that maintained that whereas faults in the conventional analogue appliances can be diagnosed by mere visual inspection, the digital types require scanning equipment for their trouble shooting. In addition, most of this high technology equipment are not available to the informal sector, electronics technician and even when provided, their knowledge base will not suffice for the use of the equipment. Furthermore, the t-test analysis for the test of significant difference between mean responses of electronic teachers and electronic technicians on the challenges associated with electronic technicians in the use of modern tools and equipment in the maintenance and repairs of DVD player. This finding is in-line with the findings of Okoye (2013), who found no significant difference between the mean responses of electronic teachers and electronic technicians on the challenges associated with electronic technicians in the use of modern tools and equipment in the maintenance and repairs of DVD player.

## CONCLUSION

Based on the findings of the study, it is clear that the competencies of electronic technicians' fall below standard. The problem rages from inadequate tools, lack of modern tools, and the use of wrong tools. These challenges are numerous with the electronics technicians, this deficiency have an adverse effect on the public perception of the electronic technicians therefore, there is need to equip the electronics technicians, with the requisite work skill to enable him meet up with modern challenges in the maintenance and repair of DVD player.

## RECOMMENDATIONS

Based on the findings of the study, the following recommendation were made:

- (1) Government at various level, should try to establish technical and training centers for training electronic technicians in the use of modern equipment in order to enhance their competencies.
- (2) Private individual/companies should consist in providing modern equipment to be use by electronic technicians.
- (3) Curriculum developers should lay more emphasis on the development of up-to-date practical skills.
- (4) Training courses and seminars should be organized at intervals to update and upgrade the work skill of electronic technicians.

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