MEETING THE NEEDS AND CHALLENGES OF E-LEARNING FOR IMPROVING JUNIOR SECONDARY SCHOOL STUDENTS' WRITING SKILLS VIACONCEPT MAPPING STRATEGY IN NIGERIA

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Abstract

We are in an era where E-Technology is taking over the educational space as many countries of the world have introduced e-learning into schools, but its usage is still in infancy stage in most developing countries like Nigeria. The use of e-learning enhances the quality of education, help teachers to do their job more effectively and have effectively raised students' interest in learning. This study investigated the effect of meeting the needs and challenges of e-learning with the aim of improving students' writing skills through concept mapping strategy in Nigeria. The study reviewed and examined relevant literatures; sought to employ secondary sources like journals, books, E-books, and newspapers in generating data. Findings revealed: acute shortage of e-learning materials such as on-line/internet-connected computers, e-mail facilities, multimedia television, multimedia computer and digital library. The few available ones such as off-line/ordinary computers, scanner, printer and ready-made courseware are not utilized because the teachers lack the knowledge and skills of computer application. The paper recommend that governments should embark on a massive computer literacy training nation-wide for teachers and learners at all levels. Again all classrooms and auditoriums should be connected to the internet in order to enhance web-based instruction and that teachers should take into account learners' needs, wants, expectations and cognitive abilities.

Keywords: Concept mapping, Writing skills, E-Learning, Needs, Challenges.

Introduction

The current wide spread of mobile devices and wireless technologies bring an enormous potential to e-leaning in terms of pervasiveness, ubiquity, personalization, and flexibility. On the other hand, due to increased globalization and internationalization in recent decades, English has become the lingua franca of the world in the 21st century as can be seen in its widespread use in academia, electronics, commerce, and technology (Spolsky&Shohamy in Mojtaba&Mahsa, 2018). English language is widely spoken by over 1.75 billion people-a quarter of the world's population (Mark, 2013). In Nigeria, English is not only used as a medium of instruction but as a language of administration, law, commerce and religious activities, and it is also an official language. For learners of English all over the world, including Nigeria, writing is one of the most difficult skills (Hoewisch, 2001). Among the main language skills which include: listening, speaking and reading, writing has proved to be the highest order skill (Beck, 2011).

Despite the fact that students are motivated through different approaches to learn writing, they still appreciate writing with difficulty, and the achievement is critically below standard (Brent in Mojtaba&Mahsa, 2018). Negari (2011) observed that writing is widely recognized as one of the most challenging skills for students to master. It requires consistent effort and regular practice to attain a certain level of proficiency in order to put down one's thoughts and ideas logically. Omar (2015) opined that writing is one of the most important skills that teachers must concentrate on as it leads to better thinking and communication and is never left ignored in language learning process because it is as important as reading, speaking and listening; but it requires consistent efforts and regular practice to develop certain proficiency. Tan (2012) indicated that writing well unlocks the door to advancement in virtually any field of study a learner might select in the future. Chappell in Hamisu (2017) considered that writing is a crucial job skill, which help the learner understand how knowledge is recognized in any specified field.

Inappropriate teaching approaches and strategies areobserved as the major factors contributing to the low level of English achievement. Piccinin in Hamisu (2017) indicated that dominant traditional teacher-centred (TTC) approach to teaching English did not produce effective results and make it impossible for learners to acquire the level of competency required to achieve success. In order to facilitate learning the English language for 21st century learners, Lee (2002) suggested that teachers should integrate information technology (IT) into their classes. McCormick in Hamisu (2017) claimed that (IT) can assist to diversify, develop and improve the pedagogical relation of teaching and learning. But Walker, Shippen, Alberto, Houchins, andCihak (2005) are of the opinion that it is difficult to teach writing without using direct instruction and that even with direct instruction, writing requires that students draw on many skills at the same time.

The traditional methods of teaching writing skills seem to be ineffective and many studies as observed by Omar (2015) have proved that. For example, Khalil (2002) found that most of the mistakes made by the non-native speakers of the Arab learners are in writing especially in sentence formation, usage and mechanics of writing are due to such inadequacy in traditional methods. Sturm and Rankin-Erickson in Negari (2011) stated that parts of the students' difficulties in writing are related to difficulties in applying various cognitive strategies. Flower and Hayesin David, (2009), suggested that there is need to develop effective strategies for managing the writing process by writers in order to avoid cognitive overload. In this respect, Nobahar, Amir and Masud (2013) observed that in recent years, there has been a great body of research on the effect of strategy training on language learning …Strategy training has been applied to language learning skills such as reading, and listening. However, little has been done on writing and speaking.

This is also true in Nigeria, as most studies and researches pay more attention to reading comprehension and listening skills. Based on this assumption, this study investigated the effect of meeting the needs and challenges of e-learning for improving junior secondary school students' writing skills through concept mapping strategy in Nigeria.

Concept of E-learning:
E-learning is a modern approach of teaching many facets of educational endeavors, including reading and writing skills of both native and non-native speakers of English. E-learning is

described by most scholars as access to learning experiences via the use of some technology

(Benson in Hamid &Kangani, 2018). It refers to instructional environments supported by the internet which comprise a wide variety of programmes that use the internet within and beyond school walls to provide access to materials as well as facilitate interaction among teachers and students.

Concept Mapping (CM):
The idea of concept mapping was originally derived from cognitive theory which sprang out of Ausubel's assimilation theory (Novak &Cañas, 2006). According to this theory, the key determinant of an individual's learning was his/her previous knowledge. This theory took learning as most productive and meaningful when connecting prior knowledge with new information. That is, the acquisition of new knowledge hinged upon what was already known.Novak developed the notion of concept mapping in the 1960s, to represent visually the structure of information (Novak in Hamid &Kangani, 2018). In his view, concept maps were techniques for visualizing the relationship among different concepts Novak (2010), Stoica, Moraru, and Miron (2011) asserted that, a concept is the regularity in objects or events designated by specific labels… and diagrammatic representations which show meaningful relationships between concepts in the form of propositions.

In effect, CM is emphasizing organization and instruction of the knowledge that helps meaningful learning and the creation of powerful knowledge frameworks that not only permits utilization of the knowledge in new context, but also retention of the knowledge for a long period of time (Novak &Gowin in Hamid &Kangani, 2018).Concept mapping, as a learning strategy is a visual representation of an individual's knowledge structure on a particular topic as constructed by the individual; it is assumed to be an excellent exercise for the promotion of creative thinking and identification of new problem- solving methods (Nagiri, 2011).

Ibrahim (2014) reported three different investigations of the students' attitudes towards the use of concept mapping as a strategy to improve language learning skills. Chularut and DeBacker (2004), Nobahar, Tabrizi and Shaghaghi (2013), and Sabbaghan and Ansarian (2013) all found that most of the students generally showed satisfaction with using concept mapping in their language learning. They concluded that the use of concept mapping boosted the students' attitudes, motivation, and engagement in EFL teaching and learning.

Earlier, concept mapping involves manual drawings but advances in computer applications, new software was developed for drawing concept maps. Cañas, Hill, Carff, Suri, Lott, Gomez, Eskridge, Arroyo, andCarvajal (2004) asserted that just like how a word processor held up thejob of writing text, technology eased the production of concept maps. In their analysis, greater tools allowed for executing bigger representations for composite fields, and for involving more people in the creation of the maps.The application of concept map tools flourished in quantityand quality via the Web, multimedia, and Internet. Novak and Cañas(2010) described new concept map tools as engines for knowledge creation. Using computerized concept maps could generate new ideas that could be easily and rapidly manipulated and adapted. Anderson-Inman and Zeita in Ibrahim (2014) commended the

easiness ofediting computer-assisted concept maps because they allowed forrapid manipulations.

Concept mapping as graphic representations have numerous benefits, ranging from helping learners brainstorm and generate new ideas, organize and represent their thoughts to further understand information and discover new relationships, scaffold for cognitive processing, summarize and organize previous learning, maintain collaboration, consolidate educational experiences, develop critical thinking, defy long-held ways of thinking, boost learning achievements and interests (Dansereau, &Hall in Tseng, 2012).

The Concept of Writing

Writing is one of the basic skills of the English language. It is generally considered as one of the most difficult skills among the four language skills for many learners of ESL/EFL learners because of its complexity in spelling, pronunciation, vocabulary and grammatical structure. Even native speakers feel difficulty in showing a good command of writing (Johnstone, Ashbaugh, & Warfield, 2002). It is a form of communication that allows students to put their feeling and ideas on paper, to organize their knowledge and beliefs into convincing arguments, and to convey meaning through well-constructed text (Rao, 2019). In its most advanced form, writing expression can be as vivid as a work of art.TheEnglish language as second language (ESL)includes writing skills in the syllabus because thisis an essential element for students' academic success. (Kellogg, 2008) This is because writinghelps to: reinforce the grammatical structure, enhance the students' vocabulary, and assist other language skills such as reading, listening and speaking. Writing success has multifarious purposes at school level. Since writing is considered the productive skill, the English language learners (ELLs) find it as a more complex skill. While the ELLs start writing, they have to follow two important features of writing, i.e., coherence and organization. In this regard, the teachers of English language should always teach the learners how to write paragraphs and essays with good coherence and proper organisation.

Advantages of Writing Skills

Writing has many advantages for both individual student and group of students. Writing as observed by Rao (2019) develops the learners' critical thinking and they will be able to stockpile their ideas. It also helps them recover their ideas by bringing back their old and almost forgotten memories. It also clears their mind and makes them to feel the need to vent and speak their minds in order to get their point across. It also help the students analyze things and look at them from a different point of view and will be able to draw parallels between situations and fictional events and those that happened in their real life. Students also improve their verbal as well as written skills and while writing, they carefully select the right vocabulary and grammatical structure. Moreover, their writing will be more elegant, concise and eloquent than their actual speech since they have enough time to think and select the appropriate vocabulary and grammatical structure.

Role of Concept Mapping Strategy in Improving Students' Writing Skills

According to the theorist of concept mapping, meaningful learning facilitates high-level learning and occurs when students learn by self-discovery (Chei-Chang, Li-Tze, Li-Chu, & Yu-Min, 2017), which is often characterized by new information linked to an existing

cognitive structure, making strong connections to the current concept structure. Concept mapping is a useful instructional strategy that facilitates meaningful learning. Based on Ausubel's theory, a key determinant of meaningful learning is the framework of relevant concepts or propositions that an individual possesses (Chiou, 2009). In the learning process, learners absorb new knowledge and connect it to relevant concepts or propositions they already possess; this new knowledge then becomes intertwined with their cognitive structure. When connection strength is adequate, students will be successful (Schau&Mattern, in Chei- Chang, Li-Tze, Li-Chu, & Yu-Min, 2017). Hence, instructors must help students develop skills for making connections between new knowledge and existing knowledge and as such, considered one of the effective strategies in teaching writing skill (Rahman&Ambreen, 2018).

This is because concept mapping represents the relationship of ideas connected around central theme (Deshatty&Mokashi, 2013). Thus, it is an effective tool in helping the students to organize information for writing by associating ideas, linking concepts and developing thinking skill by establishing logical relationship with ideas (Buzan, 2010). Concept mapping strategy may be utilized to initiate knowledge former to composing andto frame students' memory in all stages of the writing process bysupporting students to perceive word, concept, and group relationships. Rahman and Ambreen (2018) observed that concept mapping strategy has been used in a diverse of classroompresentations for vocabulary development, study skill improvement,reading comprehension, and prewriting organisation.

Concept mappinggivesthe students an opportunity to think about ideas and their connections to the subjects being studied and the meanings of different terms. It enables them to organize and learn effectively, store andretrieve the learnt material more efficiently. Vanides, Yin, Ruiz-Primo, Ayala and Shavelson (2005) presented two ways that concept mapping can be conducted while teaching students writing. First is to teach thestudents the construction of concept maps by the students themselvesabout the unit to be studied and the second is the use of teachers' madeconcept map for the introduction of unit, definition of terms and theinterrelationship of different concepts. Whatever the application ofconcept map is, either constructed by students or by teachers helpstudents to understand and internalize the scope of learnt material and tocomprehend how different aspects and key points are integrated to makea whole unit connected.

Keles (2012) opined that concept mapping is beneficialforinformation organization, learning assessment, comprehension ofcommunication and understanding of a text. There is anample verification for the usefulness of the utilization of concept mapping strategy in teaching writing skills. Studies haverevealed that concept mapping strategy in teaching writing help students to; organize ideas and understand the written information easily, develop ideas effectively by making writing an easy process and develop understanding and elaborating topic easily. For example, Ojima (2006) applied concept mapping as an instructional strategy for development of writing at its planning stage and the findings revealed in English class that, the learners produced better results with the help of concept mapping. Same results were also shown by (Fahim&Rahimi, 2011;Kyoko & Hiroko; Pishgadam&Ghanizadeh, 2006). Pishghadamand Ghanizadah (2006) observed and reported some problems in writings of

students which include organization and sequencing of ideas, strong thesis and relationship between ideas. As these problems are addressed at planning stage, the stage occupies an important role to support learners in organization of ideas, setting of objectives and construction of linkage between concepts. Concept mapping thus can be used as visual representation of ideas in a creative way at different stages in writing development.

Concept of E-Learning

E-Learning is a term that encompasses a broad array of content and instruction methods, and that has come to mean a new model of education involving revised curriculum, infrastructure, teacher professional development, textbooks, and exams to provide students with technology and"21st century skills"such as creative problem solving, critical thinking and collaborative learning. A particularly useful aspect of ICT in education includes accessing the enormous amount of educational resources on the Internet and online libraries. The networking of teachers, students and others can also produce a lively community sharing information, ideas and strategies(Olson, Codde, De-Maagd, Tarkelson, Sinclair, Yook and Egidio, 2011).

E-learning in learning and education refers to the use of modern technologies such as computers, digital technology, network digital devices (e.g. the internet) and associated software and course ware (Olutola&Olatoye, 2015). Parks (2013) suggested that "e-" should refer to "everything, everyone, engaging and easy" in addition to 'electronic'. Developments in internet and multimedia technologies are the basic enablers of e-learning, with consulting, content, technologies, services and support being identified as the five key sectors of the e-leaning industry (European Commission, 2000).

Regardless of the educational level or stage, e-learning can be adopted, used or applied in the education sector for effective teaching and learning. E-learning is a learner-controlled, self-paced education environment where the learner has authority over the learning environment; thereby allowing learners to work at their pace, convenience (Eke, 2011). E-learning can be defined as the online delivery of information. It can also be defined as integrating learning with technology (Okah-Edmon, 2010). It is instruction delivered through purely digital technologies such as CD ROM, the internet and private networks (Landon and Landon, 2010). Another definition of interest is tele-education that goes by a number of terms including e-education, distant learning, distributed learning and online learning that uses various forms of IT like chatrooms, videoconference, e-mails and the internet (Hagg, Cunning & Dawkins, 2000). E-learning can also be defined as the online delivery of information for the purpose of education, training or knowledge management (Turban, King, Lee, Liang, & Turban, 2010).

Furthermore, the United Nation Educational Scientific and Cultural Organization (UNESCO) gave an inclusive definition of e-learning as mobile learning in 2011.Akubuilo cited in Okah-Edmon and Ogedebe, 2014, views e-learning as comprising all forms of electronically supported teaching and learning. He contends that e-learning is to brick wall classroom learning, what mobile phone is to analog fixed telephone line. To him, whereas the block wall classroom is situated at a place where teachers and students physically meet and interact, e-learning is diffused, capable of taking place anywhere and anytime, without face-to-face

interaction between the teacher and students. E-learning for the purpose of this study can be defined as a web-based/online technology for the purpose of teaching and learning.

Advantages of E-Learning

Nwana (2012) is of the opinion that in this age of Information and Communication Technology (ICT), there is growing concern for the use of ICT resources such as the computer, scanner, printer, Intranet, Internet, e-mail, videophone systems, teleconferencing devices, wireless application protocols (WAP), radio and microwaves, television and satellites, multimedia computer and multimedia projector in curriculum implementation. In e-learning, curriculum content in the form of texts, visuals, e.g. pictures, posters, videos, audio/sound, multicolor images, maps, and graphics, can be simultaneously presented online to students in both immediate locations (classroom model of e-learning) and various geographical distances (Distance Education model of e-learning).

Advantages of e-learning technologies according to Bhuasiri, Xaymoungkhoun, Jeung and Cigenek (2011) include:

i.   Increase in accessibility to information,
ii.   Better content delivery,
iii.   Personalized instruction,
iv.   Content standardization,
v.   Accountability,
vi.   On-demand availability,
vii.   Self- pacing,
viii. Interactivity,
ix.   Confidence and
x.   Increased convenience

The above advantages of e-learning are based on the benefits it provides to stakeholders in educational sector.

Bhuasiri, et al, (2011) noted that, in developing countries e-learning is still in its infancy and early adoption stage and thecountries experience challenges unique from developed countries.

Challenges of E-Learning in Nigeria
Datuk and Ali (2012) opined that in order to enhance the effectiveness of e-learning in Malaysia, there are many challenges that needs overcoming which are: Awareness, low adoption rate, bandwidth issue and connectivity, computer literacy and digital divide and lack of quality e-content.Anene, Imam andOdumuh (2014) observed that there are many key factors that hamper the successful implementation of ICT in developing countries especially Nigeria, however, only a few were highlighted thus:

Poor technical infrastructure: The technical infrastructure needed for e-learning is not highly developed, which means that phone-lines and Internet connections are unreliable or slow due to narrow bandwidth. Most users access the Internet in cyber cafes, with shared bandwidth, thus slow Internet connections, as not everyone has a personal computer or laptop. Our problem is further worsened by the lack of adequate power.

Financial restrictions: The cost of ICT equipment can be a limiting factor with regards to reaching a broad target audience and making sure that everyone can afford this service. Also, misappropriation of funds has added to the ongoing problem.

Lack of computer literacy: It has been found that low computer literacy level is a critical factor that affects the acceptability of ICT/e-learning by students and teacher in educational institutes. Furthermore, the lack of ICT training for teachers and lecturers makes it hard for them to provide digital content, even when provided with all necessary infrastructures.

Inappropriate teacher training: Unsuitable teacher training programs fail to engage teachers in using ICT in the preparation of their lessons. Teachers are the foundation to educating our pupils, but times have changed and their lack of new knowledge / material has an immense effect on student learning.

Internet connectivity: The cost of accessing the internet in Nigeria is still on the high side. Hence, some students find it a challenge to afford. Aduke (2008) suggested that the government should make Internet connectivity a priority for higher education to be able to leverage on the promises and opportunities ICTs present.

Energy related problems: Irregular and frequent interrupted power supply in Nigeria is a perennial problem affecting almost every aspect of the economy, including education. Ajadi, Salawu, andAdeoye (2008) observed that it's been a major setback for technological advancement in the country. Most rural areas in Nigeria are not even connected to the national grid. The consequence of this is that students residing in such areas may find it difficult to use ICT effectively.

Limited expertise: There are few technical staff in most Universities but almost non in

secondary schools to maintain the current system. Lack of, or inadequate trained personnel are a challenge to the use of ICT in higher institutions.

Conclusion

The goal of e-learning is to enhance learning and efficient delivery of knowledge but has not come to substitute the physical classroom learning since face to face contact is necessary for learning or impacting knowledge on students. As a medium of instruction, e-learning is found to be result oriented in the use of concept mapping strategy for effectively teaching and improving students' writing skills. This is because, concept mapping strategy concentrate on main concepts, establishing logical connection among ideas and organizing them based on constructed maps and as such, shows unity and coherence of ideas, development, organization and critical thinking.

Recommendations

Based on the discourse and conclusions drawn, the study recommends that:

- Teachers should incorporate concept mapping strategy in their classes as a brainstorming exercise.
- Prior to any use of concept mapping, teachers should give emphasis to the students' computer ability or else may hinder effective utilization of these maps and e-learning.
- The use of different learning strategies in writing by students should be encouraged through raising their awareness of the importance of such strategies in improving the quality of their writing.

  The government of Nigeria should embark on a massive computer literacy training program nation-wide particularly for teachers and learners at all levels, either through in-service training of teachers, workshops, seminars, and conferences.
- Students' computer education should be a compulsory subject at all levels.
- All classrooms and auditoriums in Nigeria should be connected to the internet in order to enhance web-based instruction.
- Videophone, teleconferencing and multimedia systems e.g. multimedia computers and multimedia projectors should be provided by the government of Nigeria inadequate quantities for effective e-learning in secondary education.
- Teachers in Nigeria should be motivated and encouraged by the government and employers of labour to develop and use multimedia courseware and software relevant to teaching and learning.
- The government of Nigeria should provide digital libraries in every educational institution. The library is the highest reservoir of knowledge and no educational institution can do without it. Ensure that each digital library has a server for storage, retrieval, uploading and downloading of information.
- The government of Nigeria should employ technologists and technicians to take care of internet facilities and equipment and to carry out routine repairs within education facilities.
- The government should set up standby generators and uninterruptable power supplies (UPS devices) to tackle the problem of epileptic or inconsistent power supply in order to support the use of electronic equipment for e-learning.

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