Factors Affecting the Use of ICT in Training: A Case Study of the Nigerian Navy

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Abstract:

Purpose: This study examined the factors affecting the use of Information and Communication Technology (ICT) in the Nigerian Navy (NN)l training. The purposes of this research were to: ascertain ICT facilities available for naval training programmes in the four training schools, ascertain the naval instructors' and trainees' competences in the use of ICT for NN training , identify the factors affecting the use of ICTs in NN training and proffer strategies for more effective use of ICT in NN training.

Methodology: Six research questions and three hypotheses guided the study. The descriptive survey research design and inferential statistical method of analyses were adopted for the study. The population of the study comprised 665 respondents consist of 599 trainees and 66 instructors. The instrument for data collection was the questionnaire of a four-point rating. On the spot method of data collection was adopted to administer the instrument. Tools used for data analyses of research questions were frequency, percentage, mean and standard deviation

Findings: The results revealed that the ICT facilities available are limited, for effective NN training. Five major challenges were identified by respondents in the four training schools as factors affecting the use of ICT in NN training. These are the lack of fully equipped ICT centres and poor power supply among others. The instructors and trainees in the study area proffered six major strategies to mitigate the factors affecting the effective use of ICT in NN training. These are the provision of sufficient ICT facilities, adequate and effective internet service (broad bandwidth) with constant power supply among others.

Implications:- From the findings, for the NN to be efficient and relevant in joint operations with other navies of the world and also achieve operational efficiency locally at sea and ashore, the proffered six strategies should be implemented. The Nigerian Navy, through integrated and coordinated use of the ICT in training, can also improve its responsiveness to security issues and effectiveness in the discharge of its overall duty to the nation, with the increased network capability that ICT offers.

Originality/Value: This research has not been published in any journal before. Its originality lies in its ability to enable the NN to fully embrace the use of ICT for training to become relevant and effective in joint operations with other navies of the world.

Keywords: **Information and Communication Technologies (ICTs), Training, NN Training, Use of Information and Communication Technologies**

I. INTRODUCTION

The term ICT has its origin in Information technology (IT). Information Technology is a term that encompasses all forms of technology used to create, store, exchange, and use information in its various forms (business data, voice conversations, still images, motion pictures, multimedia presentations, and other forms). Also according Hagg, Cummin and Phillip,(2007) in World Bank (2002), Information and Communication Technologies (ICTs) consist of the hardware, software, networks, and media used for the collection, storage, processing, transmission and presentation of information (voice, data, text, images), as well as related services.

As the field of IT evolved, the term Information and Communication Technology are now used instead of Information Technology (IT) to recognise the convergence of traditional information technologies and telecommunications, which were once seen as distinct areas but now have become intertwined with the advancement in technology (Tella, 2011). Personal computer (either a desktop or laptop) Fuller,(2005) posits is the best-known example of the use of ICT in education, but the term multimedia is also frequently used. Multimedia can be interpreted as a combination of data carriers, for example, video, CD-ROM, floppy disc and Internet and software in which the possibility for an interactive approach is offered. Multimedia now includes flash drive and other peripheral devices. Information and Communication Technologies (ICTs) have become key tools and have a revolutionary impact on how we see the world and how we live in it. As a tool, ICT improves the overall wellbeing of globally connected society with the right perception and attitude. This is so because the proliferation of computer technology in both personal and professional lives, particularly during the last decade, has created an environment in which there are varying perceptions of, and ideas about, the value of Information and Communication Technology (ICT) and computers. Hence, in order to benefit from this, especially in a defence environment, realistic perception of the worth of computers needs to be established (Thomas, 2007).

The use of ICT at every level of warfare in the military is well known and widely documented (Thomas, 2007; Stauffacher, Drake, Currion and Steinberger 2005). It is a major enabler of Command, Control, Communications,

Computers, Information, Surveillance And Reconnaissance (C4ISR). Apart from C4ISR, other uses of ICT range from directing smart weapons by modern armed forces to use of satellite communications by rebel groups in remote areas and triggering of terrorist bombs via mobile phones (Stauffacher, Drake, Currion and Steinberger 2005). Thus, in the context of this study, ICT is any technology that provides, produces, processes, preserves information and enables it to be communicated in audio, visual and text forms to effectively facilitate training.

Training in the words of Williams and Sawyer, (2002) connotes the impartation of knowledge or skills on individuals who have the ability to learn and practise or apply the same to given tasks. This assertion is buttressed by Bakar and Mohammed, (2008) in training defining as a process of imparting knowledge and skill on individuals who have the capability to learn and transfer such knowledge and skills on their job to achieve set goals. From this study, training could be seen in the context of continuous acquisition of specialised skill by the Nigerian Navy (NN) personnel for specific tasks. It is a systematic analytical base design of method and media which enable an individual or group to learn pre-determined knowledge or processes against predetermined objective and apply it to the required standard. Thus, training is an ongoing, long term change or evolution that occurs through many learning experiences (Elwood, 2002). This process of training is required for any military to achieve set goals and objectives. However, there are factors that could impact on the use of ICTs in NN training. These include the perception of both the trainees and instructors, availability of ICT gadgets, the extent of use ICTs by NN trainees and instructors, competences of instructors and trainees on use of ICT and challenges faced in the use of ICTs for training in the NN

Statement of the Problem

Unfortunately, the level of NN personnel training from observation is below the standard of advanced navies of the world. This is because the present mode of training is the traditional chalkboard classroom teacher-centred method. The trainers/instructors are bereft of skills and knowledge on ICT usage for training. It is also observed that training in the NN is fast becoming monotonous, unrealistic and ineffective. Many reasons could be adduced to this. For instance, the traditional classroom chalkboard approach; lectures, drills, simulation, demonstrations onboard and field/sea trips, and the use of instructors who are limited by experience, education and expertise, especially in ICT, have always imparted the expected skills in limited measure to effectively perform NN statutory roles.

As a result, the officers and ratings are not well equipped to use modern ICT gadgets that will effectively detect pirates, oil pipeline vandals, secure nation's Exclusive Economic Zone (EEZ) where Nigeria's marine/ mineral resources (a mainstay of nation's economy) are borne at sea and on land. The present NN training method is not capable of producing well-equipped security officers and ratings that can compete globally when given the opportunity to use the same sophisticated standard ICT facilities for naval operations and duties.

Consequently, quite a number of NN personnel are regularly killed on patrol at sea to protect the nation's resources. If this situation is allowed to continue, one would expect in the nearest future rapid multiplication of NN officers and ratings who are not only ignorant of the current world standards but on a dangerous note incapable of defending Nigeria's territorial waters which is the NN statutory role. Therefore, the need to examine factors affecting the use of ICTs in training is imperative if the NN is to effectively perform its statutory roles.

The study is carried out in four NN training schools; Nigerian Navy Engineering College (NNEC) Sapele, Nigerian Navy Finance and Logistics College (NNFLC) Owerrinta, Nigerian Navy Basic Training School (NNBTS) Onne, and Nigerian Naval College (NNC) Onne to examine the factors affecting the use of ICTs in training. The basic ICT skills in NN for training considered in this study are computer input/output skills, internet surfing skills, use of application software and Microsoft office skills.

II. LITERATURE REVIEW

The acronym ICT stands for Information and Communication Technology. It refers to technologies that provide access to information through telecommunications. Information and Communication Technology (ICT) is the concern of every nation and organisation because it brings innovation into information seeking and knowledge acquisition as it plays an important role in information sourcing, generation, processing, storage/retrieval and dissemination (Obioha, 2005). According to Tinio, (2002) ICT such as the World Wide Web, e-mail, telephones, fibre optics and satellites are revolutionising the way in which societies interact and compete in international relations and politics.

Information and Communication Technologies (ICTs) can enable organisations to produce, access, adapt and apply a greater amount of information and offer enormous opportunities for enhancing productivity. When used appropriately, ICT helps to expand access to education, strengthens the relevance of training to the increasingly digital workplace and raises the quality of education/training, helping to transform teaching and learning into an engaging, active process connected to real life (Tinio, 2002). Aldhmour and Shannak, (2009) suggest an integrated definition of ICT. They defined ICT as the integration of software, hardware and people in a clear process to generate information that helps in decision making to facilitate the production of goods and services and enhance the efficient utilisation of such products to promote better living standards.

The birth of ICT use is not unconnected with the revolution of information technology. The current trend in

(ICT) has brought a phenomenon which can be termed the third revolution in IT. The first revolution comprised of films, radio, television and satellite broadcasting, while the second comprised telecommunications and microcomputers. The integration of telecommunications and microelectronic technology in computing was termed the third revolution and came to be what is called Information Technology (IT). The third revolution was said to promise not only a more productive person, a problem- solver and a life- long learner, but also a better informed, rational and participative citizen, a modern 'renaissance' person, living in the web and network of a worldwide electronic community (Kaino, 2004).

The concept of the use of ICT in training is paramount to this study**.** According to Atimo, (2000) use is the ability to make effective and independent utilization of the resources and services. This implies that the materials are in the appropriate format and language for use. It also extends to the frequency of usage of the materials and services and the concomitant utility derived from the resources as observed by Adebayo (2007).

Addressing the issue of ICT use in education/training, Tinio, (2002) submits that the realisation of the potential benefits of ICTs in education is not automatic because the process of integrating ICTs into the educational system is complex and multifaceted; it involves not just technology but also curriculum and pedagogy, institutional readiness, teacher competencies and long-term financing among others. Tinio, (2002) provided evidence that ICTs are potentially powerful tools for extending educational/training opportunities, for facilitating the acquisition and absorption of knowledge, improving policy formulation, execution and widening the range of opportunities because of its ability to transcend time and space.

The need for use of ICT in naval training is not peculiar to Nigeria. Phillips and Foster, (2008) identified the need for the use of ICT in the evaluation of training content across phases of the training continuum in the US Navy. This, they suggested will improve the effectiveness of training and the efficiency with which such training is delivered. It is imperative to point out that if the integration of ICT into training programme is emphasised in advanced countries, it becomes all the more pertinent for instructors in the Nigerian Navy (NN) to embrace technology and do away with the obsolete classroom and chalkboard training method if they would remain relevant, up to date and a force to be reckoned with in international and global arena.

The concept of the extent of the use of information and communication technology is key in training**.** Tatnall and Davey, (2003), posit that two fundamental concepts impact on acceptance and extent of use of any innovation, ICT is not an exception. These include the complexity of interaction between people and the technology and objective characteristics of the innovation itself. Also, the concept of perception on the use of ICTs in training, Rogers, (2003) posits that the perception of individual adopter of any innovation like ICT use for training is imperative. Rogers, (2003) itemised five characteristics perceptions which determine an innovation's rate of adoption as; relative advantage, compatibility, complexity, trialability and observability to people within the social system.

On the use of ICT for training**,** despite the fact that technology acceptance and utilisation research within the field of information systems has been limited in its application to military and paramilitary issues especially in Nigeria, however, the NN has made a commendable effort in its attempt to integrate ICT in its training. Since ICTs have the potential for increasing access to and improving the relevance and quality of training, the use of ICTs in naval training would provide an equalising strategy for NN officers and ratings to improving the relevance and quality of training, the use of ICTs in naval training would provide an equalising strategy for NN officers and ratings to compete favourably with their counterparts in other countries. Hence, the need for this study, to examine the factors affecting the use of ICT for NN training is apt.

Purpose of the Study

The broad purpose of this study is to examine the factors affecting the use of ICT in training in the Nigerian Navy. Specifically, the purposes include:

Compete favourably with their counterparts in other countries. Hence the need for this study to examine the factors affecting the use of ICT for NN training is apt.

1. To ascertain the ICT facilities available for use in NN training.
2. To ascertain the competency level of naval instructors and trainees in the use of ICT in NN training.
3. To determine the extent of the use of ICT facilities by trainees and instructors in training.
4. To assess the perception of naval instructors and trainees in the use of ICTs in NN training.
5. To identify factors affecting the use of ICTs in NN training.
6. To proffer solutions for the challenges facing the use of ICT in NN training.

Research Questions

This study seeks to find answers to the following research questions:

1. What ICT facilities are available for use in the NN training?
2. What is the competency level of instructors and trainees in the use of ICT in NN training?
3. What is the extent of the use of ICT facilities by trainees and instructors in NN training?
4. What are the perceptions of instructors and trainees on the use of ICT in NN training?

5. What are the challenges/factors affecting the use of ICT in NN training?
6. What strategies could be proffered to address the challenges associated with the use of ICT in NN training?

Hypotheses

The following null hypotheses will be tested at 0.05 level of significance in this study:

HO1: There is no significant difference between the mean responses of naval training instructors and trainees on the competency level in the use of ICT for NN training.

HO2: There is no significant difference between the mean responses of NN training instructors and trainees on the extent of the use of ICT for naval training.

HO3: There is no significant difference between the mean responses of naval trainees' and instructors' perception in the use of ICT for NN training.

III. METHODOLOGY

The population of the study comprised 665 respondents consist of 599 trainees and 66 instructors. The instruments for data collection were the questionnaire of a four-point rating. On the spot method of data collection was adopted to administer the instruments. The researcher used both descriptive and inferential statistical methods to analyse the data. Research Question (RQ) one was analysed using frequency and percentage. For research questions two to four, hypotheses were formulated to verify these questions. Frequency, percentage, mean and standard deviation were used to analyse the responses, while t-test was carried out to ascertain the hypotheses. Research questions five and six were analysed using mean and standard deviation. No hypotheses were formulated for research questions five and six.

IV. DATA ANALYSIS AND PRESENTATION

The results of the study are hereunder presented in tables, graphs and charts following the research questions.

Research Question 1: *What ICT facilities are available for use in the NN training?*

Table 1: Frequency of Available ICT facilities for use in NN Training

S/N	ICT Facilities / Gadgets	NNC Onne	NNBTS Onne	NNFLS Owerrinta	NNEC Sapele	Total
A.	**Computer**					
1.	Laptop computer	60	45	70	125	300
2.	Palmtop Computer	54	7	14	112	187
3.	Desktop computer	58	100	85	145	388
4.	Pocket computer	28	16	06	101	151
5.	Notebook computer	31	18	09	103	161
B.	**Storage Devices**					
6.	Magnetic Disk	54	42	32	127	255
7.	Flash Drive	56	98	84	143	381
8.	CD ROM	63	107	90	150	410
9.	DVD ROM	84	141	56	98	379
C.	**Output Devices**					
10.	Printers	66	110	93	52	321
11.	Monitors (Screen)	95	112	53	68	328
12.	Speakers	84	141	56	98	379
13.	Plotters	55	52	34	137	278
14.	Digital cameras	62	47	72	126	307
15.	Scanners	32	18	11	103	164
16.	Computer Output Microfilm (COM)	51	48	30	132	261
17.	Photocopying/Cyclostyling Machines	32	11	18	102	163
D.	**Telecommunication**					
18.	Telephone/GSM	56	100	85	145	386
19.	Television	49	91	72	135	347
20.	Telex	50	59	54	55	218

21.	Facsimile	26	13	04	98	141
E.	**Internet Facilities**					
22.	World Wide Web	62	47	72	125	306
23.	Local Area Network (LAN)	55	52	34	138	279
24.	Wide Area Network (WAN)	52	40	30	125	247
25.	Value Added Network	54	42	32	127	255
26.	Internet Service Provider	64	49	74	127	314
27.	E- mail facility	69	54	79	131	333

Table 1 shows the frequency of the responses to the availability of ICT facilities for use in NN training schools. The result on the table displayed the cluster frequency of the ICT facilities. From the result, computer facilities available in NNC-(58), NNBTS- (100), NNFLS- (85) and NNEC- (145), output facilities available were NNC (51), NNBTS (48), NNFLS (30) and NNEC (132) while internet facilities available were NNC (64), NNBTS (49), NNFLS (74) and NNEC (127). However, storage facilities and telecom facilities were not generally available with storage facilities as follows; NNC (56), NNBTS (98), NNFLS (84) and NNEC (143) and telecom facilities (49, 91, 72 and 135 respectively). On the overall, Table1 revealed that the ICT facilities were available in limited quantities for use in NN training schools as shown in figures 1 to 10 below.

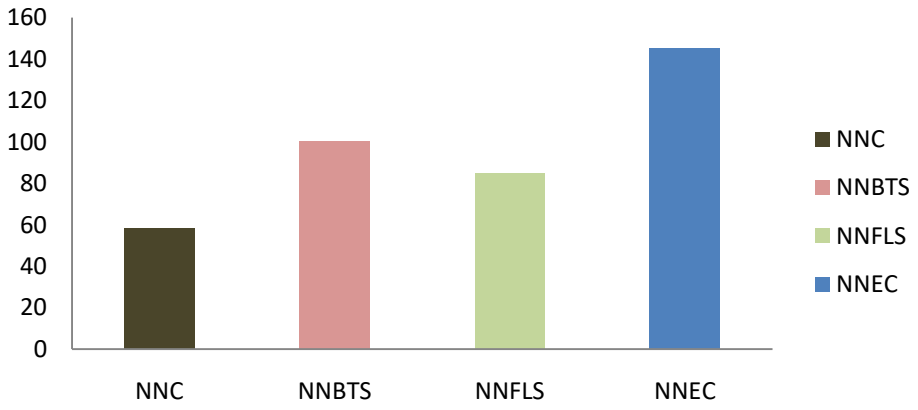

Figure1. Available Computer Facilities

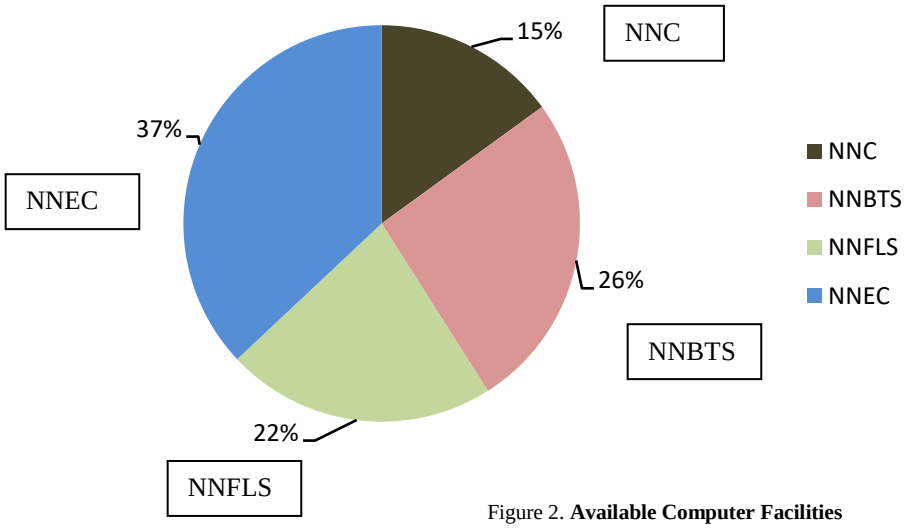

Figure 2. **Available Computer Facilities**

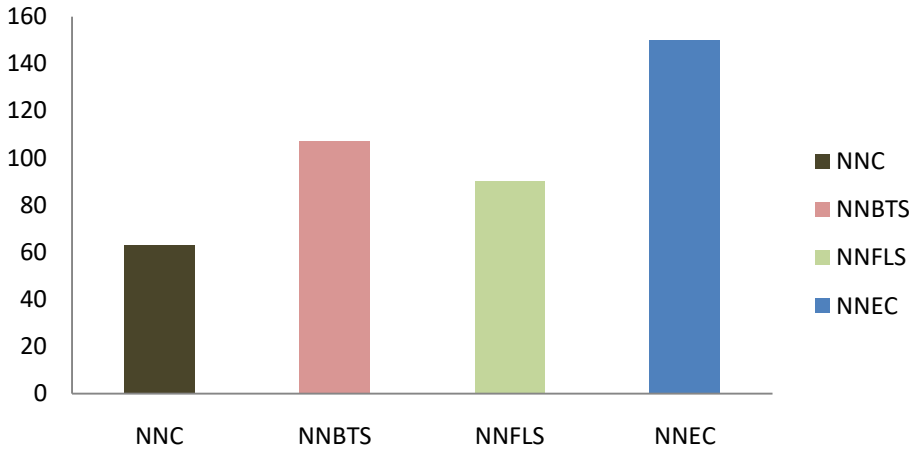

Figure 3. **Available Storage Facilities**

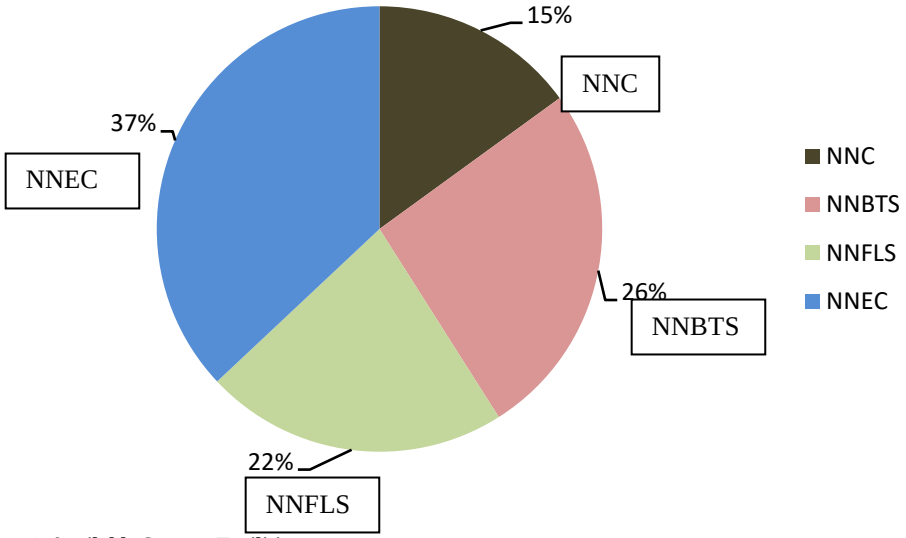

Figure 4. **Available Storage Facilities**

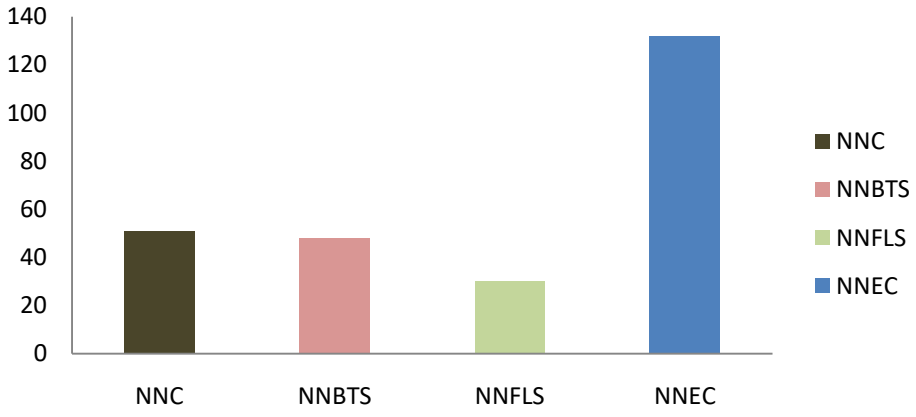

Figure 5. **Available Output Devices**

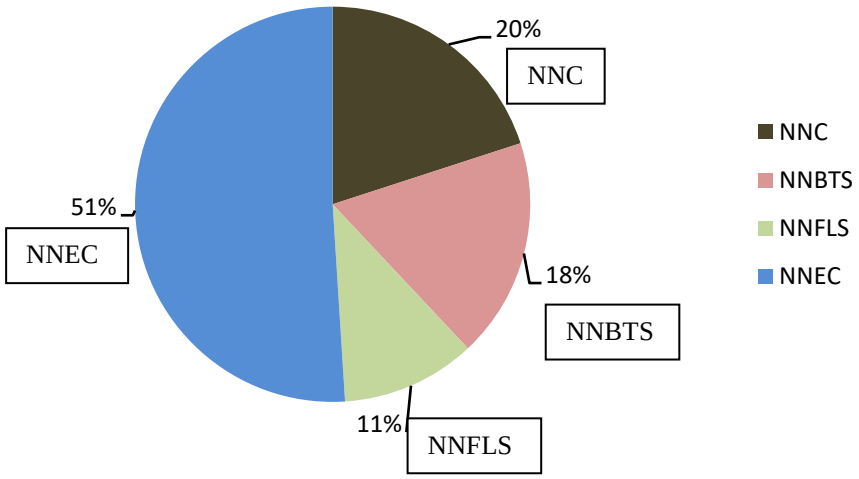

Figure 6. **Available Output Devices**

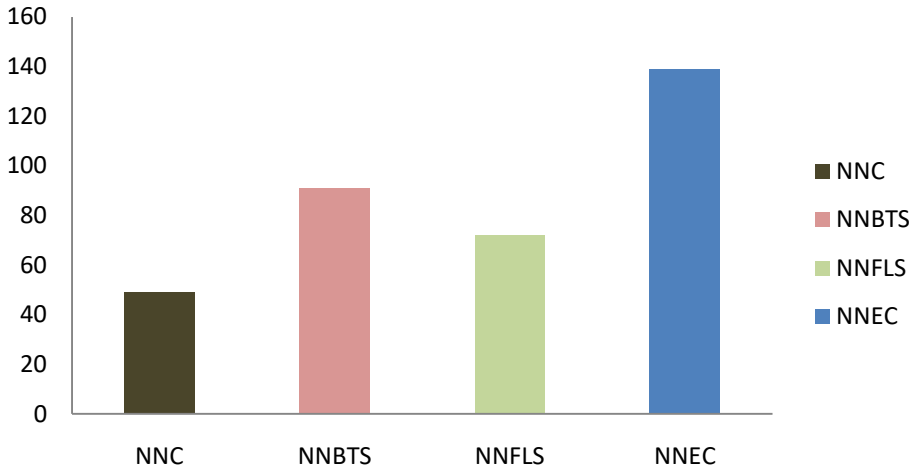

Figure 7. **Telecommunication Devices**

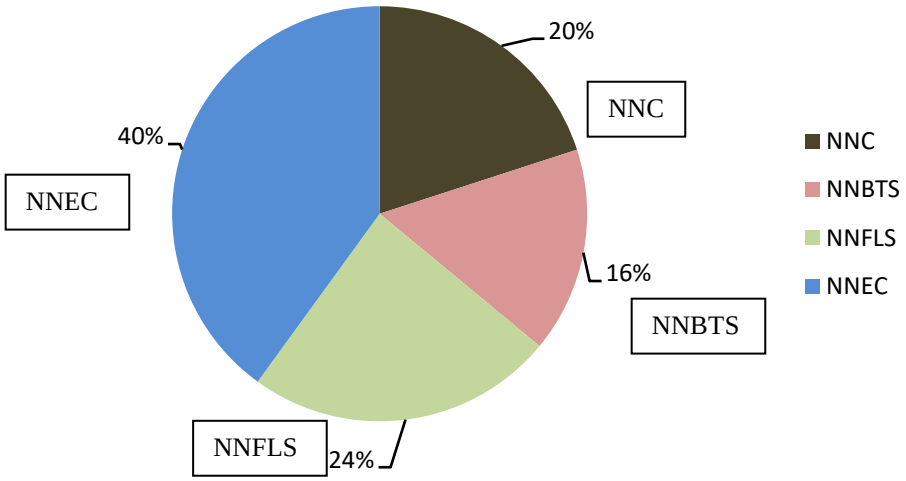

Figure 8. **Telecommunication Devices**

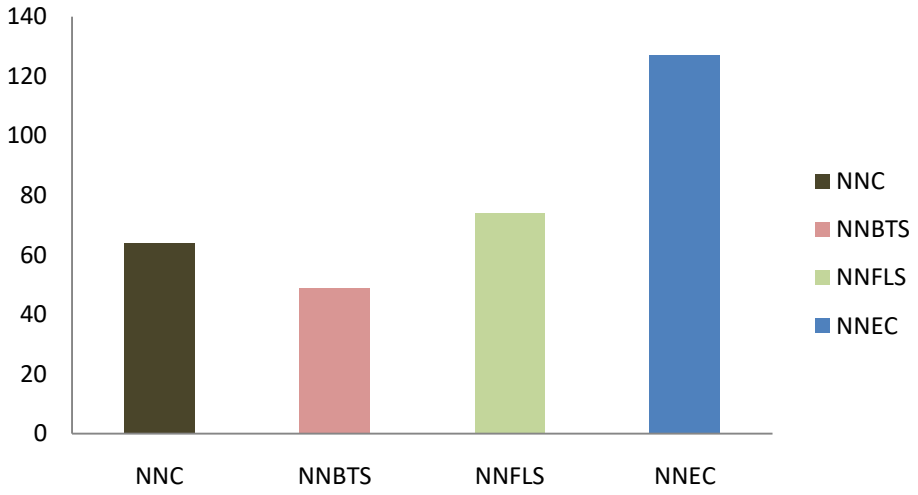

Figure 9. **Available Internet Facilities**

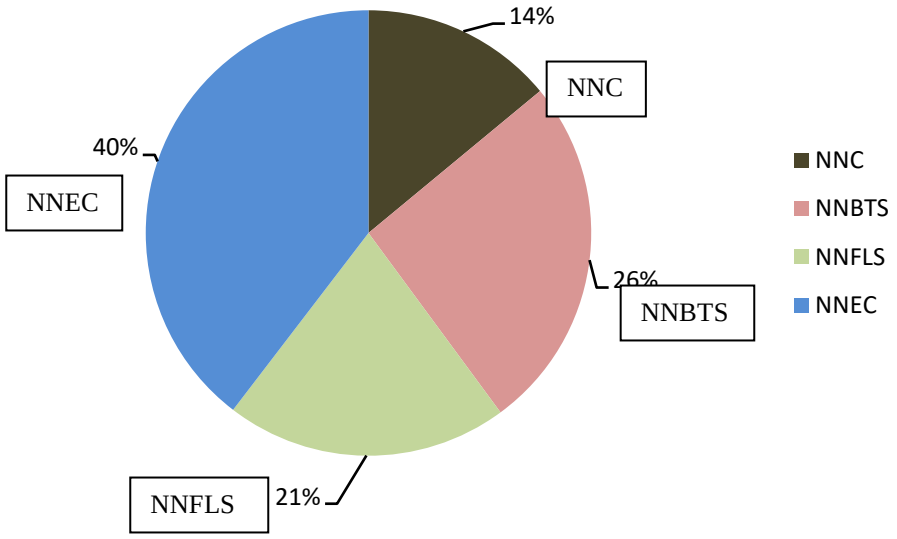

Figure 10. **Available Internet Facilities**

Research Question 2:- *What is the competency level of instructors and trainees in the use of ICT in NN training?*

Table 2: Frequency, mean and standard deviation of the respondents' response to their competency level in the use of ICT in NN training (N = 665)

S/N	Computer / ICT Related Skills	HP	MP	LP	NP	Mean	Std. Dev.	Decision
A	**Input / Output Skills**							
1.	Typing and Printing Skills	175	275	146	69	2.84	0.93	MP
2.	Scanning Skill	158	239	162	106	2.68	1.01	MP
3.	Photocopying Skills	223	226	133	83	2.89	1.01	MP
B	**Internet Surfing Skills**							
4.	Internet surfing skills	321	202	86	56	3.19	0.96	MP
5.	level of knowledge in Sending E-mail	306	205	90	64	3.13	0.98	MP
6.	Downloading/ web Saving skills	273	214	115	63	3.05	0.98	MP
C	**Application Software**							

7.	Knowledge of Word processing/Desktop Publishing	142	236	171	116	2.61	1.01	MP
8.	Statistical analysis/ Graphic interpretation knowledge	97	205	173	190	2.31	1.04	LP
D	**Microsoft Office Skills**							
9.	Competency in Microsoft Word	209	207	130	119	2.76	1.08	MP
10.	Competency in Microsoft Excel	160	230	152	123	2.64	1.04	MP
11.	Competency in Microsoft Power point	158	212	164	131	2.60	1.05	MP
12.	Competency in Microsoft Access	123	203	187	152	2.45	1.04	LP
	Overall Summary					**2.75**	**0.83**	**MP**

Key:

3.50 - 4.00 Highly Proficient (HP).

2.50 - 3.49 Moderately Proficient (MP).

1.50 - 2.49 Low Proficient (LP).

0.05 - 1.49 Not Proficient (NP).

Table 2 shows the frequency, mean and standard deviation of the respondents' responses(instructors and trainees) on their level of competency in the use of ICT in NN training. Result on the table reveals that all the skills (input/output, internet surfing, application software/programme and Microsoft office) are rated moderately proficient going by the mean of the clusters (2.80, 3.14, 2.46, and 2.61) respectfully. The overall result reveals mean (2.75) rating of moderately proficient.

Hypothesis 1

H_{O1}: There is no significant difference between the mean responses of naval training instructors and trainees on the competency level in use of ICT in NN training.

Table 3: t-test for the difference between the mean responses of naval instructors and trainees on the competency level in use of ICT in NN training.

	Status	**N**	**Mean**	**Std. Deviation**	**T**	**Df**	**Sig. (2-tailed)**	**Remark**
Typing and Printing	Trainee	599	2.80	0.93	-3.05	663	0.00	S
	Instructors	66	3.17	0.89				
Scanning	Trainee	599	2.64	1.01	-2.51	663	0.01	S
	Instructors	66	2.97	0.96				
Photocopying	Trainee	599	2.86	1.01	-2.26	663	0.02	S
	Instructors	66	3.15	0.98				
Opening and Browsing Web sites	Trainee	599	3.18	0.97	-0.38	663	0.71	NS
	Instructors	66	3.23	0.84				
Sending E-mails	Trainee	599	3.12	0.99	-0.83	663	0.41	NS
	Instructors	66	3.23	0.91				
Downloading and Saving	Trainee	599	3.04	0.98	-0.51	663	0.61	NS
	Instructors	66	3.11	0.99				
Word Processing/ Desktop Publishing/ Database programming/Spreadsheet	Trainee	599	2.61	1.02	0.01	663	0.99	NS
	Instructors	66	2.61	0.94				
Statistical Analysis/Graphical Presentations	Trainee	599	2.32	1.05	0.22	663	0.83	NS
	Instructors	66	2.29	0.91				
Microsoft Word	Trainee	599	2.75	1.09	-0.93	663	0.35	NS
	Instructors	66	2.88	1.02				
Microsoft Excel	Trainee	599	2.62	1.05	-1.58	663	0.12	NS
	Instructors	66	2.83	0.92				
Microsoft Power Point	Trainee	599	2.58	1.06	-0.94	663	0.35	NS
	Instructors	66	2.71	1.03				

Microsoft Access	Trainee	599	2.45	1.04	0.31	663	0.76	NS
	Instructors	66	2.41	1.04				
Overall	**Trainee**	**599**	**2.74**	**0.83**	**-1.58**	**663**	**0.11**	**NS**
	Instructors	**66**	**2.91**	**0.80**				

***Key*:** S:Significant, NS: Not Significant

Table 3 shows t-test for the difference between the mean responses of naval training instructors and trainees on the competency level in ICT use in NN training. From the overall result on the table, the t-value is -1.58. This value of t is not significant at 0.05; because 0.05 is less than 0.11, that is ($p = 0.11$; $p > 0.05$). Therefore, the hypothesis is accepted; hence, there is no significant difference between the mean responses of naval training instructor and trainees' competency level in ICT use in NN traini

Research question 3: *What is the extent of the use of ICT facilities by trainees and instructors in NN training?*

Table 4: Composite mean and standard deviation of respondents' response to their extent of the use of ICT in NN training (N= 665)

S/N	ICT Application	Navigation and Direction Training			Communication Training			Under Water Warfare Training			Above Water Warfare Training			Logistics Training			Engineering Training requires		
		Mean	Std Deviation	Decision	Mean	Std Deviation	Decision	Mean	Std Deviation	Decision	Mean	Std Deviation	Decision	Mean	Std Deviation	Decision	Mean	Std Deviation	Decision
1.	Word Processing	2.43	1.19	LE	2.34	1.20	LE	2.27	1.23	LE	2.21	1.23	LE	2.25	1.29	LE	2.28	1.24	LE
2.	Databases	2.27	1.14	LE	2.33	1.22	LE	2.20	1.21	LE	2.22	1.26	LE	2.22	1.27	LE	2.22	1.25	LE
3.	Spreadsheets	2.19	1.16	LE	2.25	1.21	LE	2.12	1.19	LE	2.15	1.21	LE	2.21	1.26	LE	2.21	1.23	LE
4.	Graphics	2.15	1.14	LE	2.17	1.18	LE	2.12	1.19	LE	2.07	1.17	LE	2.12	1.22	LE	2.24	1.23	LE
5.	Multimedia authoring software	2.06	1.13	NE	2.12	1.17	LE	2.08	1.20	LE	2.06	1.18	LE	2.06	1.21	LE	2.17	1.22	LE
6.	Concept mapping	2.04	1.16	NE	2.13	1.19	LE	2.14	1.21	LE	2.05	1.17	LE	2.05	1.20	LE	2.16	1.20	LE
7.	Internet/e-mail	2.42	1.24	LE	2.21	1.22	LE	2.15	1.21	LE	2.19	1.24	LE	2.17	1.24	LE	2.34	1.24	LE
8.	Simulators/micro-worlds	2.09	1.16	LE	2.19	1.22	LE	2.12	1.21	LE	2.03	1.17	LE	2.07	1.19	LE	2.17	1.21	LE
9.	Publishing software	2.03	1.10	LE	2.09	1.18	LE	2.04	1.17	LE	2.01	1.18	LE	2.05	1.17	LE	2.12	1.20	LE
10.	Geographic information (GIS) software	2.03	1.16	LE	2.08	1.19	LE	2.07	1.20	LE	2.03	1.19	LE	2.04	1.17	LE	2.13	1.20	LE
11.	Programming languages				2.03	1.16	LE	2.05	1.19	LE	2.00	1.17	LE	1.98	1.15	LE	2.13	1.24	LE
12.	Modelling software	2.04	1.14	LE	2.08	1.16	LE	2.06	1.17	LE	1.99	1.16	LE	2.02	1.18	LE	2.10	1.20	LE
13.	Network maintenance software/devices	1.99	1.13	LE	2.14	1.22	LE	2.10	1.19	LE	2.08	1.19	LE	2.12	1.21	LE	2.24	1.25	LE
14.	Computer devices and accessories	2.12	1.18	LE	2.24	1.22	LE	2.19	1.22	LE	2.15	1.23	LE	2.18	1.23	LE	2.36	1.25	LE
	Overall	2.14	0.95	LE	2.17	1.01	LE	2.12	1.04	LE	2.09	1.03	LE	2.11	1.06	LE	2.14	0.94	LE

Key:

3.50 - 4.00 Very Great Extent (VGE).

2.50 - 3.49 Great Extent (GE).

1.50 - 2.49 Low Extent (LE).

0.05 - 1.49 No Extent (NE)

Table 4 shows Composite mean and standard deviation of the response to the extent of the use of ICT facilities by trainees and instructors in naval training schools in the area of study. Result on the table reveals that all the items for (Navigation and Direction, Communication, Under Water Warfare, Above Water Warfare, Logistics and Engineering Trainings) are rated low extent with mean of (2.14, 2.17, 2.12, 2.09, 2.11, and 2.20) respectively. The overall result reveals that it is equally rated as low extent.

Hypothesis 2

H_{O2}: There is no significant difference between the mean responses of naval training instructors and trainees on the extent of use of ICT facilities in NN training.

Table 4: t-test for the difference between the mean responses of naval training instructors and trainees to the extent of the use of ICT in NN training

Items	Status	N	Mean	Std. Deviation	T	df	Sig. (2-tailed)	Remark
Navigation and Direction	Trainees	599	2.16	0.95	1.20	663	0.23	NS
	Instructors	66	2.01	0.93				
Communications Training	Trainees	599	2.19	1.01	1.71	663	0.09	NS
	Instructors	66	1.97	0.98				
Under Water Warfare Training	Trainees	599	2.15	1.04	2.39	663	0.02	S
	Instructors	66	1.83	1.00				
Above Water Warfare Training	Trainees	599	2.13	1.04	2.76	663	0.01	S
	Instructors	66	1.76	0.94				
Logistics Training	Trainees	599	2.15	1.06	2.77	663	0.01	S
	Instructors	66	1.77	0.98				
Engineering Training	Trainees	599	2.24	1.07	2.54	663	0.01	S
	Instructors	66	1.89	1.00				
Overall	**Trainees**	**599**	**2.17**	**0.95**	**2.47**	**663**	**0.01**	**S**
	Instructors	**66**	**1.87**	**0.85**				

***Key*:**
S: Significant
NS: Not Significant

Table 4 shows t-test for the difference between the mean responses of naval training instructors and trainees on the extent of the use of ICT facilities in naval training schools in the area of study. From the overall result on the table, the t-value is 2.47. This value of t is significant at 0.01and equally significant at 0.05; because 0.05 is greater than 0.01, that is ($p = 0.01$; $p < 0.05$). Therefore, the hypothesis is not accepted; hence, there is significant difference between the mean responses of naval training instructors and trainees on the extent of the use of ICT for NN training.

Research Question 4

What are the perceptions of instructors and trainees on the use of ICT in NN training?

Table 5: Frequency, mean and standard deviation on the perception of trainees and instructors on the use of ICT in NN training (N = 665)

S/N	Trainees' and Instructors Perception on the utilization of ICTs in training	SA	A	D	SD	Mean Score	Std. Dev.	Decision
1	Previous knowledge of ICT facilities aids effective use of ICT gadgets in NN training.	293	189	75	108	3.02	1.10	Agree
2	Utilization of ICT facilities in naval training programmes will give a realistic presentation of naval experiences.	92	135	176	262	2.09	1.07	Disagree
3	Use of ICT can equip naval officers/ratings with the required skills necessary for real life naval combat.	93	107	178	287	2.01	1.07	Disagree
4	Strategies necessary for survival in naval combat can be effectively imparted using ICT facilities for training programme.	273	216	65	111	2.98	1.09	Agree
5	ICTs have the potentials of enabling personnel meet up with contemporary naval practises globally.	320	196	53	96	3.12	1.06	Agree
6	Poor educational background especially on ICT facilities deters the use of ICT in NN training .	214	247	101	103	2.86	1.04	Agree
	Overall					2.68	0.71	

Key

3.50 - 4.00 Strongly Agree (SA).
2.50 - 3.49 Agree (A).
1.50 - 2.49 Disagree (D).
0.05 - 1.49 Strongly Disagree (SD)

Table 5 shows frequency, mean and standard deviation on the perception of trainees and instructors in use of ICT in NN training. The instructors' and trainees' perception on ICT use in NN training agreed with the six items with the mean of 3.02, 2.09, 2.01, 2.98, 3.12, and 2.86 respectively. The overall result reveals that the mean 2.68 is equally rated Agree.

Hypothesis 3

H_{O3}: There is no significant difference between the mean responses of naval trainees' and instructors' perception on the use of ICT in NN training.

Table 6 : t-test for the difference between the mean responses of the perception of naval training instructors and trainees to the use of ICT in NN training.

Items	Status	N	Mean	Std. Dev.	T	Df	Sig. (2-tailed)	Remark
Previous knowledge of ICT facilities aids effective use of ICT gadgets in naval training programmes.	Trainees	599	3.06	1.06	3.21	663	0.00	S
	Instructors	66	2.61	1.32				
Utilization of ICT facilities in naval training programmes will give a realistic presentation of naval experiences.	Trainees	599	2.11	1.07	1.66	663	0.01	S
	Instructors	66	1.88	1.02				
Use of ICT can equip naval officers/ratings with the required skills necessary for real life naval combat.	Trainees	599	2.01	1.07	0.19	663	0.05	S
	Instructors	66	1.98	1.16				
Strategies necessary for survival in naval combat can be effectively imparted using ICT facilities for training programme.	Trainees	599	3.03	1.06	3.33	663	0.00	S
	Instructors	66	2.56	1.25				
ICTs have the potentials of enabling trainees meet up with contemporary naval practises globally.	Trainees	599	3.18	1.02	4.37	663	0.00	S
	Instructors	66	2.59	1.28				
Poor educational background especially on ICT facilities deters the utilization of ICT in naval training programmes.	Trainees	599	2.91	1.01	3.21	663	0.00	S
	Instructors	66	2.41	1.15				
Overall	**Trainees**	**599**	**2.72**	**0.68**	**4.14**	**663**	**0.00**	**S**
	Instructors	**66**	**2.34**	**0.90**				

***Key*:** S: Significant

Table 6 shows t-test for the difference between the mean responses of the perception of naval training instructors and trainees to the use of ICT in NN training. From the overall result on the table, the t-value is 4.14. This value of t is significant at 0.05 significance level because 0.00 is less than 0.05. Therefore, the hypothesis is not accepted; hence, there is significant difference between the mean responses of naval trainees' and instructors' perception and the use of ICT in NN training.

Research Question 5. *What are the challenges/factors affecting the use of ICT in NN training?*

Table 7: Mean and standard deviation of responses to the challenges/factors affecting the use of ICT in NN training (N = 665)

S/N	Trainees' and Instructors Challenges associated with Utilisation of ICT	SA	A	D	SD	Mean Score	Std. Dev.	Decision
1	Lack of fully equipped ICT centres in naval training schools.	279	177	90	119	2.93	1.13	Agreed
2	Lack of specific policy on ICT for naval training programmes.	201	269	92	103	2.85	1.02	Agreed
3	Competent instructors for Utilization of ICT in training programmes.	266	207	81	111	2.94	1.09	Agreed
4	Trainees' knowledge on ICT gadgets/facilities.	239	250	64	112	2.93	1.06	Agreed
5	Poor power supply.	279	214	60	112	2.99	1.09	Agreed
6	Internet Service Provider in naval training schools.	266	206	75	118	2.93	1.10	Agreed
7	Cost of possessing personal Internet facilities by the Instructors and trainees.	213	225	106	121	2.80	1.08	Agreed
8	Lack of awareness seminars/workshops on the utilization of ICT for naval training programmes.	254	219	82	110	2.93	1.08	Agreed
	Overall					**2.91**	**0.90**	**Agreed**

Key: SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree.

Real limit of Numbers

4.0 – 3.50 Strongly Agree (SA).

3.49 – 2.50 Agree (A).

2.49 – 1.50 Disagree (D).

1.49 – 0.05 Strongly Disagree (SD).

Tables 7 shows mean and standard deviation of responses to the challenges/factors affecting the use of ICT in NN training. Result on the table reveals that the respondents agreed with all the items (1, 2, 3, 4, 5, 6, 7, and 8) as the challenges that were associated with the use of ICT in NN training, with mean of 2.93, 2.85, 2.94, 2.93, 2.99, 2.93, 2.80, and 2.93 respectively. Similarly, the overall result indicated that the respondents agreed to the challenges/ factors affecting that were associated with the use of ICT in NN training, with a mean of 2.91.

Research Questions 6.

What strategies could be proffered to address the challenges associated with the use of ICT in NN training?

Table 8: Mean and standard deviation of respondents to strategies that could be proffered for the use of ICT in NN training (N = 665)

S/N	Strategies	SA	A	D	SD	Mean Score	Std. Dev.	Decision
1	Proper ICT Workshops/Seminar for Naval Instructors	339	190	48	88	3.17	1.04	Agreed
2	Exposure of trainees to drills/ assignment on the use of ICTs facilities in NN training.	298	236	46	85	3.12	1.01	Agreed
3	Periodic ICT refresher course for Naval Instructors.	298	231	50	86	3.11	1.01	Agreed
4	Provision of sufficient ICT facilities.	340	182	56	87	3.17	1.05	Agreed
5	Hand on experiences onboard naval warships.	273	251	50	91	3.06	1.02	Agreed
6	Specific policy on the infusion of ICT into the curriculum of NN training.	234	281	59	91	2.99	0.99	Agreed
7	Re-orientation of Instructors on the use of ICT in training through consultancy services.	266	236	70	93	3.02	1.03	Agreed
8	Provision of stable power supply through private partnership.	279	233	56	97	3.04	1.04	Agreed
9	Provision of adequate and effective Internet service (Broad Band Width).	309	200	65	91	3.09	1.05	Agreed
10	Assist Instructors and Trainees to possess personal laptop and Internet facility through soft loan.	286	182	82	115	2.96	1.12	Agreed
	Overall					3.07	0.88	

Key: SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree**.**

Real limit of Numbers

4.0 – 3.50 Strongly Agree (SA).

3.49 – 2.50 Agree (A).

2.49 – 1.50 Disagree (D).

1.49 – 0.05 Strongly Disagree (SD).

Table 8: shows the mean and standard deviation of respondents to strategies that could be proffered for the use of ICT in NN training. Result on the table reveals that the respondents agreed with all the items (1, 2, 3, 4, 5, 6, 7, 8, 9 and 10) as the strategies that could be proffered for the effective use of ICT in NN training with mean of 3.17, 3.12, 3.11, 3.17, 3.06, 2.99, 3.02, 3.02, 3.04, 3.04 and 2.96 respectively. Similarly, the overall result reveals that the respondents agreed to strategies that could be proffered for the use of ICT in NN training with a mean of 3.07.

V. DISCUSSION OF FINDINGS

The following findings were made from the data analyses of the results:

1. The ICT facilities/gadgets available in the four schools were inadequate, as the available few were the day to day routine ICT facilities that could not be adequately applied in the areas of specialisation of NN training.. Access to necessary ICT facilities is not negotiable when considering ICT utilisation in any discipline. Aluko, (2004). posits that the issue of utilisation of ICTs will not come into play at all if this

technologies are not available in the first place. Therefore, the need for the provision of ICT gadgets and software for use in NN training cannot be over emphasised.

2. Both instructors and trainees were moderately proficient/competent in the use of ICT facilities/gadgets in NNC Onne, NNFLS Owerrinta and NNBTS Onne while instructors and trainees were highly proficient/competent in the use of ICT facilities/gadgets in NNEC Sapele. Thus, there was a significant difference in the competencies of instructors and trainees of NNC, NNBTS and NNFLS on the one hand and those of NNEC. Rogers, (2003), asserts that proficiency of ICT users is of importance as superficial knowledge of technology will not do for instructors to integrate the dynamics of ICT into teaching/training.

3. The extent of use of ICT facilities by instructors and trainees was rated very great extent/great extent in NNEC Sapele while those of instructors and trainees in NNC, NNBTS and NNFLS were rated great extent/no extent. Hence, there was a significant difference in the extent of use of ICT facilities by instructors and trainees of NNC, NNBTS and NNFLS on the one hand and those of NNEC. This difference stems from the fact that the NNEC trainees are polytechnic/university graduates. Thus, they are more proficient than trainees from the other schools who are mostly secondary schools certificate holders. In a study carried out by (Venkatesh, Davis and Morris 2003), the link between intention to use technology and actual usage was well established to have been linked with academic qualification.

4. On the perceptions of trainees and instructors on the use of ICT facilities for NN training p in the area of study, both instructors and trainees agreed that ICTs have the potentials of enabling trainees to meet up with contemporary naval practices globally. Empirical study carried out by Vichita, Vathanophas, Krittayaphogphun and Klomsirir, (2008) on the utilisation of ICT by naval officers in Thailand affirmed that prior experience, job relevance and commitment seem to influence their perception on the use of ICT in training which is same for the NN trainees and instructors.

5. The five major challenges/ factors affecting the use of ICT in NN training were identified by both instructors and trainees in the four (4) NN training schools in this study. These are the lack of fully equipped ICT centres, power supply, specific policy on ICT use, trainees' knowledge on ICT and competency of instructors. These challenges are not peculiar to NN alone. Kaino, (2004) also identifies ineffective government policies as a major challenge to effective adoption and utilisation of ICTs in developing countries. Also, Salau and Saingbe, (2008) provided evidence that erratic power supply and poor accessibility to ICT facilities are the major factors affecting the effective use of ICT in education and training within the Nigerian context.

6. The instructors and trainees in all the four NN training schools in the study area proffered six (6) major strategies for effective use of ICT in NN training. These were the specific policy on the infusion of ICT into the curriculum of naval training programmes, workshop/seminar for naval instructors, exposure of trainees to drills, periodic refresher courses for instructors, provision of sufficient ICT facilities/ gadgets and provision of adequate and effective internet service (broad bandwidth). Fakeye, (2010) posits that the need for instructors competence for effective use of ICT in training cannot be over emphasised.

VI. CONCLUSION

The use of ICT for NN training occupies a central position not only in Nigeria but in modern naval training across the globe for the effective and efficient performance of naval personnel in naval operations in war and peace times, ashore and at sea. The study has contributed to knowledge in that it has expanded the synthesis of knowledge on the import of use of ICT in NN training. The results of the data analyses of this study have established the fact that three of the four schools in focus were bereft of competent ICT compliant instructors. Hence, the next to none usage of ICT facilities/ gadgets for naval training in NNC, NNBTS and NNFLS respectively and fair use of the available ICT facilities in NNEC Sapele. The need for capacity building aimed at improving the knowledge and ICT utilisation skills for naval instructors is imperative for naval training in Nigeria.

Generally, the study established the fact that there was dearth of ICT facilities/gadgets needed for the naval specialisation training, only everyday common ICT gadgets were available in very limited quantity in the area of study. The reason for this from the findings of the study was the lack of national policy on ICT utilisation for military and by implication naval training by the NN. The need for the establishment of such policy at national and NN levels is mandatory for effectiveness in modern-day naval training.

From the perceptions of both the NN instructors and trainees in the study, ICTs have the potentials to aid naval personnel meet up with contemporary naval practices globally, it could be affirmed that the level of awareness of the importance and benefits derivable from the use of ICT in NN is high among the personnel. Thus, there would be an easy acceptance of ICT use in NN training. The NN needs to take advantage of this positive perception to fully infuse ICT usage into its training.

Also, the study identified major challenges/ factors affecting the use of ICT as poor power supply and inadequate bandwidth of internet service providers. The strategies proffered to tackle these challenges included the need for the naval training schools in Nigeria to patronise Independent Power Provider (IPP) services for constant power supply and expansion of bandwidth of internet services needed for ICT use in NN training.

The knowledge acquired from the result of the data analyses would aid the NN in formulating training policy geared towards effective the usage of ICT for specialised NN

training and provide ICT conducive training/learning environment in all NN training schools. This would enable NN to achieve state of the art and globally accepted naval human capacity building to meet the global contemporary challenges of navies worldwide.

VII. RECOMMENDATIONS

To improve on the extent of use of ICT in NN training, the study recommended the following:

1. Capacity building programmes in terms of training and re-training of NN instructors on ICT usage for training should be made a regular feature inform of seminars, workshops and on the job training to enhance the competency of the instructors on the use of ICT.
2. The national policy on ICT should be reviewed to include the military that is not reflected in the present policy. This would enable the military, especially the NN fully embrace the use of ICT for the training of its personnel to be relevant and effective in joint operations with other navies of the world and also achieve operational efficiency locally at sea and ashore.
3. The naval training schools should be adequately funded to procure ICT facilities/gadget specific to the training curriculum. It will in no doubt aid the effective use of ICT in NN training.
4. Since the advancement in technology permeates all sectors of organisation and industry worldwide in the 21st century, the need for employees to be ICT compliant is imperative. The NN should, therefore, review its recruitment and enlistment requirement to include ICT literacy. This would aid the trainees in the ease of application of ICT facilities/gadgets in training to achieve operational efficiency at sea and ashore.

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