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Pedagogical and Technical Implication of Conversion from Face-to-Face to Blended Learning

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Abstract
Technology is changing our world. The advancement in science and technology has propelled a drastic change in nature and structure of the modern world. Events that look weird or impossible years back are part of 'normal' things in our contemporary world. Education has had its share of the paradigm shift in the anal of technological revolution. The paper discusses the adoption of open and distance education along the traditional face-to-face mode of educational delivery. The implication of this change in respect to curriculum development models, design and pedagogy and the role of instructors in open and distance education were analysed. The authors propose that blended learning should be viewed from transformational perspective of improving teaching and learning through designing of relevant curriculum and implementation of constructive based pedagogy.

1.0 Introduction

Learning itself is blended – a blended of many theories, activities and method, either in traditional face-to-face institutional or technological driven e-learning. Learning is a product of concerted efforts of the government, curriculum planners, school administrators, teachers and student alikes. The blended learning is not limited to human personnel alone, but also communities based resources, learning objects, school environment are corporately annexed and geared towards effective teaching and learning process, so learning is blended (Dziubas et al. 2004; Carman, 2004).

The earliest form of educational delivery mode is face-to-face traditional mode, hosted in a defined school environment characterized by teacher-students, or instructors-learners physical interaction. The advancement in the realm of technology, increase enrolment of applicants and couple with its attendant challenges of limited educational access, strong emphasis on refresher training to update knowledge by the working class, and the need to keep pace with dynamic occupational challenges, enhanced career prospects, have stimulated a new thinking by the stakeholders in education on new trends on educational delivery process (Blackboard 1997; Olaniyi, 2006; Adu et al. 2013).

It is difficult to assert that the evolution of blended learning takes the path of purposeful, sudden deviation from full e-learning mode, or that a gradual transformation from face-to-face to blended learning is the authentic path. The most plausible argument is the occurrence of the two path ways. In essence the two schools of thoughts are extremely relevant, but the variations may be attributed to divergent intuitional approach, available technical and technological support, the questions of logistics, the national and sub-national overriding policy on education, international best practices among other factors.

In Nigeria, the history of open and distance learning equates the commencement of part-time programme by the first generation universities such as the University of Ibadan, University of Lagos, University of Nigeria, Nsukka, University of Ife (now ObafemiAwolowo University), Ahmadu Bello University, Zaria (Akinpelu 1982; Adu et al. 2013).

2.0 Defining Blended Learning

The amphibious nature of what constitute blended learning makes it a difficult task to adduce a strait-jacket definition. Scholars have divergent views, and rightly so. This has culminated into various forms of definition and conceptualization. Woodcroll (2010) identified four methodologies that sum up an acceptable, overarching explanation of blended learning. These are; mixing of technology based learning; combination of pedagogical approaches such as constructivism, and social learning, combination of various forms of instructional technology such as face-to-face and internet; and integrating instructional technology with actual job activities. Similar to this conceptualization is a varying categorization by many scholars as shown from literature on blended learning. First, blended learning is the combination of face-to-face classroom with online learning. Second, it is the amalgamation of many educational theories and perspectives to promote learning and third, the fusion of technology and pedagogy in the course of teaching and learning (Singh and Reed, 2001; Diaz and Brown, 2010).

These three approaches is rooted in the methods adopted in teaching and learning situation either in form of location (in a physical classroom or the use of internet in any remotest part of the globe), methodology (conventional traditional method and technological driven method), and platform (materials and channel and communication) (Sife et al., 2007).

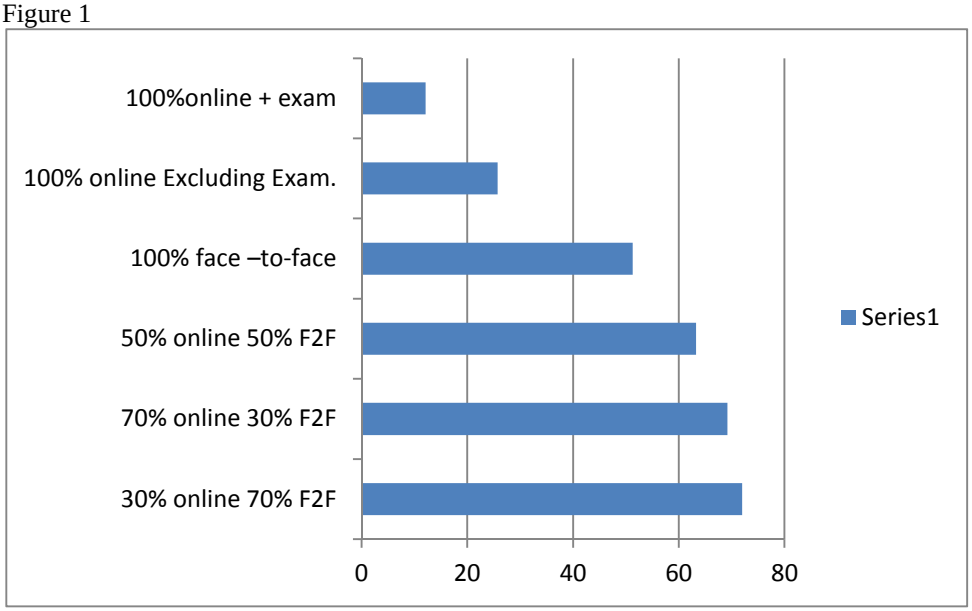
In spite of these complexities about what constitute blended learning, there seems to be a universally accepted, simple and clear explanation which focuses on the integration of technology into traditional system or the

gradual conversion from traditional face-to-face to full e-learning platform. Any point along this transitional continuum is termed blended learning.

3.0 Why Blended Learning?

Operationally, blended learning is an arrangement where a programme is partly run on face-to-face mode, and partly on e-learning mode. The degree of composition differs from institutions to institutions. In a research conducted among Obafemi Awolowo University part-time Education and Nursing students, their response to an acceptable proportion of face-to-face and e-learning significantly differs. Their response is reproduced below.

Figure 1



Going back to the rationale behind the adoption of blended learning, the study carried out among the said students provided some light. Blended learning arrangement seems to provide a balanced, acceptable alternative to challenges of face-to-face mode and challenges of full e-learning mode. The part time programme referred to above adopts face-to-face mode, in which the greatest percentages of learners are adult, working class people, applicants from a long distance away from the school location, or candidates with both peculiarities. The greatest challenges, of these people are not unrelated to time for regular lecture, and propensities to travel a long distance to receive lecture. There are risks associated with this arrangement. Most likely, quality is compromised. Couple with the points stated above is the challenges of educational access and opportunities. The traditional universities faculties are over-stretched. A good number of applicants seeking for university admission could not be admitted (Jegede, 2004; Veeramani, 2010). E-leaning potentially seeks to provide solution to this challenge. In essence, online education has amazingly provides a convergence for our learning-time, playing-time and work-time.

However, e-learning mode has its own challenges. The level of computer literacy in our society is still at infant stage. The electric power supply is perennially erratic (specific reference to Nigeria where the authors domicile), while the availability and affordability of required technology still remain problematic. The argument in support of blended learning is to seek a compromised option that best eliminate extremes of pure e-learning and face-to-face. In other words, blended learning seeks to annex the positive aspects of face-to-face with immense benefits derived from e-learning.

Summarily, the benefits include flexibility in providing personalized, individualized instruction to relatively large number of learners, access to educational materials at the beginning of every academic semester, learning that is devoid of a physical setting and time schedule, enhanced educational assess and opportunities ("if you can't go to school, we send school to you"), learner centred philosophy, tailoring learning experienced for students based on their needs, managing curriculum development, providing students with tools to supplement classroom instruction, opportunities for minimal physical interaction between the learners and instructors to emotional attachment to the school locality, informal interaction between the learners and instructors, learners and learners, learners and the environment; classroom construction that includes online resources with limited face-to-face timeline (Berber et al 1995; Haylay, 1996; Duroghve, 2006).

4:0 Pedagogical, Social and Technological Consideration

There are various components of e-learning as elucidated by various literature in open and distance education, though sufficiently related. Arbaigh (2000) highlighted contextual factors basic to e-learning.

1. Participant perception about ease of use of a website

2. Flexibility of participants being able to work asynchronously
3. The understanding of learner interaction as a form of Pedagogy and
4. The learners' previous experience of internet based courses and engagement in internet based learning.

The fundamental issue is to question whether we should adopt similar model of curriculum we use in the face-to-face for open and distance education even though the curriculum remain the same. It is of interest to explore variant of curriculum design that may well suit e-learning mode. Are the designs compatible? What about the methodologies adopted in teachings? Do teachings require the instructors in the face-to-face and open and distance education to posses similar skills or roles changes in the quality of instructors between the two modes?

Adam (2004) in Wall (2012) proposed three components which are hardware, software and underware. The underware Adam (2004) refers to as "the pedagogy that underpins the e-learning development". Wall (2012) while reviewing the work of Tham and Werner (2005) enumerate three roles or 'hats' online instructor must fulfil as technological, pedagogical and social 'hats'. These three factors should be properly taken into consideration in the process of conversion or transition from face-to-face model to open and distance education.

4:1 Pedagogical Implication

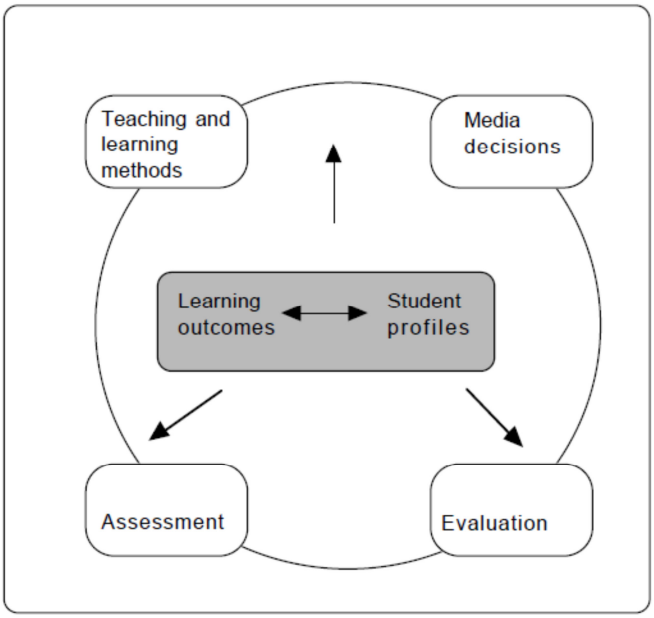
Pedagogical hat focuses on the instructional process or principles. Pedagogical principles are theories that govern the good practice of teaching. The success of e-teaching is not a function of technology alone, Wall (2012) posits that a poor understanding of relevant learning theories, inability to identify learning styles of different learners or poor combinations of instructional design will undoubtedly lead to failure in e-teaching and learning. For e-teaching to be effective, pedagogical principles must be integrated into the Learning Management System (LMS) at the planning stage (Govindasamy, 2002). An effective pedagogy entails proper curriculum planning and design and effective instructional strategies slightly different from the face-to-face mode. Online tutors should bear in mind that e-learning is not solely about technology, but a complete transformation of teaching and learning process with the use of technology and the application of relevant learning theories because of the peculiarity and diversity of online students.

4:1:1 Models of Curriculum Development

Theories of curriculum development take various approaches. Tyler (1949) and Taba (1962) propounded linear or objective model, which has been criticized on the linearity of curriculum elements without substantial consideration for interactivity among the elements of curriculum. Teaching is essentially a process of interaction between the learners and instructors, while learning is the outcome of this interaction. On this premise, many other curriculum development models have been postulated focussing largely on interactive process among constituent elements of the curriculum. These interactive based models are relevant to designing e-learning programme. Typical examples of interactive models are Brady (1995) and Wheeler (1967)

Maureen and Geraldine (1998) developed a Flexible Model of Curriculum development that significantly provides a fundamental basis for e-learning platform. The model puts learners' interest on the pedestal of curriculum element. As the interests of learners are different, the challenge of meeting these divers needs cannot be restricted to a rigid model of curriculum development. The corollary of the model is a corresponding instructional design that can employ asynchronous web-based discussion to give room for 'flexibility of access' by all students.

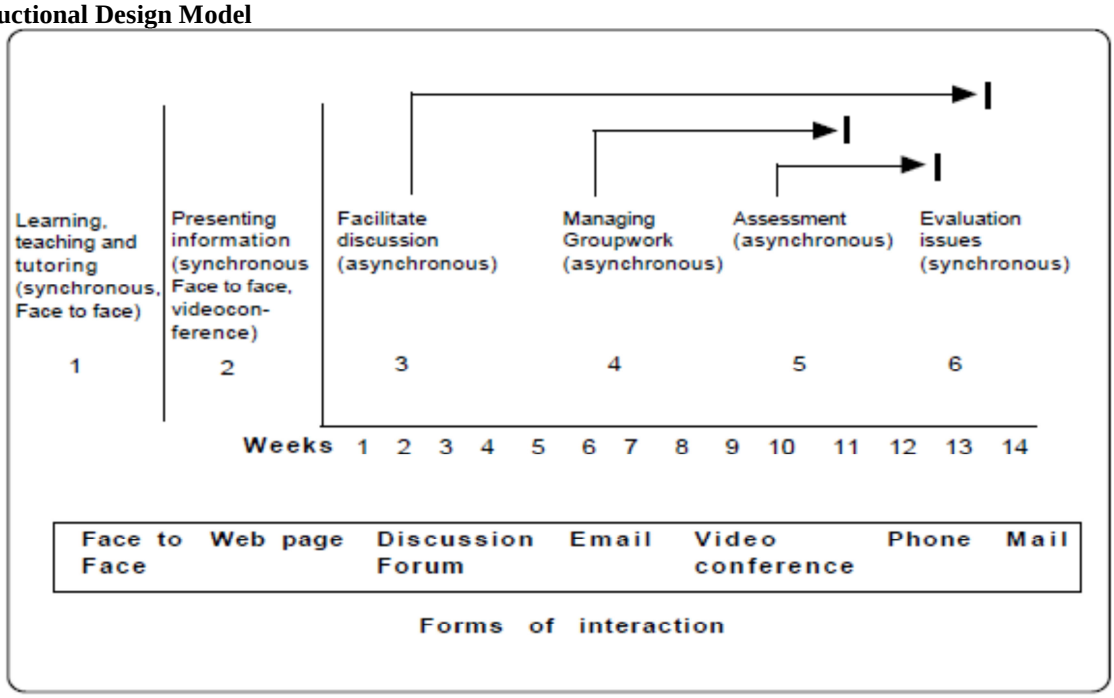
Fig. 1I
Flexible Curriculum Development Model



Bell and Lefoe Flexible Delivery Model, ASCILITE '98 P 71

This model is interactive and flexible. Planning of curriculum can commence on any of the elements of curriculum. Moreover, media decision which is one of the fundamental issues in e-learning is a prominent element in the model.

Fig. III
Instructional Design Model



Bell and Lefoe Flexible Course Design, ASCILITE '98 P 70

The instructional design provides room for presenting information in synchronous face-to-face, online videoconferencing, and also gives room for asynchronous group work, evaluation, teaching and tutoring. This serves as an ideal model for blended learning.

4:1:2 Content Design

The accessibility of all contents by online students at the onset of the programme gives e-learning a striking edge over the face-to-face mode. An online student once testified "the materials on the web allow us to read it at our own speed and ask question through e-mails or ask lecturer directly" (Geohagares Students, 2001).

The nature of the content design is likely to influence the teaching methods to be adopted and vice versa. Lecture method easily associates with teacher centred design, while dramatization is easily used when child centre design is operational. The shift from face-to-face mode of learning necessitates a modified design, slightly different from face-to-face design. It is the opinion of the writer that e-learning content design should primarily be learner-centred. Hence, every effort should be made at the content design stage to accommodate a design focussing on learners. The learning management system (LMS) should be user friendly and the content should be designed in simplified, attractive forms to easy students understanding and comprehension.

To create content, the following factors should be taken into consideration

Planning: Adequate planning is required to conform to international standard. Planning will provide a platform where the basic components of content are highlighted. The ideal rubric could contain general overview of the course, learning objectives, assessment and evaluation, instructional materials, and learner interaction and engagement.

Critical Thinking Skills: The content designing process should embody capacity to inspire critical thinking skills in the learners. Discussion process should be moderated to inspire element of critical thinking. The nature of assessment should focus on higher stage of Bloom level of taxonomy tailor towards stimulating higher thinking order.

Access and Motivation: Content design should be attractive to make learners to be self-motivated. The use of animation, practical or real life experience, possibility of local adaptation of content, provision of relevant links, use of blog and other learning materials should be component of the content design. Content may include any of power points, video and audio materials, pdf and word files or combinations of all of them.

Clark (2002) three principles of online content design is also instructive and highly relevant.

1. **The Multimedia Principle** – The principle postulates the use of graphics with text to aid learning. Like conventional rules guiding the use of teaching aids, the graphics is to 'educate' and not to 'decorate. It involves the use of many media such as graphics, text, audio and video mechanism
2. Second, the C**ontiguity Principle** advocates the placement of text near graphics. A thought initially expressed in text format can take a continuous form with the use of graphics. For example, in teaching the concept of citizenship, the figure below can be part of the content.

every person born in Nigeria before the date of independence, either of whose parents or any of whose grandparents belongs or belonged to a community indigenous to Nigeria

3 The third principle is mode of explaining graphics with audio. This is called **Modality Principles**. The picture below show an instructor in an online environment class. The text is shown in the dialog box below the picture while the instructor is delivering the lecture. The text synchronizes with the instructor audio.

4:1:3 Learning Activities Design

Taking a cue from (Laulard) a learning activities model can be designed as shown below;

Learning Objectives	Learning Activities (Instructors and learners)	Teaching Methods	Technology/ Aids	Media Forms	Evaluation
Topics specific	Attending, apprehending, investigating, explaining, discussion, debating, practising, experimenting, lecturing, seminar articulating, expressing	Discussing, asynchronous, synchronous, mailing using social media, interaction, online conferencing. lecturing, seminar, face-to-face meeting	Video, CD/DVD, TV, notes, text, pdf, power point, CMS, LMS, Web resources, simulation, animation, laboratory, e-library, social network, blog	Narrative, interactive, communicative adaptive, productive	Multiple choice questions (MCQ) quizzes, assignment, project,

4:1:4 Teaching Methods

Teaching in blended learning takes following forms:

1. synchronous instructional method
2. Asynchronous mode
3. Virtual classroom
4. Interactive chat
5. Online materials
6. Face-to-face meetings

In a pure face-to-face mode of learning, combinations of various teaching methods are adopted, mostly teacher-centred. Examples include lecture method, discussion, problem solving, project method and others. These methods can also be employed in open and distances learning mode, but instructors are encouraged to use methods rooted in constructivist learning theories. Teacher is not a sole leader but facilitator of learning. Instructors do not rigidly follow the planned, official curriculum; she creates contents to satisfy the inquisitive mind of his students. Learning neither stifle or averse to new discoveries nor religiously inclines to maintain status-quo. It becomes more adventurous.

4:2 Technological Implications

Technological hat connotes the availability and the competence to use technologies to aid learning in virtual environment. The e-learning is so called because it involves the use of technology as mode of educational delivery. This is the fulcrum of e-learning and the principal factor that distinguish it from traditional face-to-face learning mode. E-learning technologies include electronic communication facilities such as computer, internet, intranet, remote evaluation applications, adaptation facilities (Alina, 2007), Learning Management System (LMS), Course management System (CMS). Technology is not only fundamental to the success of e-learning; technology design possesses inherent potential capacity to stimulate a learner-centred approach capable of

modifying instructors and learners' paradigm. Learners become proactive, capable of construct learning and to a reasonable extent determine their learning outcome (Alina, 2007).

Transition from face-to-face to blended learning necessitates;

1. The training of instructors and students on the creation and the use of e-learning technologies for effective teaching. Learning technologies include internet connectivity, video conferencing facilities, web conferencing, television, radio, electric power supply and or alternative power supply to make up for erratic power supply, computer.
2. Funding in terms of acquisition of the technology, acquisition of technical support staff and training of manpower.
3. Policy statement on the operation of the use of technology in a blended learning approach such as the percentage of the e-learning to face-to-face, and long term sustainability of e-learning

4:2:1 Learning Management System (LMS)

An online instruction has an indispensable requirement of instructor being well grounded in the use of Learning Management System (LMS) and serves as a platform for e-teaching. It is used to create, store, and reuse digital learning contents. LMS is essential for sequentially assembling chunks of instruction into a course (DOWNS, 2002). LMS addresses three groups of users–the administrators, learners and instructors. It is an online school that accommodates registration of courses, accessing of course content, teaching and learning, evaluation, information for the users among other things. LMS provides learning rubric with capacity to store and manage content. Its design and component features have overbearing influence on the quality of the e-learning.

One common example of LMS is Moodle. The philosophy of module is rooted in the social constructivist view of learning as ability of the learners to construct knowledge as they interact with the environment which could be instructors, other learners, curriculum content and learning objects ( ). Module is a software package for e-teaching in the web. It is an acronym of Modular Object-Oriented Dynamic Learning Environment. It exists as open source under the general public licences the license makes it possible for free users essentially to copy, use and modify, under the existing licence arrangement. According to Essi (2008), the following elements could be found on Moodle are;

- Internal mail, discussion and news forum,
- administrative tools
- Chats with or without moderator,
- Basic teaching materials,
- Additional resources such as reading materials, link to outside resources in libraries and the internet,
- Self assessment quizzes which can be stored automatically,
- Formal assessment procedures,
- Differential access rights for instructors and students
- Easy authoring tools for creating the necessary document including the insertion of hyperlinks
- Capable of supporting numerous course.

Other examples of LMS are;

- Automotive learning management system (a-LMS)
- Tutor
- Avata learn station
- Claroline e-learning system
- LRn course management
- Edu zone content management system
- Blackboard

LMS template must be built in such a way to provide easy access for learners to their course materials. This requires that the moderator of such materials should know how to facilitate this and ensure that learner's feel welcome reassured and encourage learning. The design of LMS must be in such that learners are encouraged to socialise as a way of knowing and learning from each other. The learners must be able to interact through various means on the LMS so as to establish their identity and provide a sense of communicating with real students and teachers with real benefit. LMS design should also support time management and collaborative learning among learners.

4:3 Social Implications

E-learning environment is characterized by diversity among the learners in respect to age, location, learning objective, motive for seeking further qualification and the available technologies. This diversity places a demand on the instructors to posses a great sense of perception, good social interaction and communication skills. Engagement and Interactivity are keys to success in e-learning. Traditionally, teaching is interaction among various stakeholders such as teachers, learners, content, regulatory bodies (in a remote sense) to bring about

relatively positive change in learners. To initiate and sustain discussion requires a step ahead of mere face-to-face instructors. Online instructors should undergo a transformation from being a teacher to content developer expert (Govindasamy, 2002).

Discussion is central to e-learning teachings. There are good numbers of instructional software that aids online discussion. A typical example is NetMeeting – a 'real-time communication tools ... that allows individual to communicate in pairs or groups over the internet or intranet using audio, video and file transfer'. The device allows students to see one another while in use (UNN-IIST, 2005 p2). Discussion forum provides a platform where students opportune to learn from one another (Brooke and Oliver, 2003; Doinan, 2008). The concept is rooted in the social contructivist learning approach by Lev Vygotsky (Diermanse, 2001). Interaction can take any of the forms below;

4:3:1 Student/students Interaction: Students are group into various discussion groups. They can also be paired for group assignments. Muirhead (2004) observed the "peer to peer interactivity and learning may involve learners in discourse, assessment, critique and valve judgements.

4:3:2 Student/Teacher Interaction: Actual teaching takes place when instructors and students interact. The interaction could be synchronously or asynchronously through long message boards. Other technologies such as the facebook, e-mail or blog can be employed during interactive process. For discussion to be effective, the choice of communication tool should be appropriate to the learning activities under consideration. A real-time discussion may be appropriate in a tutorial class, but may be inappropriate for learners studying at different times in asynchronous mode. Second, tutor should occasionally intervene in the discussion by asking questions, post comments, seek clarifications to provide directions and sustain the discussion. Lastly, there should be clear cut rules or principles guiding he discussion procedure (JISC, 2004).

4:3:3 Student/Content Interaction: Aside the instructors digital content input in the school portal, there are a lot of free materials under open source in the internet. Example include Open courseware developed by Michigan State University (MT) Curriki (next generation wiki), connexions, Bloomsbury, Academic, Flatworld knowledge, Khan Academy Ck-12 Foundation, OER Africa. Most of these learning objects are copywrited under the creative commons licences which allows free use, adaptation, re-use and modifying. OER policy has broken the constraints of gatekeepers such as licence, copy write restriction and other traditional publishers.

4:3:4 Roles of Instructors

There is no rigid distinction between instructors in the face-to-face learning mode and those engage in the e-learning mode. There are commonalities between the two in terms of acquired knowledge in the subject matter being taught, required certification, and professional training. However, there are bound to be some fundamental differences emanated from differing learning environment and platform. This requires that online tutors possess some sort of additional skills in terms of technological usage, and deeper commitment. E moderator should provide online guidance and direction for learners on the effective and appropriate use of online communication spaces such as netiquette

Tella et al. (2001) in Essi (2008) identified five important roles of online instructors.

1. Teacher as a motivator by providing enough challenging tasks, current and quality learning materials, versatile interaction and social networks;
2. Teacher as a networker who creates communication and expert networks require in learning processes;
3. Teacher as organizers who organizes didactic challenges such as tools and applications;
4. A communicator who communicates to learners through e-mails, chats groups forum and the internet page; and lastly
5. A tutor who actively guides and follow the students.

In the face-to-face environment, students and instructors have physical contact. This somehow makes communication and teaching easier. Instructors can employ both verbal and non-verbal mode of communication during instructional process. Gestures, body movement can be used to complement verbal instruction by appealing to others senses.

In e-teaching, the possibility of using verbal communication is limited. It occurs in cases where there are recorded teachings or videoconferencing and such forms of communication may not be real. The video and pre-recorded teachings are with imaginary students. The gestures are subject to ingenuity of the lectures. It is not out of reaction from students' responses.

Online instructors must make up for this shortcoming through effective communication skills for effective teachings. Information should be communicated in such a way that noise factors and all forms of incidents that can cause misinterpretation of information be substantially minimized. Hence, information should be clear and straight forward; the channel used should be one that learners are conversant with.

In addition, consistency and regularity of online instructors is highly essential. Commitment is landmark of success in e-learning. Online instructors must strictly adhere to the teaching rubric and planning on the learning management system (LMS). Appointment during synchronous teaching, video conferencing discussion forum should be religiously kept, taking into consideration the nature of the learners. Instructors should avoid the

propensity of sending wrong signals that may breed discouragement and inconsistency to the learners. Otherwise, high attrition rate will become a usual phenomenon. High drop-out rates is a relatively common incident in e-learning compare to face-to-face and blended mode (B).

Packham (2004) identified some key characters of e-learning instructors. They border on motivation, personality, communication skills, time management skill, feedback, organisational skills, knowledge of the subject matters, and technological expertise.

E-moderators should be able to motivate learners to achieve their educational dreams. Motivation will reduce incidence of drop-outs, hence their personality should blend, friendliness, openness and honesty. Instructors should manage his/her time properly, and respond to correspondence timely. Online community requires prompt response to message and given feedback, knowledge of the subject matter must be in-depth.

E-instructors should be well versed and should be able to initiate general discussion forums that capture the epicentre or nucleus of the course under consideration. The organisation capacity of the e-tutors will ensure that they maximally use their time among competing tasks such as discussion, online conferencing "managing" face-to-face meetings in blended e-learning, using ICT tools and "comprehensive feedback".

Pelz (2004) highlighted three fundamental "Principle of Effective Online Pedagogy" to guide e-tutors for effective teaching.

1. Let the student do (most of) the work – the more the learners engage in the content, the more they learn. According to him engagement could be that students lead the discussion, find and discuss web resources, engage in peer assistance, grade their own homework and engage in case study analysis.
2. Interactivity is the heart and soul of effective asynchronous learning. Student can interact with the instructors, with fellow students, with the content, and with other learning objects.
3. Strive for presence- The presence could be social in which instructors present a real personality expressing common understanding, belongingness and commitment. The presence could also be cognitive by introducing theoretical knowledge conceptual thinking, inquiring skill with every sense of "clarity, accuracy and comprehensiveness of the knowledge and finally, teaching presence, where instructors are able to demonstrate high sense of direction and impartation of knowledge.

In addition Pelz adduced some recommendations for effective online teaching such as

1. Visibilities of the instructors through adequate teachings, timely return of assignments and feedback, website updates and postings message and personal emails to the learners.
2. Compassionate- create intimate relationship with the learners.
3. Analytical – in handling teachings and procedure for grading in logical and lasting manner.
4. Leadership by example. If instructors consistently failed to honour classroom engagement, he/she is sending wrong signals to the learners. As soon as an instructor is negatively labelled, he has lost integrity and become ineffective

5:0 Conclusions

Electronic motivated open and distance education is not solely a function of technology, it is a complete transformation of educational process. This transformation could be possible if relevant components such as technological availability and usability, pedagogical process, right personality of the instructors are properly annexed. The long term sustainability of e-learning hinges on technological usage/skills, pedagogical skills and commitment by online tutors.

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