



Readiness of Principals, Teachers, Students and Technical Support Personnel to Use E-Learning in Secondary Schools in Bauchi Metropolis

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ABSTRACT

The study investigates the preparedness of principals, teachers, students, and technical support personnel in secondary schools in Bauchi metropolis to embrace e-learning. A descriptive survey research design was employed, guided by four research questions. The study participants comprised twenty-three (23) principals, one hundred and fifteen (115) teachers, two hundred and thirty-one (231) students, and twenty-three (23) technical support personnel. The researchers utilized an instrument titled "Readiness of Principals, Teachers, Students, and Technical Support Personnel to Use E-learning Questionnaire (RPTSTSPEQ)" for data collection. This instrument was validated by three experts, and its reliability was determined to be 0.63. The study's findings indicated that principals are not only aware of e-learning but are also prepared to support its implementation in their schools. Teachers demonstrated a good understanding of e-learning and expressed confidence in their ability to use it for instructional purposes. Similarly, students exhibited literacy in e-learning and demonstrated proficiency in utilizing online resources for their learning. Moreover, secondary schools in Bauchi metropolis were found to have ICT technical support staff. Given the e-learning literacy of principals, teachers, and students, coupled with the presence of ICT support personnel, the study recommends that the government leverage these stakeholders to integrate e-learning into all schools.

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INTRODUCTION

The COVID-19 pandemic has brought about an unprecedented shift in teaching and learning leading to the rapid development of e-learning (Wagiran, Suhajana, Nurtanto, Mutohari, 2022; Jaoua, Almurad, Elshaer, Mohamed 2022). Digital transformation has become necessary in different fields, including education, due to information and communication technology (Aslam, Jilani, Sultana, Almutairi, 2021). Implementing e-learning in educational institutions has become necessarily important. Over the last decade, E-Learning Readiness

(ELR) has become an essential factor in the success of educational institutions in achieving educational goals (Rodrigues, Almeida, Figueiredo, Lopes, 2019; Rohayani, 2015).

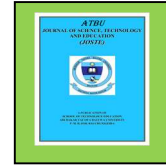
However, internet technology appears to have rendered the traditional method of teaching obsolete (Anwar, 2017) and a number of educational stakeholders have proposed that education through the use of information and communication technology tools, sometimes referred to as e-learning, is the way of the future (Anwar, & Louis, 2017). E-learning has been described as the practice of teaching and

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learning through the use of electronic equipment (Aziz, Othman, Gardi, Ahmed, Sabir, Ismael, Hamza, Sorguli, Ali, Anwar, 2021).

Despite the merit it has, e-learning cannot be directly used in school environment. The use of e-learning requires an analysis process to measure its readiness (Aldhafeeri & Khan, 2016; Hashim, 2014). It is very important to investigate its readiness to determine the factors necessary for implementing e-learning. The readiness of e-learning or E-learning Readiness (ELR) could be investigated by factors designed and developed by Teddy and Swatman (2006); this determines four factors of readiness, namely (1) students' readiness, (2) teachers' readiness, (3) principals' readiness (4) readiness of technical support personnel. There have been many studies on e-learning readiness conducted. However, the current studies investigated four factors, such as teachers' readiness (Akaslan & Law, 2011; Al-furaydi, 2013), students' readiness (Anuar, Zamani, Zakaria, Noor & Othman, 2014; Ngampornchai, 2016; Rahim, Hawa, Yusoff, & Latif, 2014), technical support readiness (Al-arabi, bin Mahrin, & Yusoff, 2018), and principals' readiness (Alsmadi, Jianping, Prybutok, & Gadgil, 2017). In addition, there were limited studies conducted in secondary schools, especially in senior secondary schools, since most of them were conducted in higher education (Rohayani, Kurniabudi, & Sharipuddin, 2015; Al-arabi, bin Mahrin, & Yusoff, 2018; Alsmadi, Jianping, Prybutok, & Gadgil, 2017; Alshammari & Adailleh, 2018; Darab & Montazer, 2011; Mirabolghasemi, Choshaly, & Iahad, 2019; Mosa, Naz, & Ibrahim, 2016; Nwagwu, 2019; Jaya, Hanafi, & Febriana, 2019). Therefore, it is important to conduct further studies on e-learning implementation readiness from all factors in senior secondary schools.

Covid-19 pandemic has made the developing countries including Nigeria to discover the need for the adoption of e-learning in education system and yet there is a problem of readiness and implementation. However, readiness has to do with stakeholders' awareness, knowledge of use, perceptions, and attitudes toward their capabilities and skills for e-

learning integration as well as gaining experience in the use of e-learning (Msila, 2015). Moreover, not all the secondary schools were fortunate to meet up and ready to implement the e-learning and the reason is what this study sought to find out. Covid-19 pandemic has escalated the need for technological knowledge and skills for a better future in education. E-learning has come to stay, and all the sectors of the economy are embracing it including the education sector.

RELATED WORKS

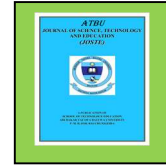
Recently, many studies have been conducted to evaluate current status of ELR in secondary schools and identify the factors that affect it (Septama, Komarudin, Yulianti, 2021 & Sardjono, Sudrajat, Retnowardhani, 2020). In order to be ready to integrate e-learning, teachers and students in particular must be provided with a solid foundation of skills and knowledge in digital media and develop new understandings, new approaches, new roles and new forms of professional development about e-learning integration (Ruggiero & Mong, 2015; Sabzian & Gilakjani, 2013). The successful implementation of e-learning into teaching-learning pedagogy relies heavily on teachers' and students' readiness and willingness to adopt and use e-learning (Singh & Chan, 2014; Summaka, Baglibel, & Samancioglu, 2010). Rohayani, Kurniabudi & Sharipuddin (2015) depicted skills as most significant factor that influences e-learning readiness. Studies have shown that, there has been a growing number of studies evaluating educational institutions' readiness to implement e-learning in developing countries (Mafunda, Swart, 2020; Shakeel, Haolader, Sultana, 2023; Bubou, Job, 2022; Zandi, Rhoma, Ruhoma, 2023; Lucero, Victoriano, Carpio, Fernando, 2022; Mushi, Lashayo, 2022). Specifically, readiness is measured by introducing innovations to digital understanding, approaches, roles, attitudes, eagerness to integrate technology in the preparation and the delivery of lessons (Hoppe, Jr., 2015; Ruggiero & Mong, 2015; Sabzian & Gilakjani, 2013; Singh & Chan, 2014; Summaka, Baglibel, & Samancioglu, 2010, cited in Al-Awidi

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& Aldhafeeri, 2017; Mahdy, Samad, & Mahdi, 2020).

However, research revealed that teachers' readiness is one of the influencing factors that affect teachers' use of e-learning and it has a significant positive direct effect on e-learning integration in education (Inan & Lowther, 2009). In the study conducted by Ventayen (2018), teachers' readiness toward online teaching is determined through their skills and knowledge that are specifically manifested in technical and technological skills, their online experiences, and their time management manifested explicitly anticipated by both elementary and secondary school teachers, the study found out that in terms of technical and technological skills, they are ready and competent as supported by the Department of Education's computerization project and the country's technological improvement.

Marino, Mashingaidze, and Nyoni (2013) in their studies reported that readiness of school principals cannot be overemphasized, as their role is fundamental to the adoption and use of new technologies and pedagogical methods. In the studies, principal readiness is determined in terms of support, skill application and technological access of both teachers and students. In addition, digital technology skills also provide by schools' principal for understanding in mastering the supporting tools for running e-learning today (Almaiah, Al-Khasawneh, Althunibat, 2020; Elkaseh, Wong, Fung, 2015). Pereira, Ramos, Gouv[^]ea, Da Costa, (2015a); Pereira, Lopes, Marta, (2015b) also established that skills in using supporting equipment, such as computers, internet, software, and applications, need digital technology skills which were been provided and supported by school management. The school management provides the main capital for students undergoing electronic learning to meet learning needs, and also increases their learning satisfaction.

In addition, research conducted by Afolabi's (2015) investigated the availability of online learning tools and the readiness of teachers and students towards use of online learning tools. Findings from the study revealed

that online learning tools are available at Adekunle Ajasin University Akungba-Akoko but the practice has not begun. Students and lecturers are equally ready to use online instructional method whenever it is introduced into the university system. Chung, Subramaniam and Dass (2020) further investigated students' readiness for online learning in Malaysia. The result shows the readiness of students to participate in online learning is slightly moderate as some of them were ready, but improvement is still needed for online learning. Shetty, Shilpa, Dey and Kavya (2020) investigated the attitude of the undergraduate students towards online learning during Covid-19 pandemic in India. The result revealed that the students have favourable readiness and perceptions towards online learning for sustaining their academic interest and development during the pandemic.

On the ICT support, research carried out by Phan and Dang (2017) regarding technical support personnel readiness, results revealed that stakeholders' not only need the technical competence and ability of support personnel, but ready to carried out maintenance and services of hardware, software and other ICT technologies; it also required the technicians to have sufficient support for e-learning implementation, skills and knowledge of e-learning services and maintenance of ICT technologies teaching method. The management employed an integrated technical support team to offer state-of-the-art technical support to staff and students through availability of competent personnel and well equipped ICT facilities.

Although the importance of ICT in education cannot be overemphasized, its integration in teaching and learning process is a multifaceted process which involves more than just the technology but also the curriculum, pedagogy, institutional readiness and teacher competencies (Hoque & Alam, 2010). Therefore, most important thing to do is by determine the level of readiness to implement e-learning before starting it (Gay, 2016; Widyanti, Hasudungan, Park, 2020). Studies agreed that the results revealed the basic reason for failure in implementing e-learning which is the unpreparedness to

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implement e-learning (Coskun, Ozeke, Budako_glu, Kula, 2018; Widyanti et al., 2020), but rather, how best to measure the level of stakeholders readiness to integrate technologies must be done, starting from gap analysis to rearranging innovation to seek better integration of electronic learning (Alqahtani and Rajkhan, 2020; Nwagwu, 2020).

More recently, various studies about the subject (readiness of stakeholders' uses of e-learning) have been carried out globally, however there is little or no studies that specifically address issues relating to the perception and readiness of educational stakeholders towards use of e-learning in Bauchi metropolis secondary schools during the last Covid-19 pandemic. Some studies found e-learning users to be ready (Afolabi, 2015; Shetty, Shilpa, Dey and Kavya (2020; Ventayen (2018), while others found them either not ready or need improvement (Chung, Subramaniam and Dass (2020). In fact, where some of these users of e-learning are ready, there appear to be the problem of lack of awareness of e-learning availability, skills and knowledge, therefore, grossly not ready (Nganga, Waruru and Nakweya (2020; Dube (2020)). It is in view of this, that this study investigated the readiness of educational stakeholders of secondary schools in Bauchi metropolis, we refer to the principals, teachers, students and technical support personnel to use e-learning.

Aims and Objectives

The general aim of this study is to investigate The Readiness of Principals, Teachers, Students and Technical Support Personnel to use e-learning in secondary schools in Bauchi metropolis.

Specifically, the following objectives serve as guidelines to satisfy this aim:

1. To investigate if principals of secondary schools in Bauchi metropolis affirms their readiness to embrace and support use of e-learning.
2. To identify if teachers have the requisite knowledge and skills readiness to use e-learning.

3. To identify if students have the requisite knowledge and skills readiness to use e-learning.
4. To find out if technical support personnel of secondary schools in Bauchi metropolis affirms their ICT readiness to assist in use of e-learning.

Research Questions

In line with the objectives of the study, four research questions were raised as seen thus:

1. Do the principals of secondary schools in Bauchi metropolis affirm their readiness to embrace and support use of e-learning?
2. Do the teachers have the requisite knowledge and skills readiness to use e-learning?
3. Do the students have the requisite knowledge and skills readiness to use e-learning?
4. Are the technical support personnel of secondary schools in Bauchi metropolis affirms their ICT readiness to assist in use of e-learning?

METHODOLOGY

The study employed a descriptive survey research design. The population of the study was 20433 respondents from which a sample of 392 comprises of twenty three (23) principals, one hundred and fifteen (115) teachers, two hundred and thirty one (231) students as well as twenty three (23) technical support personnel from twenty-three public senior secondary school in Bauchi metropolis were selected through a stratified random sampling technique. Self-structured questionnaires were designed after an elaborate literature review and related studies. To ensure validity of the questionnaires, face and content validity was done by experts in the area of teaching and instructional technology. A validated four self-structured instruments titled 'Readiness of Principals to Use E-learning Questionnaire (RPEQ)', 'Readiness of Teachers to Use E-learning Questionnaire (RTEQ)', 'Readiness of Students to Use E-learning



Questionnaire (RSEQ) and 'Readiness of Technical Support Personnel to Assist E-learning Questionnaire (RTSEQ)' were developed by the researcher. The main part of the questionnaires assessed the respondents' perception and readiness towards use of e-learning based on Likert scale format. The instrument was pre-tested and Cronbach's Alpha co-efficient test (r) yielded 0.631, which indicates that the instrument is very reliable. Nonetheless, minor changes were made to the questionnaire to ensure the effectiveness of the value. The administration of the questionnaire was done with the research assistant. Data was collected between the periods of 13th to 17th December, 2021. The data obtained was extracted, cleaned and transferred onto Statistical Package for Social Sciences (SPSS) version 21 for the analysis.

Descriptive statistics such as mean and standard deviation were used to present the findings.

RESULTS AND DISCUSSIONS

RQ1: Do the principals of secondary schools in Bauchi metropolis affirms their readiness to embrace and support use e-learning?

In Table 1, Five likert scale points SA (Strongly Agree), A (Agree), N (Neutral), D (Disagree), SD (Strongly Disagree) were used to indicate respondent's options of principal readiness on use of e-learning. The mean and standard deviation were used for principals' of Secondary Schools in Bauchi metropolis affirms readiness to embraces and supports the use of e-learning.

Table 1. Principals affirms readiness to embraced and support use of e-learning

S/N	Principal Readiness Factor	N	Mean	S.D.	Remark
1.	I know about e-learning and ready to use it	23	3.83	1.114	Agreed
2.	There are e-learning facilities in my school	23	3.09	1.379	Agreed
3.	My school used e-learning during Covid-19 lockdown	23	2.22	.951	Disagreed
4.	My school teachers are readily trained on how to use e-learning	23	3.74	1.251	Agreed
5.	I support the use of e-learning in my school	23	3.70	1.185	Agreed
6.	There are internet and local area network connectivity in my school	23	3.35	1.641	Agreed
7.	My school environment is conducive for e-learning readiness	23	3.43	1.441	Agreed
8.	My school has enough computer technicians for readiness to use e-learning	23	3.26	.964	Agreed
9.	My school collaborate with parents in supporting of the readiness and use of e-learning at home	23	2.26	1.096	Disagreed
10	The available e-learning facilities in my school were not allowed to be used by staff and students	23	2.43	1.472	Disagreed
Grand mean		23	3.13	1.249	Agreed

Source: Field Study 2021

This study finds that principals were generally readily embraced and support e-learning implementation during the sudden emergency remote teaching due to the global pandemic with an overall mean of 3.13. Results reveal that principals' respondents possess the support ability and embrace competence to facilitate e-learning implementation during

emergency remote teaching and learning. Among the statements under embraced and support scale, principals know about and ready to use e-learning (3.83, Strongly Agree), trained teachers on how to use e-learning (3.74, Strongly Agree), support the use of e-learning (3.70, Strongly Agree), availability of local area network (3.35, Strongly Agree), conducive

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environment for e-learning readiness (3.43, Strongly Agree), availability of ICT technicians (3.26, Strongly Agree) were the six with the highest means. On the other hand, a statement like availability of e-learning facilities in the school (3.09, Agree) received the lowest mean but still on the spectrum's positive side.

Overall, principal respondents' embraced and support scale shows their readiness to find solutions to various barriers to those challenges in online teaching, extending their knowledge and expertise to help others and provide practical discussions. Accordingly, our respondents' confidence demonstrates their competence in their skills and knowledge that makes it easier for them to adapt to the new learning system. This is supported by Gulbahar & Kalelioglu (2015), Phan and Dang (2017) stating that competent administrators possess

the capacity to adjust quickly from traditional to online teaching. Hence, understanding the participants' support is "useful for the school administrators to have strategic plans to support and motivate them to participate in the adoption of e-learning with willingness". School management is essential to facilitate the use of e-learning in school (Alsmadi, Jianping, Prybutok, & Gadgil, 2017; Hosseini, Salimifard, & Yadollahi, 2012). The improvement of this aspect needs to be considered to acquire the desired condition, which is the optimum use of e-learning in school.

RQ2: Do the teachers' have the requisite technological knowledge and skills readiness to use e-learning?

Table 2: Teachers' Requisite Technological Knowledge and Skills readiness to use e-learning

S/N	Teachers' Readiness Factor	N	Mean	S.D.	Remark
1.	I know what e-learning is	115	4.05	.897	Agreed
2.	We use e-learning in my school	115	2.97	1.360	Disagreed
3.	I was trained by my school on how and ready to use e-learning	115	3.03	1.017	Agreed
4.	I use e-learning during Covid-19 lockdown	115	2.24	1.022	Disagreed
5.	I consider that it is the right time to use e-learning in my school	115	3.55	1.179	Agreed
6.	I hesitate to use e-learning in my teaching for fear of making mistake	115	3.90	1.135	Agreed
7.	Using of e-learning in teaching is not useful during pandemic	115	2.22	.803	Disagreed
8.	I can assess my students through e-learning	115	3.71	.792	Agreed
9.	I do not have enough time to prepare e-learning materials	115	2.18	.904	Disagreed
10.	There are no e-learning resources in my school	115	2.31	.958	Disagreed
Grand mean		115	3.02	1.007	Agreed

Source: Field Study 2021

Table 2 results show that teachers are ready, prepared and could integrate technology in the teaching and learning process during the emergency remote teaching. Among the statements under readiness scale, knowledge and skills about e-learning (4.05, Strongly Agree), considering right time to use e-learning (3.55, Strongly Agree), hesitation to use e-

learning for fear of making mistake (3.90, Strongly Agree), assess students through e-learning (3.71, Strongly Agree) generated the four highest means. In contrast, training on how to use e-learning (3.03, Agree) received the lowest mean.

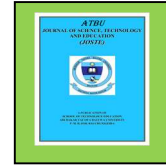
Overall, the teachers display an excellent readiness and preparedness on using

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e-learning technology in different aspects of instructions, including managing concerns, designing assessments, and familiarity for students with a grand mean of 3.02 interpreted as Agree.

The respondents' perceived readiness in using e-learning teaching parallel with Ventayen's (2018) study where teacher-participants also expressed their readiness, especially in the use of technological and technical skills, despite the participants' lack of exposure to virtual instructions. Still, many studies have claimed the readiness of the teachers toward the integration of e-learning in

teaching and learning process (Afolabi, 2015). However, in the study conducted by Al-Awidi and Aldhafeeri (2017), teacher-respondents only showed moderate readiness in digitizing their curriculum with an emphasis on its significant components, which are technical and pedagogical. The results were highly associated with "time constraints, knowledge and skills, infrastructure and technical support"

RQ3: *Do the students' have the requisite knowledge and skills readiness to use e-learning?*

Table 3: Students' Requisite Knowledge and Skills readiness to use e-learning

S/N	Students' Readiness Factor	N	Mean	S.D.	Remark
1.	I know what e-learning is	231	3.65	.798	Agreed
2.	I have knowledge about e-learning	231	3.97	.757	Agreed
3.	I think my students are ready to use e-learning	231	3.23	.885	Agreed
4.	We were ready and used e-learning during Covid-19 lockdown in my school	231	2.34	1.083	Disagreed
5.	My school organized training for students on e-learning	231	3.04	1.136	Agreed
6.	Students in my school have enough knowledge and ready to use e-learning facilities	231	2.20	1.015	Disagreed
7.	E-learning help students to improve their performance	231	2.85	.897	Disagreed
8.	My students understand lesson better in e-learning	231	3.57	1.147	Agreed
9.	Students enjoy learning through e-learning	231	2.77	.810	Disagreed
10.	There is no different between e-learning and face to face/conventional learning	231	2.36	.888	Disagreed
Grand mean		231	3.00	0.9416	Agreed

Source: Field Study 2021

This study finds that students were generally ready for e-learning during the sudden emergency remote teaching due to the global pandemic with an overall mean of 3.0. Results show that students in their generation are fully immersed and integrated with technology, the internet, social media, and other mobile applications. The four highest-rated statements under the readiness scale were about knowledge, skills, readiness and the uses of e-learning with their teachers (3.65, Strongly Agree), having knowledge about e-learning (3.97, Strongly Agree), ready to use e-learning (3.23, Strongly Agree) and understanding e-learning

lesson better (3.57, Strongly Agree). While most of the statements were rated positively, statements such as organizing training for students on e-learning (3.04, Agree) have the lowest mean scores. The respondents show the ease of using technology, familiarity with using learning management systems, and responding to the online assessment.

Bauchi metropolis secondary schools students also showed their readiness toward e-learning, as appeared in the study of Rahim, Yusoff, and Latif (2014). Accordingly, their readiness is enhanced through the academic institution's effort to strengthen its online program

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or teaching modality. Hence, students' perceived readiness in using technology and internet skills in learning must be supported by a strong e-learning environment. Martin, Stamper, and Flowers (2020) measured students' readiness using two dimensions: importance and confidence. In this study, the level of importance was attributed highly to "online student attributes, time management, and technical competencies". For confidence, the respondents rated highly "student attributes and technical competencies".

Generally, the respondents in this study have shown their readiness in an e-learning engagement in most competencies, except in communication competencies.

RQ4: *Are the technical support personnel of secondary schools of Bauchi metropolis affirmed their ICT readiness to assists in use of e-learning?*

Table 4: Technical support personnel of secondary schools in Bauchi metropolis affirming their ICT readiness to assists in use of e-learning

S/N	Technical Readiness Factor	N	Mean	S.D.	Remark
1.	My school has ICT infrastructure to support e-learning	23	3.51	.989	Agreed
2.	Technical support personnel in my school are ready to offers help for both teachers and students on ICT	23	3.52	.947	Agreed
3.	Technical support personnel ready to maintain and service ICT facilities in my school	23	3.52	.994	Agreed
4.	We have adequate ICT support personnel in my school	23	3.04	1.261	Agreed
5.	There were no ICT resources for technical maintenance in my school	23	2.30	.822	Disagreed
6.	We do not have adequate ICT support staff in my school	23	2.39	.783	Disagreed
7.	Technical support personnel in my school are competent and ready to handle e-learning troubleshooting	23	3.96	.976	Agreed
8.	There were no trained and experienced ICT support personnel in my school	23	2.39	1.500	Disagreed
9.	The ICT technical support personnel in my school are not up to date	23	3.42	.834	Agreed
10.	ICT Support personnel in my school are incompetent	23	2.26	1.054	Disagreed
Grand mean		23	3.03	1.016	Agreed

Source: Field Study 2021

Results reveal that technical support personnel respondents possess the ability and competence to facilitate services and maintenance of ICT hardware, software and other e-learning resources during emergency remote teaching. Among the statements under the technical support scale, school ICT infrastructure to support e-learning (3.51, Strongly Agree), ICT technicians are ready to offer support for both teachers and students (3.52, Strongly Agree), Ability, skills and

competence to handle e-learning troubleshooting (3.96), technical personnel ICT knowledge not up-to-date (3.42) were the four factors with the highest means. On the other hand, a statement like adequate ICT support technicians (3.04, Agree) received the lowest mean but still on the spectrum's positive side.

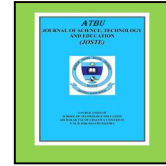
Overall, technical personnel respondents' support and assists scale shows their determination and readiness to assist both teachers and students in handling and

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maintenance of hardware and software and extending their knowledge and expertise to help others and provide practical discussions related to other ICT infrastructures. Above all, ICT support technicians were ready but required a little improvement. School technicians that supports and assist e-learning required some improvements. In terms of increasing technicians who can support e-learning in schools, the school could establish technician training or increase the number of technicians who are able to support E-learning (El Alfy, 2016).

CONCLUSION

The study investigated the readiness of principals, teachers, students and technical support personnel of secondary schools in Bauchi metropolis on the use of e-learning. More specifically, the research investigated the factors that necessary for implementing stakeholders' readiness and use of e-learning within the Bauchi metropolis secondary schools and underpinned by four factors. The research identified four readiness factors that greatly necessary for impact on stakeholder's utilization of e-learning. Since the study was underpinned by readiness factors and the themes that emerged were clustered based on four readiness factors. From the findings, the secondary schools stakeholders' readiness to implement and use e-learning in Bauchi metropolis had ELR score of 3.05. The study concluded that educational stakeholders' has significant and positive readiness to use e-learning through support from principals', skills and knowledge of both teachers' and student' and ICT assistance from technical support staff of senior secondary school in Bauchi metropolis. This finding indicated that the educational stakeholders' were ready but they still need a little improvement category in some factors.

RECOMMENDATIONS

Based on the findings of this research and the conclusion drawn, the following recommendations are made to enhance ELR in secondary schools in Bauchi metropolis:

1. The government and principals of secondary schools should provide adequate e-learning facilities.
2. There is need to design e-learning curricula that is relevant with quality information suitable for each of the subjects. This will give the students opportunity to discuss their knowledge with other students or instructors outside their location.
3. Principals should organize seminar for the teachers on technological pedagogy at least once in each session to improve their knowledge and skills.
4. There is need to increase awareness and knowledge of e-learning among teachers and students through training and workshops.
5. The management should provide adequate resources and technical support to facilitate the readiness of e-learning.

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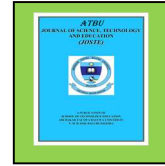
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