Asia-Africa Journal of Education Research (AAJER) The Official Journal of the International Association for the promotion of Asia-Africa Research, India Volume 4, Number 1, 2024 ISSN: 2814 – 3639

https://journals.iapaar.com/index.php/aajer

Assessment of Students' Knowledge and Attitude towards the use of ICT Tools in Learning Secondary School Computer Studies Curriculum in Egor Local Government Area of Edo State

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Abstract

Globally, Information and Communication Technology (ICT) is rapidly becoming an accelerator of political, economic, social and educational globalisation. Computer technology is the engine of the modern civilisation and the driving force of the information age. This study assesses students' knowledge and attitude towards the use of ICT tools in learning secondary school computer studies curriculum in Egor Local Government Area of Edo State. The descriptive survey research design was employed in this study. The population of the study comprised of Twelve (12) government owned senior secondary schools in Egor Local Government Area which constitute Five thousand and five hundred and seventy-four (5574) students. A sample size of two hundred and forty seven (247) SSII students were selected through the Multi-stage sampling technique. The questionnaire was validated by experts in the Department of Curriculum and Instructional Technology; while the test re- test reliability method was adopted to ascertain the reliability of the instrument. Data collected were analyzed using mean scores, percentages and standard deviation. A correlation index of 0.65 was obtained. Research question 1 and 2 was answered, while research question 3 and 4 were hypothesized and tested at the 0.05 level of significance. . Findings shows that the available ICT tools used in teaching and learning in Egor Local Government Area of Edo State are: Projectors, computer desktop or laptop, smartphones, interactive Whiteboard, Interactive Videos, speakers, Television, Printer, scanner, mouse Google plus, You-Tube and WhatsApp. However, Smart-phones and printers are the ICT tools that have the highest usage. It was also revealed that the attitude of students towards the use of ICT for academic purpose is positive but their attitude towards social purpose is positive. It recommended that more sensitization should be directed towards our students for them to known the benefits of using ICT for academic purposes and how it can help to enhance their learning capacities. It was further recommended that the teachers should put in more efforts towards acquiring adequate ICT knowledge to enhance their academic activities which they impact on their students to increase their knowledge level as it relate to computer and other ICT tools usage.

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Keywords: Assessment, Students' Knowledge, Attitude, ICT Tools and Computer Studies Curriculum

Introduction

Globally, Information and Communication Technology (ICT) is rapidly becoming an accelerator of political, economic, social and educational globalisation. Computer technology is the engine of the modern civilisation and the driving force of the information age (Ituen in Agkatogun, 2015). In today's global and competitive environment, ICT is becoming a widely accepted tool for multi-facet development in view of the flexible, quality services it offers and the potential to revolutionize the traditional education system. Integration of Information, Communication, and Technology (ICT) in education refers to the use of computer-based communication that incorporates into daily classroom instructional process. In conjunction with preparing students for the current digital era, teachers are seen as the key players in using ICT in their daily classrooms. This is due to the capability of ICT in providing dynamic and proactive teaching-learning environment (Arnseth & Hatlevik, 2012). While, the aim of ICT integration is to improve and increase the quality, accessibility and cost-efficiency of the delivery of instruction to students, it also refers to benefits from networking the learning communities to face the challenges of current globalization. Process of adoption of ICT is not a single step, but it is ongoing and continuous steps that fully support teaching and learning and information resources (Young, 2013).

ICT integration in education generally means technology-based teaching and learning process that closely relates to the utilization of learning technologies in schools. Due to the fact that students are familiar with technology and they will learn better within technology-based environment, the issue of ICT integration in schools, specifically in the classroom is vital. This is because, the use of technology in education contributes a lot in the pedagogical aspects in which the application of ICT will lead to effective learning with the help and supports from ICT elements and components (Jamieson-Procter, Albion, Finger, Cavanagh, Fitzgerald, Bond, & Grimbeek, 2013). It is right to say that almost all ranges of subjects' starts from mathematics, science, languages, arts and humanistic and other major fields can be learned more effectively through technology-based tools and equipment. In addition, ICT provides the help and complementary supports for both teachers and students where it involves effective learning with the help of the

computers to serve the purpose of learning aids (Jorge, Gutiérrez, García, & Díaz 2013). Computers and technology does not acts as a replacing tools for quality teachers but instead they are considered as an add-on supplements needed for the better teaching and learning. The need for ICT integration in education is crucial, because with the help of technology, teaching and learning is not only happening in the school environment, but also can happen even if teachers and students are physically in distance. However, ICT integration is not a one-step learning process, but it is a continual process of learning that provides proactive teaching-learning environment (Young, 2013).

According to the National Computer Policy as quoted in Jetter (2012) the first objective is to ensure that the general populace appreciates the impact of information and computer technology on today's society, the importance of its effective use, and the technologies that process, manage, and communicate the information. The second general objective is to ensure that the people of Nigeria will know how to use and programme computers, develop software packages, understand the structure and operation of computers and their history, and to appreciate the economic, social and psychological impact of the computer

Computer education is of paramount importance to development the nation and it is on this premise that the Federal Government of Nigeria sought to introduce computer studies in the education system from primary to higher institutions. In line with this, (FRN 2013) explained that Nigeria cannot afford to ignore the role which computer literacy plays in achieving the national goals of technological development considering the fact that, educational system around the world face formidable challenges that tax conventional strategies. Fresh approaches are needed to address persistent problems of the past and provide students with an education relevant to the needs of the modern information based global economy. Therefore, from the foregoing, based on the importance of computer to teaching and learning, it is obvious that introducing the study of computer science in the educational system is in the right direction.

Fajola (2001) asserts that, the computer is diligent and consistent in its mode of operation to perform multifunctional roles in teaching and learning process at all levels of education. Computer is an electronic device which can hold vast quantities of information and accurately store information for use. It is capable of carrying and processing input calculation according to predetermined set of instructions. Computer is used in establishment such as banks, Power Holding

Company, Independent National Electoral Commission, Payroll processing, examination bodies, diagnosing sickness in hospital, engineering and management in general (Ituen, 2009).

According to National Computer Policy (1988) computer education programme was introduced to bring about computer literate society in Nigeria and appreciate the economic, social and psychological impact of computer. During the 32nd Ministerial Council Meeting of the National Council on Education in 1987, the Federal Government of Nigeria decided to introduce computer into nation's secondary school system. This was followed by the inauguration of the National Committee on Computer Education the same year. The committee was commissioned to, for dynamic policy on computer education and literacy in Nigeria as well as devise clear strategies and terminologies to be used by the Federal and State Governments in introducing computer education (Federal Ministry of Education, 2010).

In any educational system, there should be a good relationship between policy and practice in order to carry out successful implementation. According to Jefer (2002) there is a wide disparity between policy pronouncement and policy implementation of computer education in Nigeria. He further explained that the formulation of an information technology (IT) policy constituted only about 20% of the IT solution for the country but the remaining 80% lie with implementation.

A factor that may influence the use of computer in teaching and learning in secondary schools is the attitude of students. The learner's attitude towards computer measures his capabilities for effective learning. Computer attitude has been defined as a person's general evaluation or feeling of antipathy towards computer technology and specific computer related activities (Smith, Caputi & Rawstorne, 2000). Attitudes are learnt, they are mouldable that is they change with experience of the stimulus objects and with social rules or institutions (Binder & Niederle, 2007). Given the pervasiveness of computers in all levels of educational system, it is likely that students will develop some attitudes toward these machines (Yushau, 2006a). If students use computers to help those complete tasks which they regard as problematic, then they are likely to have a more positive attitude towards the use of computers, and are likely to look for further tasks which can be completed using a computer. The interactive and multimedia nature of modern computer systems has provided the opportunity for software developers to create increasingly more stimulating features. Many studies have revealed that students like to use

computers and are likely to develop more positive attitudes towards the use of computers (Shapka & Ferarri, 2003).

Another factor that may influence the use of computer in teaching and learning in secondary schools is the level of students' ICT knowledge. Basic ICT knowledge referring to storage and data transfer, as well as the use of word processing, and electronic spread sheet applications. Advanced ICT knowledge refer to graphics, animation, video and multimedia design and development using certain accessing the Internet including the use of search engines as well as recording and downloading/uploading materials. Another type of ICT knowledge involving the Internet application for communication purposes such as the use of social network, chat room, and emails to communicate with others, either for learning or socializing activities

Today's schools are compelled to provide students with technology competency knowledge that will allow them to supplant their learning through online sources and succeed in an ever-increasing technological workplace. But, the achievement of any educational policy depends greatly on its implementation. This is why the process of curriculum making/development is never complete until it gets to implementation (Kolawole, 2006). Therefore, the worth of a curriculum can only be appreciated when it is implemented. Various research evidences have often shown difference among the official or (intended) curriculum, the taught (implemented) curriculum and the assessed (achieved) curriculum. That is in some cases what is carefully documented as a curriculum differs markedly from what actually takes place in the school environment (Olorundare, 2006; Kolawole 2006; Taiwo, 2002) and the performance (product) of the students.

In specific, as advanced ICT knowledge, Internet application for information access and Internet application for communication purposes. Basic ICT knowledge referring to storage and data transfer, as well as the use of word processing, and electronic spreadsheet applications. Advanced ICT knowledge refer to graphics, animation, video and multimedia design and development using certain software and authorizing tools. Meanwhile, internet application for information access refers to student's knowledge in accessing the Internet including the use of search engines as well as recording and downloading/uploading materials. Another type of ICT knowledge involving the Internet application for communication purposes such as the use of social network, chat room, and emails to communicate with others, either for learning or socializing activities.

In Egor Local Government Area of Edo State, preliminary observation revealed that most students in the area do not have the competence to complete basic tasks on the computer. While most students reported being able to perform many of the most basic computer tasks, such as turning a computer on and off and opening or saving a file, more are not were not able to print a document or to go on the internet by themselves. Almost half reported not being able to create a document by themselves. The majority did not know how to create a presentation, use a spreadsheet, or send an attachment with an e-mail message. Competence in the use of ICT is limited for the most part of the ICT knowledge, centred on the use of word-processing, printing documents, sending an email and presentation. This situation is even worse in the rural area where there is incessant power outage, lack computer laboratories, lack of qualified teachers to teach computers in school and poor internet connectivity. Also, many students in the area would browse the internet using the computer and would download photos, charting with friends using the computers. Preliminary observation shows that both the male and female students' uses computer in the area however, the female students use it more for the social networking

Statement of the Problem

Computer literacy is gaining vast popularity in recent years globally, and has become an important part of most organisations and businesses. Regardless of how one feels about it, computer education has become a factor in the lives of average literate Nigerians. This is because, to be computer literate implies getting familiar with computer terminologies, basic concept, working mechanism and potential uses and benefit to manipulate and control computer machines to solve diverse problems.

In Egor Local Government Area of Edo State, the researcher observed that most students cannot use computers effectively. Sometime they even have to enrol in private computer schools after their senior secondary school examination to prepare them for their JAMB and Post UTME examination which is purely computer based. It was also observed that that many junior secondary school students after graduation find it difficult to establish and manage small businesses, particularly those who had no opportunity for further training. Those who tried to work in business centres where information is processed with modern technologies found it difficult to manipulate computers and other ICT equipment

The reasons for these are not quite known. Could it be that there are limited functional ICT facilities or tools in most schools in the areas? Could it be attributed to lack of adequate computer literate from the part of teachers? Or could it be that students in the area have negative attitudes towards computer usage. It is in view of this concern this study to assess students' knowledge and attitude towards the use of ICT tools in learning secondary school computer studies curriculum in Egor Local Government Area of Edo State

Purpose of the Study

The major purpose of this research is to assess students' knowledge and attitude towards the use of ICT tools in learning secondary school computer studies curriculum in Egor Local Government Area of Edo State. Specifically, the research will seek to:

1. find out the ICT tools that are available in secondary schools in Egor Local Government Area of Edo State.
2. examine the level of students' ICT knowledge in secondary schools in Egor Local Government Area of Edo State;
3. ascertain whether there is any difference between male and female students' ICT knowledge in secondary schools in Egor Local Government Area of Edo State
4. examine the student's attitude towards the use of ICT knowledge in secondary schools in Egor Local Government Area of Edo State;

Research Questions

To guide this study, the following research questions were raised

1. What ICT tools are available in secondary school's in Egor Local Government Area of Edo State?
2. How often are availability ICT tools used in secondary school in Egor Local Government Area of Edo State?
3. What is the difference in students' level of ICT knowledge based on sex?
4. What is the difference in students' attitude towards the use of ICT tools based on sex?

Research Hypotheses

Research question 1 to 3 will be answered, while research question 4 to 7 will hypothesized and tested at the 0.05 level of significance.

1: There is no significant difference between the mean scores of male and female students' ICT knowledge in secondary schools in Egor Local Government Area of Edo State

2: There is no significant difference between the mean scores of male and female students' attitudes towards the use of ICT tools in secondary schools in Egor Local Government Area of Edo State;

Methodology

The descriptive survey design was used for the study. Twelve (12) government owned senior secondary schools inEgor Local Government Area constitutes the population of the study. Five thousand and five hundred and seventy-four (5574) students constitute the population. A sample size of two hundred and forty seven (247) SSII students in Egor Local Government Area of Edo Stat were selected Multi-stage sampling technique was adopted in selecting the required sample for the study. At the first stage, all the twelve (12) pubic secondary schools in the local government area were identified. The second stage stratified sampling techniques was used to categorise the respondents according to the sex (Male and Female). At the third stage, male and female was selected in both arms of SSII A and SSII B. In this wise, a total respondents of male (125) which was made up of Five (5) from SSII A and Ten (10) from SSII B from the 12 schools and for the female (122) was selected which comprises Two (2) from SSII A and Ten (10) from SSII B from the 12 schools through simple random sampling techniques. The questionnaire titled "Assessment of Students' ICT knowledge and Attitude towards the use of ICT tools in Learning Secondary School Computer Studies Curriculum (ASICTKTLSSCSC)" The data collected were analyzed using descriptive statistics comprising mean score and standard deviation. The questionnaire was a Twenty (20) items instrument designed along the line of the modified Likert scale made up of four (4) levels of assessment namely Strongly agreed, Agreed, Disagreed and Strongly disagreed. The levels were weighted or assigned 4 points 3points, 2 points and 1 point respectively. In validating the instruments, experts opinion was adopted. Two experts in the area of psychometrics from the Department of Curriculum and Instructional Technology, Faculty of

Education, University of Benin helped to determine the face validity of the instrument. To determine the reliability level of the instrument in generating the required data, copies were pilot-tested through single test giving at a single sitting to thirty (30) respondents selected from the target population. The scores obtained for odd and even number items were correlated using Pearson Product Moment Correlation Statistics. A correlation index of 0.65 was obtained. Research question 1 and 2 was answered, while research question 3 and 4were hypothesized and tested at the 0.05 level of significance.

Research Question 1: What are the available ICT tools in secondary schools in Egor Local Government Area of Edo State?

Table 1: Available ICT tools used in teaching and learning in Egor Local Government Area of Edo State (N= 229)

		Frequency / Percentage				Level
S/N	**ICT Tools**	**Very often**	**Often**	**Less Often**	**Never**	
1.	Projectors	130(57%)	23(10%)	60(26%)	16(07%)	High
2.	Laptop	130(57%)	23(10%)	60(26%)	16(07%)	High
3.	Smart phones	137(60%)	44(19%)	28(12%)	20(09%)	High
4.	Internet facilities	64(28%)	15(07%)	90(39%)	60(26%)	Low
5.	Interactive Whiteboard	137(60%)	23(10%)	60(26%)	09(04%)	High
6.	Interactive videos	133(58%)	30(13%)	50(21%)	16(07%)	High
7.	Graphics Tablet	105(46%)	80(34%)	27(12%)	17(07%)	Low
8.	Speakers	133(58%)	33(14%)	54(24%)	09(04%)	High
9.	Media pens	45(20%)	60(26%)	50(22%)	74(32%)	Low
10.	Television	133(58%)	33(14%)	54(24%)	09(04%)	High
11.	Printer	137(60%)	44(19%)	28(12%)	20(09%)	High
12.	Scanner	120(54%)	39(17%)	57(24%)	13(06%)	High
13.	Mouse	100(44%)	64(28%)	27(12%)	38(17%)	High
14.	Cameras	40(17%)	42(18%)	87(38%)	60(26%)	Low
15.	Photocopier	37(16%)	21(09%)	89(39%)	82(35%)	Low
16.	Ipod	50(22%)	55(24%)	96(42%)	28(12%)	Low
17.	Pen drive	40(17%)	42(18%)	87(38%)	60(26%)	Low
18.	Flash Disk	33(14%)	33(14%)	46(20%)	117(51%)	Low
19.	Web boards	30(13%)	34(15%)	105(46%)	60(26%)	Low
20.	Facebook	26(11%)	28(11%)	74(32%)	101(44%)	Low
21.	Twitter	50(22%)	55(24%)	96(42%)	28(12%)	Low
22.	Skype	40(17%)	42(18%)	87(38%)	60(26%)	Low

23.	Google Plus	133(58%)	33(14%)	54(24%)	09(04%)	High
24.	Instagram	60(26%)	40(17%)	100(44%)	29(13%)	Low
25.	YouTube	100(44%)	64(28%)	27(12%)	38(17%)	High
26.	WhatsApp	130(57%)	23(10%)	60(26%)	16(07%)	High
27.	Facebook Messenger	64(28%)	15(07%)	90(39%)	60(26%)	Low
28.	LinkedIn	45(20%)	60(26%)	50(22%)	74(32%)	Low
29.	Snapchat	30(13%)	34(15%)	105(46%)	60(26%)	Low
30.	Stylus	29(11%)	26(11%)	73(32%)	101(44%)	Low

Source: Field Survey, 2022

From Table 1, The Available ICT Tools Are: Projectors, Laptop ,Smart phones, Internet facilities, Interactive Whiteboard, Interactive videos, Graphics Tablet, Speakers, Media pens, Television, Printer, Scanner, Mouse, Cameras, , Photocopier, Ipod, Pen drive, Flash Disk, Web boards, Facebook, Twitter, Skype, Google Plus, Instagram, YouTube, WhatsApp, Facebook Messenger, LinkedIn, Snapchat

Research Question 2: How often are available ICT tools used in secondary schools in Egor Local Government Area of Edo State?

Table 1: shows the availability of ICT tools in secondary schools in Egor Local Government area of Edo State. In relation to the question on, the ICT tools used in teaching and learning in the area. 60% - 11% of the respondents affirmed that the listed ICT Tools are most often used in teaching and learning in their school. In the same vein, 34% - 07% of the respondents affirmed that the listed ICT Tools are often used in teaching and learning in their school. Also, 46% - 12% of the respondents affirmed that the listed ICT Tools are less often used in teaching and learning in their school. While, 44% - 04% of the respondents affirmed that the listed ICT Tools are never used in teaching and learning in their school.

It can therefore be concluded that the available ICT tools used in teaching and learning in Egor Local Government Area of Edo State are: Projectors, Computer desktop or laptop, Smart Phones, Interactive Whiteboard, Interactive Videos, Speakers, Television, Printer, Scanner, Mouse Google plus, You-Tube and WhatsApp. However, Smart-phones and Printers are the ICT tools that have the highest usage, why, Internet facilities, Graphics Tablet, Media pens, Cameras, Photocopier, Ipod, Pen drive, Flash Disk, Web boards, Facebook, Twitter, Skype, Instagram,

Facebook Messenger, LinkedIn, Snapchat, Stylus. However, Ped drive and Web boards are the ICT tools that have the lowest usage.

Hypotheses Testing

Hypothesis 1: There is no significant difference between the mean scores of male and female students' ICT knowledge in secondary schools in Egor Local Government Area of Edo State.

Table 3: t-test of male and female mean scores on ICT knowledge in teaching and leaning

S/N	Sex	N	Mean	std. deviation	df	t	sig. (2: tailed)	decision
1.	Male	108	2.89	0.395	227	-.402	.688	Accept
2.	Female	121	2.91	0.365	218.982			Ho

The Table 3 shows that the mean for male is 2.89 while the mean for female is 2.91, to test if the difference in their means is significant, the t-test statistics was used as shown in table.

The sig. value for the two-tailed test .688 is significantly higher than the level of significance 0.05. This leads us to accept our null hypothesis which states that there is no significant difference between the mean scores of male and female students' ICT knowledge in secondary schools in Egor Local Government Area of Edo State. Therefore, gender does not influence on the knowledge of student towards the use of ICT tools.

Hypothesis 2: There is no significant difference between the mean scores of male and female students' attitudes towards the use of ICT tools in secondary schools in Egor Local Government Area of Edo State.

Table 7: t-test of male and female mean scores on ICT attitudes in teaching and learning

S/N	Sex	N	Mean	std. deviation	df	t	sig. (2: tailed)	decision
1.	Male	108	3.51	0.704	227	-1.262	.208	Accept
2.	Female	121	3.62	0.623	215.109			Ho

The output indicates that the mean for male is 3.51 while the mean for female is 3.62.Looking in the Standard Deviation column, we can see that they are not exactly equal, but they are close enough to assume equal variances.

The sig. value for the two-tailed test .208 is significantly higher than the level of significance 0.05 and this leads us to accept the null hypothesis which states that there is no significant difference between the mean scores of male and female students' attitudes towards the use of ICT tools in secondary schools in Egor Local Government Area of Edo State.

Sex does not influence the attitudes of students towards the use of ICT tools in teaching and learning.

Discussion of Findings

The first research question revealed that the available ICT tools used in teaching and learning in Egor Local Government Area of Edo State are: Projectors, computer desktop or laptop, smartphones, interactive Whiteboard, Interactive Videos, speakers, Television, Printer, scanner, mouse Google plus, You-Tube and WhatsApp. However, Smart-phones and printers are the ICT tools that have the highest usage. This finding is in agreement with the finding of Okeh and Opone (2014) where they stated that ICT tools such as: Projectors, computer desktop or laptop, smartphones, interactive Whiteboard, Interactive Videos, You-Tube and WhatsApp etc. are often use by students because it gives room for effective learning and creates a fast and better method of collecting, processing, compiling and disseminating information to support students and researchers in both inside and outside the school environment.

Findings from research question two revealed that the level of student's knowledge in the use of ICT tools in secondary schools is low. This finding also corroborates the assertion of Abdul-salaam (2012) indicated that computer resources were not promptly accessible by the students from many schools. In addition, the vast majority of the Nigerian secondary schools are not associated with the web. Those with PCs don't have the important instructive programming required by their students in general cases. What's more, the PC accessible in these schools can't carter for the needs of the huge populace of learners in the affected schools. A few school with web availability were also disconnected as they cannot afford to pay their access fee

The findings of this study equally reveal that students have positive attitude towards the use of ICT for academic purpose as well as social purpose. It can be used for both academic and social purposes also and this should be censored accordingly by teachers and parents to get the best out of

it. This agrees with the findings of Barak and Ziv (2013) where they opined that students disposition towards the use of ICT in most public school is relatively positive as a result of the ease of use due to its usefulness in information gathering, communication, collaboration and efficiency and that it helps them to follow current trends and acquire new information

The findings of this study also revealed that there is no significant difference between the mean scores of male and female students' ICT knowledge in secondary schools in Egor Local Government Area of Edo State. This finding disagrees with the assertion of Broos and Keith (2006) in a study on computer self-efficacy knowledge such as: downloading, new software, programming, etc; shows that male students performed better than female students.

Conclusion

Following the analysis of data collected and findings made, the following conclusions were drawn;

1. The available ICT tools used in teaching and learning in Egor Local Government Area of Edo State are: Projectors, computer desktop or laptop, smart phones, interactive Whiteboard, Interactive Videos, speakers, Television, Printer, scanner, mouse Google plus, You-Tube and WhatsApp. However, Smart-phones and printers are the ICT tools that have the highest usage. While, Ped drive and Web boards are the ICT tools that have the lowest usage,
2. The students' knowledge in the use of ICT tools in secondary schools is low
3. The attitude of students towards the use of ICT for academic purpose is positive but their attitude towards social purpose is positive
4. Gender does no significantly influence students' ICT knowledge in secondary schools in Egor Local Government Area of Edo State
5. Gender does no significantly influence students' attitude towards the use of ICT tools in secondary schools in Egor Local Government Area of Edo State

Recommendations

On the basis of the findings and conclusion drawn, the following recommendations were made:

1. More sensitization should be directed towards our students for them to known the benefits of using ICT for academic purposes and how it can help to enhance their learning capacities.
2. The teachers should put in more efforts towards acquiring adequate ICT knowledge to enhance their academic activities which they impact on their students to increase their knowledge level as it relate to computer and other ICT tools usage

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