ICT TOOLS FOR PROMOTING SELF-PACED LEARNING AMONG SANDWICH STUDENTS IN A NIGERIAN UNIVERSITY

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ABSTRACT: Sandwich programmes are an innovation in teacher education geared towards the production of high quality manpower. They are organized during school vacations so that teachers working full-time would also have the opportunity to advance academically and improve professionally. However, the intensive nature of the programme jeopardizes the actualization of its objectives. Sandwich students, as adult learners, are self-directed and self-paced learners. Self-paced learning is any kind of instruction that progresses according to the speed of the learner. It is a "teach-yourself" method that does not require on-the-spot feedback from instructors. Sandwich students, therefore, need ICT tools to encourage their self-paced learning. This study involved twenty-seven final year Guidance and Counselling sandwich degree students at Alvan Ikoku Federal College of Education Owerri, who brainstormed in a round table setting and concluded that ICT tools such as audio tapes, smart phones, e-mail, video tape, internet, and other web-based learning should be applied to promote self-paced learning among sandwich students in Nigerian Universities. Based on the findings, recommendations were made and conclusions drawn.

Keywords: Information and Communication Technology (ICT) Tools, Nigeria, self-paced learning, sandwich students

The Nigerian educational system, in its blueprint on educational planning and development, lays emphasis on the pivotal role of teachers in providing quality education. This is expressed in one of the major goals of teacher education in Nigeria which is to provide teachers with intellectual and professional background adequate for their assignments and to make them adaptable to changing situations (Federal Republic of Nigeria, 2013). In other words, teacher education is the bedrock of quality education in both primary and secondary schools. Given the fact that the academic progress of a student is largely dependent on the teacher, it follows that the extent of the teacher's knowledge and competence, to a high degree, influences the academic performance of students. Hence, the Federal Government of Nigeria's (FRN) educational policy requires the Nigerian Certificate in Education (NCE) as a minimum teaching qualification (FRN, 2013). However, a Bachelor's degree in Education (B. Ed.) remains the minimum qualification for teachers in secondary schools. Therefore, it becomes imperative for teachers without these qualifications to update themselves while maintaining their teaching jobs. This then leads to their enrolment in sandwich degree programmes at various universities in the country.

Sandwich programmes are a reform in teacher education. They are geared towards the production of a competent workforce to actualize the goals and objectives of education in Nigeria (Obasi & Nwakaire, 2015). They are part-time programmes meant to increase the quantity and quality of teachers. They accommodate other categories of students who desire to either qualify as teachers or improve their competencies in the teaching profession. Nwagwa cited in (Obasi & Nwakaire, 2015) posited that a sandwich programme is a type of in-service programme enabling working adults to obtain higher certificate diplomas or professional qualifications. Similarly, Borode (1998) opined that

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sandwich education is a formal adult education programme organized during off hours or holidays of the conventional education system, notable for on-the-job training of workers. It is usually organized during school vacation (between July and September) and all the courses in the Faculty of Education are available to students during the contact period. Participants of sandwich degree programmes are holders of NCE certificates or its equivalent. The duration of sandwich degree programmes is four-five years depending on the cumulative grade point average (CGPA)of the candidate unlike a regular programme which is three years (direct entry for NCE holders). This is to enable full-time teachers to actively participate in the programmes without interfering with their time at work. Consequently, evidence has revealed that the programmes have in no small measure enabled teachers, particularly, to continue their education while still retaining their jobs.

Adesina (2001) informs that one reason for establishing sandwich degree programmes in Nigerian Universities was to expose participants of the programmes to modern and contemporary approaches, techniques, knowledge and skills with a view to improving their efficiency and updating their knowledge of essential subjects. This is also in line with the increased demand for highly motivated, conscientious, and efficient teachers in the school system. Borishade (2006) argued that sandwich degree programmes are virtually achieving all their stated objectives which include continuous academic growth of serving teachers as well as improvement of their productivity and competencies. However, the duration of sandwich programmes raises serious concerns as to the actualization of their objective. These programmes are compressed in design and content is covered in half the time as compared to the regular mode of delivery. Hence there are doubts regarding students' ability to master the knowledge in their respective areas of specialization. Obasi and Nwakire (2015) were of the view that the three-month's time frame, stipulated for covering all the topics, may be a factor that gives the impression that the quality of knowledge acquired by sandwich students may not be comparable to that of regular or fulltime students.

Unlike regular undergraduate students, sandwich students are mature individuals and therefore adult learners who, for various reasons, want to obtain a university degree in the teaching profession. Polson (1993) observed that university education, to sandwich students (adult learners), is often a secondary role to that of being a parent, spouse, an employee, and/or a community leader. Adult learners are noted for their unique characteristics which according to Mbara and Anurugwo (2017) include voluntary learners who are autonomous and self-directed, experienced, pragmatic, goal oriented, intrinsically motivated, obstinate, and time conscious. As autonomous and self-directed learners, it is imperative to note that sandwich students (adult learners) are self-paced learners and want to work at their own pace without coercion. However, the rigorous nature of a sandwich programme coupled with its short duration poses great challenges to participants who are mostly adult learners. More often than not, their commitments in their places of work and other social functions hinder assimilation and comprehension of learning experiences during contact periods. Hence, in this era of technological advancement, there is urgent need to improve the self-paced nature of learning in sandwich programmes with information and communication technology (ICT) tools such as (smart phones, audio tapes, video tapes, laptops, etc.). This will, in no small measure,

ensure active participation of sandwich students in the instructional process as well as facilitate learning as they participate in self-regulated and independent learning with the ICT tools at their convenience.

Procedure for the Study

The study adopted a discussion method. It made use of a discussion team (DT) involving twenty-seven final year Guidance and Counselling sandwich degree students in Alvan Ikoku Federal College of Education Owerri. The team had a two-hour interactive session in a round table setting which was moderated by Dr. Appolonia Anurugwo. The DT brainstormed and outcomes of the proceedings were recorded. Information from the discussions were used for the study. There were also picture sessions involving the discussion team (DT).

Self-Paced Learning

Self-paced learning refers to the speed at which an individual learns or goes through content with understanding. People learn at different speeds. While some individuals understand content after going through it once, others need to review it several times in order to learn it effectively. Soyemi, Ogunyinka, and Soyemi (2011) define self-paced learning as learning directed by the individual in order to meet personal learning objectives. In other words, it entails the learner's ability to acquire knowledge or skills of value independently through self-determined processes. It is a student-centered learning approach which provides students with the tools and assets they need in order to learn at their own pace and make choices about the sequence and focus of their learning. Self-paced learning is a teach-yourself method of learning that is initiated and directed by the learner, hence they control the pace of the learning process.

Soyemi et al. (2011) are of the view that, in self-paced learning, the content, learning sequence, pace of learning and possibly the media are determined by the individual. They enumerated examples of self-paced learning to include:

- Reading a book to acquire new information about a topic.
- Reading a book, listening to accompanying audiotapes, and completing exercises in a workbook.
- Reading a reference manual and watching a video.
- Completing a computer-assisted learning (CAL) course that uses interactive computer modules for knowledge transfer and one-on-one work with the clinical trainer for skills transfer, first with models and then with clients.
- Completing a CAL distance learning course on the Internet (knowledge transfer only).
- Participating in a structured on-the-job training (OJT) clinical skills course that involves reading assignments in a reference manual etc.

Self-Paced learning is an ideal choice that requires no physical logistics, like scheduling sessions. It is autonomous and self-regulated. Schunk and Zimmerman (2001) noted that autonomous learning has proven appealing to how students activate, alter, and sustain

their learning processes. Henri Holec, "the father of learner autonomy", describes it as very essential in life-long learning and believes that the autonomous learner takes responsibility for the totality of his learning situation (Alebiosu, 2015). This implies that self-paced learning puts the onus of learning on the learner. The learner assumes ownership of his learning which intrinsically motivates him to better organize his own time. It is imperative to note that University education is geared towards the development of autonomous learning rooted in self-regulated or self-directed learning. This is evidenced in researches conducted by students. According to Anderson (2005), self-paced learning maximizes individual's freedom and correctly puts the learner squarely in control. Hence, the learner makes the decisions about when, where, what, and how quickly to learn.

Researchers (IA seminars, 2016; redesign, 2018; Soyemi et al., 2011), agreed that self-paced learning is associated with the following benefits:

- Learners are able to go at their own pace and even participate in courses when they are on the go (this is done with mobile phones and tablets).
- There is no scheduling involved – Learners only need to know the deadline for completion and the work at their own pace.
- Ideal for permanent content – Key information can be quickly distributed to a large number of people.
- Learners are highly motivated because they are in control of the learning process.
- Participants are active rather than passive because they assume greater responsibility for their own learning.
- It encourages efficient use of training time and resources because most self-paced learning courses allow participants to begin and end a segment of the training course at any time.
- Learning activities can be organized sequentially- each component in a self-paced course has objective that must be met before proceeding to the next component.
- Efficiency – Everybody learns differently and each individual makes the best use of his/her time to meet learning objectives.
- Greater focus – Students tend to concentrate more in self-paced learning unlike classroom environment with chances of distraction from peers and friends.
- Effectiveness – self-pacing can improve memory performance, particularly when the learner allocates more time to the more difficult material.
- Convenience – learners can learn information and skill when they need them for personal and professional reasons. Depending on the design of the training, one can access it anytime anywhere via an internet connection.
- Suited for all types of learning styles/needs. With self-paced learning, learning who wants to finish a course fast don't need to wait for others; whereas learners who need more time to grasp the content can do it at their own pace.

Information and Communication Technology (ICT)

The term ICT has been variously defined by several authorities, with basic similarities among them. Qiang, Clarke and Halewood (2006) define information and communication technology as a set of activities which facilitate, by electronic means, the processing,

transmission, and display of information access and communication, of which one embodiment is the internet. Blurton (1999) asserts that ICT refers to diverse technological tools and resources used to create, disseminate, store, and manage information. TechProject (2016) perceived ICT as a very broad term used to refer to the literally infinite areas of scientific studies and techniques used in the handling of telecommunications, media management and broadcast, intelligent systems, data handling, processing, storage, and transmission, network-based solutions as well as audio visual monitoring processes. From the fore going it is pertinent to note that ICT encompasses technologies that provide access to information through various mediums. These technologies can be used for accessing, processing, gathering, manipulating and presenting or communicating information. According to Tech Target (2017), ICT encompasses the internet-enabled sphere as well as antiquated technologies, such as landline telephones and radio and television broadcasts. The broadness of ICT covers any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form such as personal computers, digital television, email, and robots among others. It is pertinent to note that nowadays, ICT is so ubiquitous in our lives that almost nothing is done without engaging an aspect of ICT. In other words, anyone without basic ICT knowledge becomes a poor fit and can hardly thrive anywhere in the world. For anyone to remain relevant to the dynamism of modern society he/she needs at least basic knowledge of ICT and how to make use of it to be more productive, and hence, the need for digital literacy in today's world.

Dintsis (2014), Pavel, Fruth, and Neacsu, (2015), and Posinasetti (2014) observed that ICT has the following educational advantages:

- enables effective education;
- provides instruction according to student needs;
- provides educational activities in large geographical areas;
- encourages individual study;
- world-wide access to the best teachers, universities, etc.;
- real-time updates of training content;
- fast feedback;
- virtual collaboration;
- enhanced control of teacher's qualification, and training materials;
- sharing experiences;
- increased access;
- flexibility of content and delivery;
- combination of work and education;
- learner-centered approach; and,
- higher-quality of education and new-ways of interaction.

ICT Tools for Promoting Self-Paced Learning Among Sandwich Students

ICT tools are digital technologies such as mobile phones, audio tapes, video cassettes, radio, television, computers, laptops, tablets PCs, desktops, data projector, software programs, printers, scanners, and Interactive teaching box among others. These tools, as observed by Blurton (1999), are used to communicate, create, disseminate, store, and manage information. The potential of each technology varies according to how it is used. Researchers Forcheri and Molfino (2000) have shown that the various categories of educational ICT tools (input, processing and output tools) can lead to improved student learning and better teaching methods. For instance, mobile phones allow communication via photos, videos, as well as text messages (SMS and MMS). Laptops are mobile computers that are operated with a battery away from power sources. Newer versions are now wireless and can connect to the internet in wireless hotspots. Tablet PCs are small screen (12") laptop PCs enabled with touch screens for data entry. Multimedia tools are used for individualized self-learning; web browsing is used to search for materials. Emails can be used for sending and receiving assignments. Videos, television, and multimedia computer software that combine text, sound, and colorful, moving images can be used to provide challenging and authentic content that will engage the student in the learning process. Interactive radio, likewise, makes use of sound effects, songs, dramatizations, comic skits, and other performance conventions to compel students to listen and become involved in the lessons being delivered. Audio tapes and video tapes can be used to record lectures and replayed at the student's convenience. ICTs have also been used to improve access to and the quality of teacher training. This is done through self-directed, self-paced Web-based courses for teachers. Online tutorials can also be offered, with some courses requiring occasional face-to-face meetings. Hence, ICTs can enhance the quality of education by increasing learner motivation and engagement, facilitating the acquisition of basic skills, and by enhancing teacher training (Haddad & Jurich, 2002).

Lim and Tay (2003) classified ICT tools in to the following categories:

- Informative tools - Internet, Network Virtual Drive, Intranet systems, Homepage, etc.
- Resignation devices - CD-ROM, etc.
- Constructive tools - MS Word, PowerPoint, FrontPage, Adobe Photoshop, Lego Mind storm, etc.
- Communicative tools - e-mail, SMS, etc.
- Collaborative tools - discussion boards, forum, etc.

Informative tools are applications that provide large amounts of information in various formats such as text, graphics, sound, or video. Examples include tools and information resources of the existing multimedia encyclopedia of the Internet.

Resignation devices/situating tools are systems that place the students in the environment where it involves a context and the occurrence of a situation. Examples of such systems include simulation, virtual reality, and multi-user domains. Situating software tools such as CD-ROMs offer hypermedia applications which afford better opportunities for

teachers to enhance the learning environment. Hypermedia applications cover more than one of the following media such as text, audio, graphic images (still images), animation, and video clips.

Constructive tools are general purpose tools that can be used to manipulate information, and enable students to convey their knowledge or to help visualize their understanding. Construction tools such as Microsoft Word or PowerPoint have strong impact in the educational environment and are widely used in most organizations in the form of memos, reports, letters, presentations, etc. Microsoft Word helps students create grammatically accurate sentences and text.

Communicative tools are systems that allow easy communication between teachers and students or between students outside the physical bounds of the classroom. They include e-mail, electronic bulletin boards, WhatsApp chat, teleconference and electronic whiteboard. E-mail is the most commonly used communicative tool on the Internet.

Collaboration tools include the Internet which can be used for many collaborative activities such as meetings, discussions, working on a document, information dissemination, and other tasks. Others are interactive electronic whiteboard, e-mail messaging, Wireless Application Protocol (WAP), General Packet Radio Services (GPRS) equipped mobile phones. Mona (cited in Lim & Tay, 2003) observed that these technologies provide impulsive information sharing, constructing knowledge, and stimulate personal growth. Hence, sandwich students will definitely excel in their studies when they utilize these ICT tools judiciously.

Recommendations

Based on the findings of this study, the following suggestions were made for the promotion of self-paced learning among sandwich degree students in Nigerian universities.

- Orientation should be organized for sandwich students on the use of ICT tools.
- Computer assisted learning (CAL) should be introduced in sandwich programmes.
- ICT competence should be part of sandwich degree admission requirement.
- Course outline should be given to students digitally prior to contact period.
- Assignments should be completed and submitted digitally.
- Sandwich students should be encouraged to attend lectures with audio tapes.
- There should be online interaction forums among sandwich students.

Conclusion

Sandwich students are categorized as adult learners who, for various reasons, want to obtain higher degrees in the teaching profession. Among their characteristics are that they are autonomous, self-directed, and self-paced learners with varied social responsibilities. Hence, to cope with the rigorous nature of a sandwich programme, there is urgent need to promote the self-paced nature of learning using information and communication

technology (ICT) tools. This will ensure their active participation in instructional processes as well as facilitate learning. It will also encourage self-regulated and independent learning at their convenience. ICT tools like smart phones, audio tapes, video tapes, email, internet, and other web based learning facilities should be utilized by sandwich students.

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